

## **15.0 KEY MANAGEMENT ACTIONS AND PROPOSED ENVIRONMENTAL CONDITIONS**

This PER and associated appendices make reference to both the Approved Gorgon Gas Development and the Revised Gorgon Gas Development, which is the subject of this PER. For clarification purposes, the following definitions are provided:

- ◆ “the Approved Gorgon Gas Development” or “the Approved Development” refers to the development proposed in the EIS/ERMP (Chevron Australia 2005a) and subsequently approved under Statement No. 748 and EPBC Reference: 2003/1294
- ◆ “the Gorgon Gas Development Revised and Expanded Proposal” or “the Revised Gorgon Gas Development” or “the Revised Proposal” refers to the development proposed in this PER, which is yet to gain approval
- ◆ “the Gorgon Gas Development” refers to the entire proposal. This descriptor may be used when the reference is being made to elements of “the Revised Proposal” described in the PER when they replace the elements of “the Approved Development” which have changed to create the final product as proposed in this PER.

### **15.1 Overview**

Numerous environmental conditions were set by the Western Australian and Commonwealth Ministers (Statement No. 748 and EPBC Reference: 2003/1294 respectively) in relation to the Approved Development in late 2007. The conditions set out the level of management required for the key environmental factors and the outcomes being sought. Decisions on the design and placement of infrastructure and operational standards are made to reduce impacts to as low as reasonably practicable (ALARP) and to meet prescribed standards or outcomes. The GJVs believe that conditions equivalent to or consistent with the existing conditions, when applied in conjunction with current regulations, will effectively manage the environmental aspects of the Revised Proposal as was the case for the Approved Development. The management actions and mitigation strategies identified and developed for the Approved Development are capable of applying equally to this Revised Proposal to manage environmental impacts.

In addition to approval under the Commonwealth EPBC Act and Western Australian EP Act, other approvals are and will be required for the construction and operation of the Approved Development and the Revised Proposal, including works approval and licensing requirements under Part V of the EP Act. A summary of these control instruments is contained in Section 15.2.

As part of the Approved Development, the GJVs have also agreed to a suite of additional environmental undertakings; a summary of these undertakings (which are also applicable to the Revised Proposal) is contained in Section 15.3.

### **15.2 Summary of Likely Environmental Control Instruments**

Table 15.1 outlines the controls that already apply to the Approved Development and could equally be put in place to control the environmental compliance and appropriate environmental management of the Revised Proposal. Key environmental requirements or controls are drawn from the following:

- ◆ Environmental Conditions (as for the Approved Development; contained in Statement No. 748 and EPBC Reference: 2003/1294)

- ◆ environmental management matters covered by the *Barrow Island Act 2003* (WA)
- ◆ anticipated conditions of DEC Works Approval and Environmental Licence (to be applied for under Part V of the EP Act) for prescribed premises (see Section 1.8.3 for more discussion relating to EP Act Part V requirements).

With reference to the *Barrow Island Act 2003* (WA), there are several provisions of Schedule 1 (*Gorgon Gas Processing and Infrastructure Agreement*) that cover key environmental matters. These include a requirement to pay \$40 million (indexed), into a CALM Trust Fund, to fund Net Conservation Benefits (NCBs). NCBs are defined as demonstrable and sustainable additions to, or improvement in, biodiversity conservation values of Western Australia targeting, where possible, the biodiversity conservation values affected or occurring in similar bio-regions to Barrow Island. The NCB funding requirement (prescribed in Clause 11 of Schedule 1) also states that proportionate additional funding of the NCBs payment shall be made by the GJVs if the project is expanded beyond a capacity of 10 MTPA. The Revised Proposal, if approved, will activate this additional funding requirement.

The GJVs are also required to comply with relevant legislation and regulations as indicated in the relevant sections of this PER document (and specifically in Table 1.1). Key legislation (and regulations) that apply to the environmental management of the Revised Proposal (in addition to the Commonwealth EPBC Act and the Western Australian EP Act and *Barrow Island Act*), include:

- ◆ *Conservation and Land Management Act 1984* (WA): conservation of reserves and protection of flora and fauna
- ◆ *Wildlife Conservation Act 1950* (WA): protection of flora and fauna (in particular rare or endangered species)
- ◆ *Aboriginal Heritage Act 1972* (WA): protection of Aboriginal heritage sites
- ◆ *Dangerous Goods and Safety Act 2004* (WA) (and associated regulations): specifies requirements for storage and handling of dangerous goods
- ◆ *National Greenhouse and Energy Reporting Act 2007* (Cth): reporting greenhouse gas emissions, energy consumption and production
- ◆ *Pollution of Waters by Oils and Noxious Substances Act 1987* (WA) and *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth): protection of the sea from discharges/dumping, oil and other noxious substances.
- ◆ Environmental Protection (Noise) Regulations 1997 (WA)

**Table 15.1: Existing Statutory and Environmental Management Controls that may be Relevant to the Revised Proposal**

Key Environmental Factors	Key Environmental Aspect	State (WA) Environmental Conditions <sup>1</sup>	Commonwealth Environmental Conditions <sup>2</sup>	Barrow Island Act 2003	DEC Works Approval and Licence <sup>3</sup>	Other Relevant Legislation and Regulations <sup>4</sup>
Terrestrial fauna (including matters of NES)	Vegetation clearing	✓	✓	✓		
	Site disturbance/excavation	✓	✓			
	Fire	✓				
	Physical interaction	✓				
	Air Emissions	✓			✓	
	Unplanned CO <sub>2</sub> migration or release to the surface or near surface environment	✓	✓			
	Vegetation clearing	✓	✓	✓		
Subterranean fauna (including matters of NES)	Vegetation clearing	✓	✓	✓		
	Site disturbance/excavation	✓	✓			
	Liquid and solid waste disposal	✓			✓	
	Spills and leaks	✓			✓	✓
	Physical presence of infrastructure	✓				
	Unplanned CO <sub>2</sub> migration or release to the surface or near surface environment		✓			
	Noise and vibration emissions		✓		✓	✓
	Vegetation clearing	✓	✓	✓		
	Fire	✓				
	Dust emissions	✓			✓	
Vegetation and flora	Unplanned CO <sub>2</sub> migration or release to the surface or near surface environment	✓	✓			
	Physical disturbance of the seabed	✓	✓			
Marine fauna	Physical disturbance of the seabed	✓	✓			

Key Environmental Factors	Key Environmental Aspect	State (WA) Environmental Conditions <sup>1</sup>	Commonwealth Environmental Conditions <sup>2</sup>	Barrow Island Act 2003	DEC Works Approval and Licence <sup>3</sup>	Other Relevant Legislation and Regulations <sup>4</sup>
(including matters of NES)	Light spill		✓			
	Leaks and spills	✓			✓	✓
	Physical presence of marine infrastructure	✓	✓			
	Wastewater discharges	✓			✓	
	Physical interaction	✓	✓			
	Noise and vibration emissions		✓		✓	✓
	Physical disturbance of the seabed	✓	✓			
Marine physical environment and coastal processes	Physical presence of marine infrastructure	✓				
	Physical disturbance of the seabed	✓	✓			
	Leaks and spills	✓			✓	✓
Marine water and sediment quality	Wastewater discharge	✓			✓	
	Unplanned CO <sub>2</sub> migration or release to the surface or near surface environment		✓			
	Physical disturbance of the seabed	✓	✓			
Marine Primary Producers	Leaks and spills	✓			✓	✓
	Introduction and/or spread of non-indigenous species	✓	✓	✓		
Quarantine						

Key Environmental Factors	Key Environmental Aspect	State (WA) Environmental Conditions <sup>1</sup>	Commonwealth Environmental Conditions <sup>2</sup>	Barrow Island Act 2003	DEC Works Approval and Licence <sup>3</sup>	Other Relevant Legislation and Regulations <sup>4</sup>
Air quality	Air emissions	✓			✓	
	Greenhouse gas emissions	✓				
	Greenhouse gas reinjection	✓	✓	✓		

**NOTES:**

<sup>1</sup> As prescribed in Statement No. 748 and including those management plans described in Table 15.2.

<sup>2</sup> As prescribed in EPBC Reference: 2003/1294 and Sea Dumping Permit No. SD2004/0030 (as applicable) and including those management plans described in Table 15.2.

<sup>3</sup> Anticipated conditions that may be prescribed for the Works Approval and Environmental Licences required under Part V of the EP Act.

<sup>4</sup> Other relevant legislation and regulations are detailed in Section 15.2.

### **15.3 Additional Environmental Undertakings**

In addition to the environmental conditions prescribed in Statement No. 748 and EPBC Reference: 2003/1294, and the provisions of the *Barrow Island Act* Schedule 1 (*Gorgon Gas Processing and Infrastructure Project Agreement*), the GJVs agreed to implement a suite of environmental undertakings to address residual environmental risks associated with the Approved Development. These undertakings were sought from the GJVs by the Premier of Western Australia “having regard to the need to minimise environmental disturbance on Barrow Island (a Class A nature reserve) and providing for the support of conservation programs relating to Barrow Island and other parts of the State”. These undertakings are described in the preamble to Statement No. 748, Appendix B of this PER, and are summarised below.

#### ***North West Shelf Flatback Turtle Conservation Program***

A 30-year North West Shelf Flatback Turtle Conservation Program will be undertaken to increase the protection of the population in areas away from Barrow Island. The program will include activities including:

- ◆ survey, monitor and research turtle populations
- ◆ mitigate loss by reducing interference to key feeding and breeding locations
- ◆ establish information programs to support protection.

#### ***North West Shelf Flatback Turtle Intervention Program***

If the monitoring undertaken as part of the above mentioned program clearly demonstrates that the Gorgon Gas Development is having a significant adverse impact on the flatback turtle population, the GJVs will take or fund further actions to improve recruitment to the turtle population, potentially including the establishment of hatcheries.

#### ***Threatened Species Translocation and Reintroduction Program***

A Threatened Species Translocation and Reintroduction Program for selected species from Barrow Island to other Pilbara islands will be undertaken. The program will include initial translocation actions, plus ongoing island management.

#### ***Eradication of Non-indigenous Species***

In addition to the quarantine management conditions detailed in Statement No. 748, the GJVs will provide a financial guarantee to cover Western Australian State Government costs for eradication of non-indigenous species established on Barrow Island, other than through natural causes, and following commencement of the Gorgon Project.

#### ***Dredging***

The GJVs will fund Western Australian State Government agency costs associated with surveillance of marine activities during dredging and marine construction, and ongoing evaluation of the marine environment response and recovery.

The GJVs consider that the environmental undertakings described above, and the indexed Net Conservation Benefits described in Section 15.2, are applicable and relevant to the Revised Proposal, and address the residual environmental risks of the Revised Proposal.

### **15.4 Key Management Actions**

As previously stated, a number of environmental management plans, programs and systems are being prepared to comply with the Environmental Conditions prescribed in Statement No. 748 and EPBC Reference: 2003/1294 for the Approved Development. It is proposed that the relevant management plans, programs and systems be

amended/updated, as necessary, to incorporate the aspects of the Revised Proposal that are different from those associated with the Approved Development, and address the anticipated requirements of the State and Commonwealth environmental approval conditions for the Revised Proposal. The GJVs consider that the existing management plans, programs and systems prescribed for the Approved Development are capable of equally applying to, and being adequate to cover, the new and/or additional environmental impacts associated with the Revised Proposal. These plans, programs and systems are currently in preparation and will detail the key management actions proposed to be used to manage activities to achieve the stated objectives. The plans, programs and systems will require approval by the relevant regulators before the Gorgon Gas Development can proceed.

The objectives (as taken from Statement No. 748), and preliminary key management actions and performance criteria from the management plans, programs and systems relevant to the Revised Proposal, are outlined in Table 15.2. Since the environmental management plans, programs and systems are currently in preparation, the key management actions and performance criteria presented in Table 15.2 are preliminary only; they are subject to amendment/revision as the plans are further developed and more specific details become available.

**Table 15.2: Objectives and Preliminary Key Management Actions and Performance Criteria of the Gorgon Gas Development's Environmental Management Plans, Programs and Systems**

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Terrestrial and Subterranean Environment Protection Plan	<p>The objectives of the Plan (as outlined in Statement No. 748) are:</p> <ul style="list-style-type: none"> <li>◆ to reduce the adverse impacts from the construction and operation of the Terrestrial Disturbance Footprint as far as practicable</li> <li>◆ to ensure that construction and operation of the terrestrial facilities does not cause Material or Serious Environmental Harm outside and below the Terrestrial Disturbance Footprint.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Reporting procedures.</li> <li>◆ Developing triggers for investigation or management action prior to causing Material or Serious Environmental Harm.</li> <li>◆ Vegetation Clearing Assessment procedures.</li> <li>◆ Fauna Handling and Management procedures.</li> <li>◆ Traffic Management procedures which will include measures for identifying designated roads and vehicle speed restrictions.</li> <li>◆ Surface Water Management procedures.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Compliance with the documents listed in the Key Management Actions column.</li> </ul>
Terrestrial and Subterranean Environmental Monitoring Program <sup>1</sup>	<p>The objective of this Program (as outlined in Statement No. 748) is to establish a statistically valid ecological monitoring program to detect any Material or Serious Environmental Harm to the ecological elements outside the Terrestrial Disturbance Footprint.</p>	<ul style="list-style-type: none"> <li>◆ Measure changes on significant ecological elements that are at risk of Material or Serious Environmental Harm using appropriate indicators, parameters and/or criteria.</li> <li>◆ Report adverse changes to significant ecological elements.</li> <li>◆ Develop protocols for identifying additional areas not originally identified that are at risk of sustaining Material or Serious Environmental Harm from the proposal.</li> <li>◆ Establish a monitoring program with the ability to detect at a statistical power of 0.8 or greater, or an alternative statistical power as determined by the Minister, environmental harm to significant ecological elements.</li> <li>◆ Locate monitoring sites in areas that are at risk of Material or Serious Environmental Harm due to the construction and operation of terrestrial facilities.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Identification of 'at risk' areas.</li> <li>◆ Identification of 'at risk' ecological elements.</li> <li>◆ Identification of indices for measuring changes in ecological elements.</li> <li>◆ Identification of detection thresholds for rates of change in ecological elements targeted for monitoring.</li> <li>◆ Establishment of monitoring sites and reference sites.</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Terrestrial and Marine Quarantine Management System <sup>1</sup>	<p>The overall aim of the QMS (as outlined in Statement No. 748) is that the Proponent shall not introduce or proliferate Non-indigenous Terrestrial Species and Marine Pests to or within Barrow Island or the water surrounding Barrow Island, as a consequence of the Proposal. The specific objectives of the QMS are (as outlined in Statement No. 748):</p> <ul style="list-style-type: none"> <li>◆ to prevent the introduction of Non-indigenous Terrestrial Species and Marine Pests</li> <li>◆ to detect Non-indigenous Terrestrial Species (including weed introduction and/or proliferation) and Marine Pests</li> <li>◆ to control and, unless otherwise determined by the Minister, eradicate detected Non-indigenous Terrestrial Species (including weeds) and Marine Pests</li> <li>◆ mitigate adverse impacts of any control and eradication actions taken against detected Non-indigenous Terrestrial Species (including weeds) and Marine Pests.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Establish appropriate reference sites.</li> <li>◆ Undertake risk assessments, supply chain management, vessel management and inspection.</li> <li>◆ Develop non-indigenous species detection, control and eradication programs.</li> <li>◆ Implement non-indigenous species eradication programs when needed.</li> <li>◆ Reporting and recording of incidents.</li> <li>◆ Implement an integrated whole of Island quarantine management approach.</li> <li>◆ Review acquired data.</li> <li>◆ Undertake further studies as needed.</li> <li>◆ Establish measurable limits that specify the performance standards to be achieved by the QMS within the Terrestrial and Marine Quarantine Controlled Access Zones and Terrestrial and Marine Quarantine Limited Access Management Zones.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Quarantine specifications implemented and audited within 12 months of commencement of construction of the terrestrial facilities listed in Condition 6.3.</li> <li>◆ Quarantine procedures implemented and audited within 12 months of commencement of construction of the terrestrial facilities listed in Condition 6.3.</li> <li>◆ Surveillance protocols implemented and meeting the statistical power of 0.8 or an alternative agreed upon level of confidence 12 months after the commencement of construction of the terrestrial facilities listed in Condition 6.3.</li> <li>◆ Eradication protocols developed and tested prior to the commencement of construction of the terrestrial facilities listed in Condition 6.3.</li> </ul>
Short Range Endemics and Subterranean Fauna Monitoring Plan	<p>The specific objectives of the Plan (as outlined in Statement No. 748) are to: determine the occurrence of short range endemics and subterranean</p>	<ul style="list-style-type: none"> <li>◆ Survey reference areas to verify that the range for identified SREs extends beyond the Gas Treatment Plant footprint.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Evidence or strong justification of whether identified SRE species exist outside the Gorgon Gas Development footprint.</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Fire Management Plan	<p>The specific objectives of the Plan (as outlined in Statement No. 748) are to ensure that:</p> <ul style="list-style-type: none"> <li>◆ the Proposal does not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint due to fire</li> <li>◆ fire risk reduction measures are built into the design of the facilities to protect the Proponent's assets from the impact from fire on Barrow Island.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Perform a fire risk assessment of all project infrastructure and develop measures to protect Barrow Island.</li> <li>◆ On-going management of infrastructure for fire prevention, suppression and management including incident control systems to manage fire within the Terrestrial Disturbance Footprint.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Personnel working on the Gorgon Gas Development to be provided with induction training explaining the need to protect the natural environment from fire.</li> <li>◆ Selected site personnel trained and equipment provided to manage and control fires.</li> <li>◆ Systems are in place to manage potential high fire risk activities and reduce the risk.</li> <li>◆ Incident management and reporting system in place to ensure timely response to fires.</li> <li>◆ Facilities designed to reduce the risk of fire and outbreaks contained within the Terrestrial Disturbance Footprint.</li> </ul>
Long-term Marine Turtle Management Plan <sup>1</sup>	<p>The specific objectives of the Plan (as outlined in Statement No. 748) are to:</p> <ul style="list-style-type: none"> <li>◆ address the long-term management of the marine turtle species that utilise the beaches on the east coast of Barrow Island adjacent to the east coast facilities identified in Conditions 6.3, and surrounding waters on the east coast of Barrow Island adjacent to the east coast facilities</li> <li>◆ establish baseline information on the population of turtles that utilise the beaches on the east coast of Barrow Island adjacent to the east</li> </ul>	<ul style="list-style-type: none"> <li>◆ Conduct employee induction, awareness and other training aimed at building a culture of environmental awareness and an understanding of the conservation values of Barrow Island and the surrounding waters.</li> <li>◆ Specify relevant project approval commitments in tenders and contracts specific to marine turtle protection.</li> <li>◆ Avoid impacts to the extent reasonably practicable in areas of particular marine turtle habitat value (seabed or nesting beach disturbance).</li> <li>◆ Prohibit non-essential lighting (minimum requirement to meet health and safety standards) during turtle nesting and hatching emergence</li> </ul>	<ul style="list-style-type: none"> <li>◆ Personnel working on the Gorgon Gas Development to complete induction/training aimed at building a culture of environmental awareness and an understanding of the conservation values of Barrow Island and its surrounding waters (including marine turtles).</li> <li>◆ Gorgon Gas Development tenders and contracts to specify relevant project environmental management commitments, including those specific to marine turtle protection.</li> <li>◆ Impacts to areas of particular marine turtle habitat value to be avoided to the extent</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
<p>Marine Facilities Construction Environmental Management Plan<sup>1</sup></p>	<p>coast facilities</p> <ul style="list-style-type: none"> <li>◆ establish a monitoring program to measure and detect changes to the flatback turtle population</li> <li>◆ specify design features, management measures and operating controls to avoid adverse impacts to the marine turtle population.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Use reduced spectrum (i.e. long wavelength yellow/orange) lighting with lights shielded, mounted as low as practical and directed away from the coastline (light spill).</li> <li>◆ Design the causeway to reduce wave refraction (physical presence of infrastructure).</li> <li>◆ Restrict vessel speed and access (physical interaction).</li> <li>◆ Comply with the Chevron Australia Oil Spill Contingency Plan (leaks and spills).</li> </ul>	<p>reasonably practicable.</p> <ul style="list-style-type: none"> <li>◆ Non-essential lighting (minimum requirement to meet health and safety standards) prohibited during turtle nesting and hatching emergence periods (light spill).</li> <li>◆ Environmental Basis of Design to specify the use of reduced spectrum (i.e. long wavelength yellow/orange) lighting with lights shielded, mounted as low as practical and directed away from the coastline (light spill).</li> <li>◆ Procedures in place to restrict vessel speed and access inside Port limits where reasonably practicable (physical interaction).</li> <li>◆ Compliance with Chevron Australia Oil Spill Contingency Plan (leaks and spills).</li> </ul>
<p>Marine Facilities Construction Environmental Management Plan<sup>1</sup></p>	<p>The objectives of the Plan (as outlined in Statement No. 748) are:</p> <ul style="list-style-type: none"> <li>◆ to reduce the impacts from the construction of the marine facilities (excepting from the generation of turbidity and sedimentation from dredging) as far as practicable</li> <li>◆ to ensure that construction of the marine facilities does not cause Material or Serious Environmental Harm outside the Marine Disturbance Footprint (excepting from the generation of turbidity and sedimentation from dredging).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Limit areas of seabed disturbance by constructing an open pile jetty, appropriately designing the causeway, and selecting a channel location and limiting the area and volume of dredging.</li> <li>◆ Have a designated marine monitor on site during relevant marine construction activities.</li> <li>◆ Conduct pre-construction planning to reduce the requirement for anchor sets in near shore areas.</li> <li>◆ Examine the feasibility and effectiveness of using dynamically positioned vessels to reduce potential anchoring impacts.</li> <li>◆ Reduce maintenance dredging through the appropriate design of channels.</li> <li>◆ Reduce impacts associated with the construction of</li> </ul>	<ul style="list-style-type: none"> <li>◆ Permanent coral loss within the Zones of High and Moderate Impact will not exceed 22 ha.</li> <li>◆ Limits of Acceptable Change to Corals defined in Statement No. 748 are not exceeded.</li> <li>◆ Risk of impacts to sea turtles as a result of construction activities reduced to ALARP.</li> <li>◆ Strategies developed and implemented to reduce impacts associated with vessel anchoring.</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Dredge and Spoil Disposal Management and Monitoring Plan	The aim of the Plan (as outlined in Statement No. 748) is to ensure that the Limits of Environmental Impacts (specified in Condition 18.2 Table 1 or Statement No. 748) are not exceeded due to the impacts of the dredging or spoil disposal activities associated with the facilities.	<p>marine facilities to the extent practicable:</p> <ul style="list-style-type: none"> <li>◆ Designate areas for the mooring of vessels adjacent to the construction area and control vessel operating locations to reduce disturbances and encroachment on significant benthic substrates and communities.</li> <li>◆ Conduct BPPH assessments prior to commencing offshore construction in accordance with EPA Guidance Statement 29 (EPA 2004a).</li> <li>◆ Remodel and monitor turbidity plume dispersion.</li> <li>◆ Design the LNG load-out facility for safe operation within defined weather conditions.</li> <li>◆ Locate the LNG load-out facility away from sensitive areas of benthic habitat (e.g. intertidal areas) to the extent practicable.</li> <li>◆ Select dredge spoil grounds to avoid areas that support well developed epifaunal assemblages.</li> <li>◆ Avoid impacts to areas of particular habitat value to the extent reasonably practicable.</li> <li>◆ Ensure that the Limits of Environmental Impacts are not exceeded due to the impacts of dredging or spoil disposal activities.</li> <li>◆ Remove unconsolidated material in the construction area.</li> <li>◆ Ensure that the quantity of dredge spoil from the Revised Proposal will not exceed that of the Approved Development.</li> <li>◆ Ensure that there will be no increase in the size of the dredge spoil ground under the Revised Proposal.</li> <li>◆ Monitor coral and mangrove health prior to, during and following the completion of dredging.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Permanent coral loss within the Zones of High and Moderate Impact will not exceed 22 ha.</li> <li>◆ Limits of Acceptable Change to Corals (defined in Statement No. 748) are not exceeded.</li> <li>◆ Tiered Management Framework developed, including Impact Management Plans that specify the measures to be implemented in the event that the Management Trigger Criterion is exceeded.</li> <li>◆ Ecological Monitoring Programme developed and implemented.</li> <li>◆ Water quality criteria representing the link between water quality and coral health established.</li> <li>◆ Reporting requirements satisfied.</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Coastal Stability Management and Monitoring Plan	<p>The objectives of the Plan (as outlined in Statement No. 748) are to:</p> <ul style="list-style-type: none"> <li>◆ ensure that the facilities do not cause significant adverse impacts to the beaches adjacent to those facilities</li> <li>◆ establish a monitoring programme to detect adverse changes to the beach structure and beach sediments that have implications for marine turtles nesting on those beaches.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Monitor water quality and sedimentation rates prior to, during and following the completion of dredging.</li> <li>◆ Avoid dredging during coral spawning periods.</li> <li>◆ Implement adaptive management planning to ensure water quality stays within pre-determined acceptable limits.</li> <li>◆ Capture 12 months of baseline data that include the effects of seasonal changes on beaches adjacent to Town Point.</li> <li>◆ Establish a monitoring program to detect adverse project-attributable changes to the beach structure and beach sediments that have implications for marine turtles nesting on those beaches.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete baseline data acquisition program prior to the commencement of construction to identify normal seasonal changes/variations in beach conditions.</li> <li>◆ Continue monitoring during and after construction to detect changes beyond normal seasonal variations.</li> </ul>
Greenhouse Gas Abatement Program	<p>The objectives of the Program (as outlined in Statement No. 748) are to:</p> <ul style="list-style-type: none"> <li>◆ ensure that the Gas Treatment Plant is designed and operated in a manner which achieves reductions in "greenhouse gas" emissions as far as practicable</li> <li>◆ provide for ongoing "greenhouse gas" emissions reductions over time</li> <li>◆ ensure that through the use of best practice, the total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of LNG produced from the project are</li> </ul>	<p>In the absence of specific Actions, the Key Topics to be addressed in the Program include:</p> <ul style="list-style-type: none"> <li>◆ calculate "greenhouse gas" emissions associated with the Gorgon Gas Development, using methodologies endorsed by the Australian Greenhouse Office (now Department of Climate Change)</li> <li>◆ employ specific measures to reduce the total net greenhouse gas emissions and/or the greenhouse gas emissions per unit of LNG produced by the Gorgon Gas Development using a combination of "no regrets" and "beyond no regrets" measures</li> <li>◆ undertake an ongoing review of and implement where practicable "greenhouse gas" offset</li> </ul>	<ul style="list-style-type: none"> <li>◆ Greenhouse gas emissions, energy use and energy production will be reported in accordance with the <i>National Greenhouse and Energy Reporting Act 2006</i> (Cth)</li> <li>◆ Data on the following performance indicators will be included in the Gorgon Development – Annual Environmental Performance Report: <ul style="list-style-type: none"> <li>▪ tonnes of CO<sub>2</sub>e emitted from LNG processing operations (without contribution from CO<sub>2</sub> venting)</li> <li>▪ tonnes of CO<sub>2</sub>e emitted from domestic gas processing operations (without contribution</li> </ul> </li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
	<ul style="list-style-type: none"> <li>◆ minimised emissions in accordance with the Framework Convention on Climate Change 1992, and consistent with the National Greenhouse Strategy.</li> </ul>	<ul style="list-style-type: none"> <li>◆ strategies</li> <li>◆ estimate the "greenhouse gas" efficiency of the project (per unit of LNG and/or other agreed performance indicators) and comparatively with the efficiencies of other LNG producing facilities producing a similar product, both within Australia and overseas</li> <li>◆ implement thermal efficiency design and operating goals for permanent installations that are consistent with the Australian Greenhouse Office – Generator Efficiency Standards</li> <li>◆ undertake actions for the monitoring, regular auditing and annual reporting of "greenhouse gas" emissions and emissions reduction strategies</li> <li>◆ set a non-binding target for the progressive reduction or abatement of total net "greenhouse gas" emissions or "greenhouse gas" emissions per unit of product and as a percentage of total emissions over time, and annual reporting of progress made in achieving this target. Consideration may be given to the use of renewable energy sources such as solar or wind</li> <li>◆ undertake a program to achieve a reduction or abatement in "greenhouse gas" emissions, consistent with the non-binding target referred to above</li> <li>◆ apply for entry, whether on a proposal-specific basis, company wide arrangement or within an industrial grouping into the Commonwealth Government's Greenhouse Challenge Plus program</li> <li>◆ review and adopt a "continuous improvement approach" so that advances in technology and potential operational improvements of plant</li> </ul>	<ul style="list-style-type: none"> <li>from CO<sub>2</sub> venting) <ul style="list-style-type: none"> <li>▪ tonnes of CO<sub>2e</sub> emitted from and support infrastructure</li> <li>▪ percentage of reservoir CO<sub>2e</sub> injected into the subsurface/vented to atmosphere</li> <li>▪ tonnes of reservoir CO<sub>2e</sub> injected into the subsurface</li> <li>▪ tonnes of CO<sub>2e</sub> emitted per tonne of LNG loaded on ship (includes contribution from CO<sub>2</sub> venting).</li> </ul> </li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Air Quality Management Plan	<p>The Objectives of the Plan (as outlined in Statement No. 748) are to:</p> <ul style="list-style-type: none"> <li>◆ ensure air quality meets appropriate standards for human health in the workplace</li> <li>◆ ensure air emissions from the Gas Treatment Plant operations do not pose a risk of Material or Serious Environmental Harm to the flora, vegetation communities, terrestrial fauna, and subterranean fauna of Barrow Island.</li> </ul>	<p>performance are considered for adoption.</p> <ul style="list-style-type: none"> <li>◆ Establish an air quality monitoring program capable of measuring ambient air quality and validating air quality modelling results.</li> <li>◆ Ensure the monitoring program can monitor and provide data to demonstrate Barrow Island air quality meets appropriate standards for human health and does not pose a serious risk to potential environmental receptors (flora, fauna).</li> <li>◆ Reduce air emissions from construction activities and operating facilities to the extent practicable.</li> <li>◆ Establish an emissions monitoring program to directly measure or estimate significant emissions sources.</li> <li>◆ Establish an annual reporting mechanism for air emissions.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Air quality modelling validated.</li> <li>◆ Ambient air quality on Barrow Island conforms to appropriate standards (i.e. NEPM – Ambient Air and NOHSC – Occupational Environment) as presented in Chapter 7.2.4 of the approved EIS/ERMP (Chevron Australia 2005a).</li> <li>◆ Demonstrate conformance with the National Environment Protection (Air Toxics) Measure.</li> <li>◆ Deposited dust levels do not exceed authority concentration limits.</li> <li>◆ Reporting of air quality monitoring program results annually.</li> <li>◆ Conformance with Environmental Licence and Ministerial Conditions.</li> </ul>
Solid and Liquid Waste Management Plan	<p>The objectives of the Plan (as outlined in Statement No. 748) are to:</p> <ul style="list-style-type: none"> <li>◆ ensure all Proposal-related solid and liquid wastes are either removed from Barrow Island or, if not, that all practicable means are used to ensure that waste disposal does not cause Material or Serious Environmental Harm to Barrow Island and its surrounding waters</li> <li>◆ ensure discharges from any waste water treatment plant, reverse osmosis plant, or other process water are disposed of via deep well injection, unless otherwise</li> </ul>	<ul style="list-style-type: none"> <li>◆ Develop appropriate waste management strategies for each waste stream based on the conventional waste management hierarchy.</li> <li>◆ Waste storage areas shall comply with applicable regulatory requirements.</li> <li>◆ Appropriate at-source receptacles shall be provided at workites to store segregated waste.</li> <li>◆ All waste generated, stored and treated/disposed of shall be recorded, manifested and tracked to ultimate fate.</li> <li>◆ All vessels to comply with the requirements of MARPOL (73/78) and the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1993</i> (Cth).</li> <li>◆ The deep well injection system (and flowlines) shall</li> </ul>	<ul style="list-style-type: none"> <li>◆ Compliance with the requirements of the Chevron Environmental Stewardship OE Process.</li> <li>◆ Deep well injection of approved liquid wastes does not result in Serious or Material Environmental Harm to identified ecological elements.</li> <li>◆ Compliance with the requirements of MARPOL (73/78) and the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1993</i> (Cth).</li> <li>◆ Recycling targets established and achieved.</li> <li>◆ Adequate and appropriate waste storage facilities constructed to manage solid and</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
Post-construction Rehabilitation Plan	<p>authorised by the appropriate authority</p> <ul style="list-style-type: none"> <li>◆ ensure any deep well injection of Proposal-related liquid wastes is conducted in a manner that will not cause Material or Serious Environmental Harm to subterranean fauna and their habitats on Barrow Island.</li> </ul> <p>The objectives of the Plan (as outlined in Statement No. 748) are to:</p> <ul style="list-style-type: none"> <li>◆ ensure that the rehabilitation of terrestrial areas following construction is properly planned in a manner which promotes self-sustaining ecosystems able to be managed as part of their surroundings consistent with the conservation objectives of a class 'A' Nature Reserve</li> <li>◆ design rehabilitation of native vegetation to ultimately develop into viable ecological systems which are comparable and compatible with surrounding native vegetation and its land uses, and restores as closely as practicable the pre-disturbance biodiversity and functional values</li> <li>◆ ensure planning, implementation, monitoring and reporting on rehabilitation is carried out in a manner consistent with industry best practice</li> </ul>	<p>undergo regular inspection and maintenance to ensure integrity is maintained and the risk of leaks or spills is minimised.</p> <ul style="list-style-type: none"> <li>◆ All solid waste, with the exception of waste concrete is sent from Barrow Island to Chevron-approved facilities for recycling, treatment, storage or disposal on the mainland.</li> </ul> <ul style="list-style-type: none"> <li>◆ Identify the objectives for the rehabilitation program, including site-specific variation.</li> <li>◆ Develop plans for topsoil hydrological function evaluation.</li> <li>◆ Integrate rehabilitation with island-wide management programs.</li> <li>◆ Identify knowledge gaps and on-going studies needed to address knowledge gaps.</li> <li>◆ Ensure plant species composition including consideration of species vulnerability to and dependence on fire.</li> <li>◆ Rehabilitate areas impacted by project-attributable fires.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Topography and surface drainage of rehabilitated areas are consistent with, and complementary to, the overall landscape.</li> <li>◆ Soil surface of rehabilitated areas has similar stability to the surrounding soils.</li> <li>◆ Soil physical and chemical properties of rehabilitated areas will be consistent with those of the target landscape.</li> <li>◆ Flora species on the rehabilitated site are representative of the target ecosystem.</li> <li>◆ Weed species are not present on rehabilitated sites.</li> <li>◆ The capacity to retain water and nutrient resources is equivalent to target ecosystems.</li> <li>◆ Vehicle access to rehabilitated areas is provided according to stakeholder requirements.</li> </ul>

Management Plan, Program or System required by Statement No. 748	Objectives	Preliminary Key Management Actions	Preliminary Key Performance Criteria
	<ul style="list-style-type: none"> <li>◆ ensure management of rehabilitation continues until affected areas are self sustaining</li> <li>◆ better inform any on-going rehabilitation and post-closure rehabilitation.</li> </ul>		

**NOTE:**

<sup>1</sup> Management Plan, Program or System also required to satisfy Commonwealth Environmental Conditions as prescribed in EPBC Reference: 2003/1294.

## 15.5 Proposed Environmental Conditions

The Revised Proposal is not expected to pose any significant new or additional risks to the biodiversity and physical environment values of Barrow Island and its waters over that already approved. Consequently, the GJVs consider that the existing Environmental Conditions prescribed for the Approved Development apply equally to the Revised Proposal and that they will be adequate and capable of addressing any new and/or additional environmental impacts associated with the Revised Proposal. The GJVs contend that it is not necessary to prescribe any different and/or additional conditions for the Revised Proposal for those environmental factors already covered by the Environmental Conditions in Statement No. 748 and EPBC Reference: 2003/1294 for the Approved Development. Therefore, the GJVs propose that the same Environmental Conditions prescribed in Statement No. 748 and EPBC Reference: 2003/1294 should be used in their entirety to form the new set of Environmental Conditions for the Gorgon Gas Development.

The GJVs propose that the only changes required to Statement No. 748 as a result of the Revised Proposal will relate to Schedule 1 (which describes the proposal) and Schedule 5 (which prescribes the geographic location of the impacts associated with the construction of the Revised Proposal's Marine Facilities – note, though, that the total area of disturbance as limited in condition 18 does not change). It is proposed that a new State Ministerial Implementation Statement with the same conditions be issued to supersede Statement No. 748, and that the new Statement apply to the entire Gorgon Gas Development (which includes the Revised Proposal) which has been the subject of environmental impact assessment documents and EPA Bulletins.

The GJVs contend that Conditions of Approval for the Revised Proposal consistent with the existing Commonwealth Environmental approval (prescribed in EPBC Reference: 2003/1294) would be suitable to manage the potential environmental impacts. ...

A summary of the relevance of the existing Environmental Conditions of the Commonwealth and State approvals to the scope and environmental aspects of Revised Proposal is presented in Appendix H. It is recognised that the Revised Proposal will be subject to new Ministerial approvals under both the State and Commonwealth environmental approval processes, and therefore the associated implementation conditions are yet to be set.