

APPROVAL DECISION

Gorgon Gas Development Revised Proposal, EPBC 2008/4178

This decision is made under section 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Proposed action

Person to whom the approval is granted Chevron Australia Pty Ltd.

Proposed action To construct and operate additional and revised components to the previously approved Gorgon proposal (EPBC 2003/1294) . Collectively these changes are described as the Gorgon Gas Development Revised Proposal and include the following principal alterations to the approved EPBC 2003/1294 proposal:

- i. the installation of an additional 5 MTPA LNG train;
- ii. the re-configuration of the Materials (Marine) Offloading Facility (MOF); and
- iii. disturbance of additional areas for carbon dioxide (CO₂) injection to accommodate an accelerated rate of reservoir CO₂ injection;

and all matters as described in referral EPBC 2008/4178.

Approval decision

Relevant controlling provisions The approval has effect for:

- Listed threatened species and communities (sections 18 & 18A)
- Listed migratory species (sections 20 & 20A)

Conditions of approval This approval is subject to the conditions specified below.

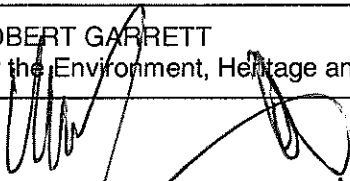
Expiry date of approval This approval has effect until 26 August 2070.

Person authorised to make decision

Name and position PETER ROBERT GARRETT
Minister for the Environment, Heritage and the Arts

Signature

Date of decision


Peter Robert Garrett 2008

Conditions attached to the approval

1. Application of these conditions

- 1.1 These conditions shall be read and interpreted as only applying to matters protected by the relevant controlling provisions of the EPBC Act that are specified above.
- 1.2 Where a Condition requires implementation of a plan, report, program or system (however described), the Condition shall be read and interpreted as only requiring implementation of the plan, report, program or system (however described) for managing the impacts of the action on, or protecting, the matters protected by the relevant controlling provisions that are specified above.
- 1.3 To increase transparency, a plan, report, program or system (however described) required by these Conditions may contain information relevant to matters required under Western Australian environmental law. The implementation of those matters only required under Western Australian environmental law is not the subject of these conditions.
- 1.4 Notwithstanding conditions 3, 5, and 6-21, each of the plans, reports, systems or programs (however described) that were approved by the Department pursuant to the (EPBC 2003/1294) Approval, in respect of the Carbon Dioxide Seismic Baseline Survey Program (these being the approvals of the Carbon Dioxide Baseline Seismic Survey Quarantine Management System (QMS), dated 16 April 2009, the Terrestrial Baseline State and Environmental Monitoring Program (dated 21 April 2009) and the Terrestrial Facilities Environmental Management Plan dated (21 April 2009)), apply to this action and the person taking the action may continue with the works approved for a period of 6 months from the date of this approval, unless otherwise agreed by the Minister. Those works must be undertaken in accordance with those plans, reports, systems or programs (however described) unless otherwise agreed to in writing by the Minister.
- 1.5 These conditions shall be read and interpreted consistently with the conditions attached to the (EPBC 2003/1294) Approval.

2. Compliance Reporting

2.1 Each year the person taking the action must provide a report to the Minister addressing compliance with each of the conditions of this approval. The date of the first compliance report must be 15 months from 10 August 2009, (the date of the Western Australian Minister's approval of the action), with each subsequent report 12 months from the date of the previous report. The Compliance report must:

1. be endorsed by the Managing Director for the person taking the action or a person approved in writing by the Department, delegated to sign on behalf of the Managing Director;
2. include a statement as to whether the person taking the action has complied with the conditions;
3. identify any non-compliances and describe corrective and preventative actions taken;
4. make the final report publicly available on the internet within 30 days of it being submitted to the Minister.

2.2 Reports must be provided until the closure of the action.

2.3 To avoid any doubt, each annual compliance report required by this condition may be provided together, as a single document, with the corresponding annual compliance report required by condition 2 attached to (EPBC 2003/1294) Approval. Such a joint compliance report does not need to identify to which approval any non-compliance incident relates.

3. Application and Interpretation of Plans, Programs, Reports and Systems

3.1 For the purpose of there being a single set of environmental management documents relating to the Gorgon Gas Development and the Revised Gorgon Gas Development, the plans, reports, programs and systems (however described) required by these conditions are intended where possible to be prepared and implemented by way of a single document with the equivalent plans, reports, programs and systems (however described) required under the (EPBC 2003/1294) Approval.

3.2 All plans, reports, programs or systems (however described) required under this approval must include the following elements:

1. a description of the EPBC listed species and their habitat likely to be impacted by the components of the action which are the subject of that plan, report, program or system (however described);
2. an assessment of the risk to these species from the components of the action the subject of that plan, relevant to that plan, report, program or system (however described);
3. details of the management measures proposed in relation to these species if it is a requirement of the condition requiring that plan, report, program or system (however described);
4. details of monitoring proposed for that species if it is a requirement of the condition requiring that plan, report, program or system (however described);
5. performance standards in relation to that species if it is a requirement of the condition requiring that plan, report, program or system (however described);
6. management triggers in relation to that species if it is a requirement of the condition requiring that plan, report, program or system (however described); and
7. protocols for reporting to the Department, impacts detected by the monitoring programs described in 3.2.4, on EPBC listed species, whether or not the impact is caused by the action. To avoid any doubt, these protocols may allow for reports provided under Plans required by these Conditions to be provided as a single document with the corresponding reports provided under Plans required by the Conditions attached to the (EPBC 2003/1294) Approval. Such a report does not need to identify to which approval an impact on a species relates.

3.3 In considering draft plans, reports, programs or systems (however described) that are submitted to him or her for approval under this approval, the Minister will require only things that he or she is satisfied are necessary for protecting or repairing or mitigating damage to, the matters protected by the relevant controlling provisions of the EPBC Act that are specified above.

4. Environmental Performance Reporting

4.1 Every year the person taking the action must submit to the Minister an annual Environmental Performance Report covering the following topics as relevant to this approval:

- a) terrestrial and subterranean environment state;
- b) terrestrial and marine quarantine management plan or system;
- c) marine turtles (including light and noise management);
- d) subterranean fauna;
- e) fire management;

- f) carbon dioxide injection system; and
- g) coastal stability;

4.2 The date of the first Environmental Performance Report must be 15 months from 10 August 2009, with each subsequent report 12 months from the date of the previous environmental report

Every five years from the date of the first annual Environmental Performance Report the person taking the action must submit to the Minister an Environmental Performance Report for review by the Minister, covering the previous five year period, comprising the following, as relevant to this approval:

- I. The topics listed in Condition 4.1;
- II. Specific details shown in Schedule 3;
- III. A five year overview of environmental performance;
- IV. Proposed environmental management improvements; and
- V. A review of whether there are any reasonably practicable management measures, operating controls or design features that can be implemented to reduce or eliminate the alteration of the light horizon on the east coast beaches of Barrow Island as a result of the implementation of the action.

4.3 The person taking the action must, if required by the Minister, update Plans, programs, Systems or Reports (however described), in accordance with condition 26, include any practicable improvements identified as part of the Environmental Performance Report referred to in Condition 4.2 iv.

5. Terrestrial and Subterranean Baseline State and Environmental Impact Report

5.1 Prior to commencement of construction of the terrestrial facilities listed in Condition 5.2 on Barrow Island, the person taking the action must submit to the Minister, for approval, a Terrestrial and Subterranean Baseline State and Environmental Impact Report (the Report) that meets the purposes set out in Condition 5.3, as determined by the Minister, unless otherwise allowed in condition 5.3A. The Report must cover the following ecological elements:

- I. vegetation;
- II. fauna (including subterranean fauna);
- III. habitat;
- IV. ecological communities;
- V. groundwater;
- VI. surface water landforms; and
- VII. physical landforms.

5.2 The terrestrial facilities referred to in Condition 5.1 are the:

- I. Gas Treatment Plant;
- II. Carbon Dioxide Injection System;

- III. Associated Terrestrial Infrastructure forming part of the action;
- IV. Areas impacted for seismic data acquisition; and
- V. Onshore Feed Gas Pipeline System.

5.3 The purposes of the Report are to:

- I. Define and map the pre-development baseline state for the ecological elements within the areas that are expected to be, or may be, at risk of Material or Serious Environmental Harm due to any works associated with the terrestrial facilities listed in Condition 5.2;
- II. Define and map the ecological elements within the Terrestrial Disturbance Footprint; and
- III. Define and map the ecological elements of reference sites to be used as part of the Terrestrial and Subterranean Environment Monitoring Program Condition, which are not at risk of Material or Serious Environmental Harm due to construction or operation of the terrestrial facilities listed in Condition 5.2.

5.3A In the event that any portions of the Report related to specific elements or sub-elements of the terrestrial facilities listed in Condition 5.2 are not submitted as required by Condition 5.1, the person taking the action must submit the portions of the Report relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Report must meet the purposes identified in Condition 5.3 and the requirements of Condition 5.4 as determined by the Minister.

5.4 The Report must include:

- I. A review of the results of the qualitative ecological risk assessments of the likelihood and consequence of action impacts on the ecological elements identified in Condition 5.1;
- II. Details of the methodology that was used to survey, collect and collate the baseline data and information for all ecological elements identified in Condition 5.1;
- III. A description and map of the ecological elements within the Terrestrial Disturbance Footprint;
- IV. A description and map of the ecological elements which are at risk of Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint due to construction and operation of the terrestrial facilities listed in Condition 5.2;
- V. A review of the results to include existing areas of disturbance, including clearing, existing non-indigenous species (including weeds) and disturbed landscapes;
- VI. Spatially accurate (i.e. rectified and geographically referenced) maps showing the baseline data and information for the ecological elements identified in Condition 5.1;
- VII. Discussion of the data on the baseline biological, physical and chemical variables including any significant relationships, for the ecological elements identified in Condition 5.1;
- VIII. Significant ecological elements to be protected - e.g. EPBC Act listed species and their habitats;
- IX. An analysis of, and procedures to, address data and information gaps associated with the baseline data for the areas identified in Condition 5.4.iv for the ecological

elements identified in Condition 5.1; and

- X. A description and map of the ecological elements of reference sites in locations which are not at risk of Material or Serious Environmental harm due to construction and operation of the terrestrial facilities listed in Condition 5.2.

6. Terrestrial and Subterranean Environment Protection Plan

6.1 Prior to commencement of construction of any of the terrestrial facilities identified in Condition 5.2, the person taking the action must submit to the Minister for approval, a Terrestrial and Subterranean Environment Protection Plan (the Plan) that meets the objectives identified in Condition 6.4 and the requirements of Condition 6.5 as determined by the Minister, unless otherwise allowed in condition 6.2.

6.2 In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities listed in Condition 5.2) are not submitted as required by Condition 6.1, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Plan must meet the objectives identified in Condition 6.4 and the requirements of Condition 6.5 as determined by the Minister.

6.3 The person taking the action must consult with the DEC and DEWHA in the preparation of the Plan.

6.4 The objectives of the Plan are:

- I. To reduce the adverse impacts from the construction and operation of the terrestrial facilities listed in condition 5.2, as far as practicable; and
- II. To ensure that construction and operation of the terrestrial facilities listed in Condition 5.2 does not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint, including below the surface of the land.

6.5 The Plan must include the following:

- I. Management measures to reduce the adverse impacts (including from light and noise) from the construction and operation of the terrestrial facilities listed in Condition 5.2, as far as practicable; and
- II. Management measures to ensure that construction and operation of the terrestrial facilities listed in condition 5.2 do not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint, including below the surface of the land.

6.6 The measures required by 6.5.i. and ii must address but not be limited to:

- I. Vegetation Clearing Audit Procedures to determine the extent of clearing and rehabilitation on an annual basis;
- II. Procedures in relation to and protocols for capturing, relocating, handling, housing, caring for and reporting to the DEC, threatened or listed fauna found within the Terrestrial Disturbance Footprint that are not required by DEC, for translocation;
- III. Procedures to avoid secondary impacts to fauna as a consequence of risks such as animals being trapped in construction trenches or subject to vehicle strike;
- IV. Measures including detailed drainage and containment designs for all works and infrastructure that control stormwater run-off outside the Terrestrial Disturbance Footprint with the aim of ensuring that runoff is consistent with the pre-development runoff regime, as far as practicable, and any recharge does not cause pollution; and

- V. Performance Standards against which achievement of the objectives of this condition can be determined.

6.7 The person taking the action must implement the Plan.

7. Terrestrial and Subterranean Environment Monitoring Program

7.1 Prior to commencement of construction of the terrestrial facilities listed in Condition 5.2 the person taking the action must prepare and submit a Terrestrial and Subterranean Environment Monitoring Program (the Program) to the Minister for approval that meets the objective set out in Condition 7.3 and the requirements of Condition 7.4 as determined by the Minister, unless otherwise allowed in Condition 7.2.

7.2 In the event that any portions of the Program related to specific elements or sub-elements (of the terrestrial facilities listed in Condition 5.2) are not submitted as required by Condition 7.1, the person taking the action must submit the portion of the Program relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Program must meet the objective identified in Condition 7.3 and the requirements of Condition 7.4 as determined by the Minister.

7.3 The objective of this Program 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.

7.4 The Program must include:

- I. Indicators, parameters and criteria to be used in measuring changes on the ecological elements identified in Condition 5.1 that are at risk of Material or Serious Environmental Harm due to construction and operation of terrestrial facilities listed in Condition 5.2.
- II. Protocols for on-going reporting of adverse changes to the ecological elements listed in Condition 5.1;
- III. Management Triggers;
- IV. Protocols for identifying additional areas not originally identified that are at risk of sustaining Material or Serious Environmental Harm from the action, and for adding monitoring sites to include these additional locations, if required;
- V. Establishing an ecological 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 Western Australian Minister, any environmental harm to the ecological elements listed in Condition 5.1;
- VI. Location of monitoring sites in areas that are at risk of Material or Serious Environmental Harm due to construction and operation of terrestrial facilities listed in Condition 5.2; and
- VII. Location of reference sites (see Condition 5.3.iii).

7.5 The person taking the action must implement the Program.

8. Terrestrial and Marine Quarantine Management System

8.1 Prior to commencement of construction of any terrestrial facilities listed in Condition 5.2 and the marine facilities listed in Condition 11.3, the person taking the action must submit the Quarantine Management System (QMS) to the Minister, for approval, taking into account the advice of the Quarantine Expert Panel (QEP) established under the Western Australian

Minister's approval for the action, unless otherwise allowed in Condition 8.2.

8.2 In the event that any portions of the QMS related to specific elements or sub-elements (of the terrestrial facilities in Condition 5.2 and the marine facilities in Condition 11.3) of the action are not submitted as required by Condition 8.1, the person taking the action must submit the QMS portions relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, taking into account the advice of the QEP that meets the aim and objectives set out in Condition 8.3 and the requirements of Condition 8.4, as determined by the Minister.

8.3 The overall aim of the QMS is that the person taking the action must not introduce or allow to proliferate Non- indigenous Terrestrial Species and Marine Pests to or within Barrow Island or the Waters Surrounding Barrow Island, as a consequence of the action. The specific objectives of the QMS are:

- I. To prevent the introduction of Non-indigenous Terrestrial Species and Marine Pests;
- II. To detect Non-indigenous Terrestrial Species (including weed introduction and/or proliferation) and Marine Pests;
- III. To control and, unless otherwise determined by the Western Australia Minister on the advice of the QEP, eradicate detected Non indigenous Terrestrial Species (including weeds) and Marine Pests; and
- IV. Mitigate adverse impacts of any control and eradication actions on indigenous species taken against detected Non-indigenous Terrestrial Species (including weeds) and Marine Pests.

8.4 The QMS must address the following topics. These topics are specified in more detail in Schedule 4:

- I. Risk Assessment, Supply Chain Management, Vessel Management and Inspection;
- II. Detection, Control and Eradication Program;
- III. Mitigation (including a weed hygiene procedure) and any Control and Eradication Program;
- IV. Reporting and Recording;
- V. Integrating with whole of Island Quarantine Management;
- VI. Reviewing and further studies;
- VII. Weed Management Procedures; and
- VIII. 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.

8.5 The person taking the action must implement the QMS required by Condition 8.1.

8.6 The person taking the action must review and update the QMS required by Condition 8.1 annually during the construction phase of the action, and then at least every five years thereafter in accordance with Condition 4.2 (unless this time period is varied by the Minister in accordance with Condition 25).

9. Fire Management Plan

9.1 Prior to commencement of construction of any terrestrial facilities identified in Condition 5.2 the person taking the action must prepare and submit a Fire Management Plan (the Plan) to the Minister, for approval, that meets the objectives set out in Condition 9.4 and the requirements of Condition 9.5, as determined by the Minister, unless otherwise allowed in Condition 9.2, consistent with the requirements of the *Occupational Safety and Health Act 1984 (WA)*.

9.2 In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities listed in Condition 5.2) of the action are not submitted as required by Condition 9.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the planned commencement of construction of that element or sub-element. All portions of the Plan must meet the objectives identified in Condition 9.4 and the requirements of Condition 9.5 as determined by the Minister.

9.3 The person taking the action must consult with the DEC, Conservation Commission, DEWHA, the BICC Participants, and DMP in the preparation of the Plan.

9.4 The objectives of the Plan are to ensure that:

- I. The action does not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint due to fire; and
- II. Fire risk reduction measures are built into the design of the facilities to protect the person taking the action's assets from the impact of fire on Barrow Island.

9.5 The Plan must include the following:

- I. A fire risk assessment of all action infrastructure and measures to protect infrastructure and the surroundings from fires on Barrow Island;
- II. On-going management of infrastructure for fire prevention, suppression and management including incident control systems so that fires do not escape from the Terrestrial Disturbance Footprint;
- III. Performance Standards against which achievement of the objectives of this condition can be determined; and
- IV. A description of the arrangements to identify, suppress and manage fires caused by the action outside the Terrestrial Disturbance Footprint.

9.6 The person taking the action must implement the Plan.

9.7 The person taking the action must review the Plan at least every five years unless otherwise determined by the Minister.

9.8 In the event that a fire attributable to the action occurs outside the Terrestrial Disturbance Footprint and the Conservation Commission requires that site to be rehabilitated, the person taking the action must develop and implement rehabilitation measures in consultation with DEC, BICC and the Conservation Commission.

10. Groundwater Abstraction Management Plan

10.1 Prior to the commencement of construction of facilities to abstract groundwater for water supply purposes, the person taking the action must submit a Groundwater Abstraction Management Plan (the Plan) to the Minister, for approval, that meets the objective set in Condition 10.3 and the requirements of Condition 10.4 as determined by the Minister unless otherwise allowed in Condition 10.2A as determined by the Minister.

10.2 In preparing this Plan the person taking the action must consult with DEWHA, DoW and DEC.

10.2A In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities to abstract groundwater) of the action are not submitted as required by Condition 10.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the planned commencement of construction of that element or sub-element. All portions of the Plan must meet the objective

identified in Condition 10.3 and the requirements of Condition 10.4 as determined by the Minister.

10.3 The objective of the Plan is to ensure that groundwater abstraction does not cause Material or Serious Environmental Harm to the target aquifer, surface vegetation or subterranean fauna habitats of Barrow Island.

10.4 The Plan must include:

- I. Practicable environmental triggers for contingency plans to avoid Material or Serious Environmental Harm to the target aquifer, surface vegetation or subterranean fauna habitats of Barrow Island (this may include separate triggers for within and outside the Terrestrial Disturbance Footprint);
- II. Actions (including an immediate reduction in the rate of or cessation of groundwater abstraction) which will be taken to avoid Material or Serious Environmental Harm to the target aquifer, surface vegetation or subterranean fauna habitats of Barrow Island;
- III. Reporting procedures; and
- IV. Performance Standards against which achievement of the objective of this condition can be determined.

10.5 The person taking the action must implement the Plan.

11. Coastal and Marine Baseline State and Environmental Impact Report

11.1 To establish the methodology to be used in the Report required by Condition 11.2, the person taking the action must submit to the Minister for approval a Scope of Works reporting the methodologies to be used in the preparation of the Report that covers the following as determined by the Minister:

- I. Survey methods for each of the ecological elements as listed in Condition 11.2;
- II. Location and establishment of survey sites;
- III. Timing and frequency of surveys;
- IV. Habitat classification schemes;
- V. Mapping methodologies, including Coral Assemblages;
- VI. Treatment of survey data; and
- VII. Method for hydrodynamics data acquisition and reporting.

11.2 Prior to commencement of construction of marine facilities as listed in Condition 11.3, the person taking the action must submit a Coastal and Marine Baseline State and Environmental Impact Report (the Report) that meets the purposes set out in Condition 11.6, and the requirements set out in Conditions 11.7 and 11.8 as determined by the Minister, unless otherwise allowed in Condition 11.4. The Report must cover the following ecological elements:

- I. Hard and soft corals;
- II. Macroalgae;
- III. Non-coral benthic macro-invertebrates;

- IV. Seagrass;
- V. Mangroves;
- VI. Surficial sediment characteristics;
- VII. Demersal fish; and
- VIII. Water quality (including measures of turbidity and light attenuation).

11.3 The marine facilities to which this condition applies are:

- I. Materials Off-loading Facility (MOF);
- II. LNG Jetty;
- III. Dredge Spoil Disposal Ground;
- IV. Offshore Feed Gas Pipeline System in state waters; and
- V. Offshore Domestic Gas Pipeline.

11.4 In the event that portions of the Report related to specific elements or sub-elements (the marine facilities listed in Condition 11.3) of the action are not submitted as required by Condition 11.2, the person taking the action must submit the portion of the Report relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Report must meet the purposes identified in Condition 11.6 and the requirements of Condition 11.7 and 11.8 as determined by the Minister.

11.5 In preparing this Report the person taking the action must consult with CDEEP, DEC, DoT, DoF and DEWHA.

11.6 The purposes of this Report are to:

- I. Describe and map the ecological elements referred to in Condition 11.2(i-vi) within the Zones of High Impact and the Zones of Moderate Impact and representative areas in the Zones of Influence (Schedule 1, Figures 1 and 2; Schedule 5), associated with the generation of turbidity and sediment deposition from dredging and dredge spoil disposal required for marine facilities listed in Condition 11.3(i-iii);
- II. Describe and map the extent and distribution of Coral Assemblages within the Zones of High Impact and the Zones of Moderate Impact which are to be used to calculate the Area of Loss of Coral Assemblages according to the following formula: $a = h + (m \times 30\%)$ where: a = the area (ha) of loss of Coral Assemblages; h = the area (ha) of Coral Assemblages within the Zones of High Impact; and m = the area (ha) of Coral Assemblages within the Zones of Moderate Impact.
- III. Describe and map the benthic ecological elements referred to in Condition 11.2(i-vi) which are at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3(iv-v);
- IV. Describe and map the benthic ecological elements referred to in Condition 11.2 (i-vi) at Reference Sites which are not at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3;
- V. Describe the ecological elements referred to in 11.2 (vii and viii) within the Zones of High Impact and the Zones of Moderate Impact and representative areas in the Zones of Influence (Schedule 1, Figures 1 and 2; Schedule 5), associated with the

generation of turbidity and sediment deposition from dredging and dredge spoil disposal required for marine facilities listed in Condition 11.3 (i-iii);

- VI. Describe the ecological elements referred to in 11.2 (vii and viii) which are at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3 (iv-v);
- VII. Describe the ecological elements referred to in 11.2 (vii and viii) of Reference Sites which are not at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3.

11.7 The geographic extent of the Report must be:

- I. The marine facilities listed in Condition 11.3;
- II. Dredge Management Areas (Schedule 1, Figures 1 and 2, Schedule 5) including the Zones of High Impact, the Zones of Moderate Impact and areas in the Zones of Influence including those that contain significant benthic communities including coral assemblages;
- III. the Marine Disturbance Footprint associated with the facilities listed in Condition 11.3 in State waters; and
- IV. Reference sites outside the Zone of Influence.

11.8 The Report must meet the following requirements:

- I. Contain spatially accurate (i.e. rectified and geographically referenced) maps showing the locations and spatial extent of the marine facilities listed in Condition 11.3;
- II. Present the results of the surveys described in Condition 11.1;
- III. Record the existing dominant and sub-dominant hard and soft coral species/taxa and the dominant species of macroalgae, non-coral benthic macro-invertebrates, seagrass and mangroves, and demersal fish assemblages that characterise these communities;
- IV. Record:
 - a. Population structure of coral communities as colony size-class frequency distributions of dominant hard coral taxa;
 - b. Population statistics of survival and growth of dominant hard coral taxa and, if appropriate, selected other indicator coral taxa that characterise these communities; and
 - c. Recruitment of hard coral taxa within these communities.
- V. Contain descriptions and spatially accurate (i.e. rectified and geographically referenced) maps in accordance with the purposes set out in Condition 11.6;
- VI. Present data in an appropriate Geographic Information System (GIS) format; and
- VII. Establish and report on background water quality (including measures of turbidity and light attenuation), the natural rates and spatial patterns of sediment deposition, and the physical characteristics of the deposited sediment and characteristics of surficial sediments where dredging and dredge spoil disposal may affect the environment and at reference sites where the environment will not be affected.

11.9 To meet the requirements of Condition 11.8, the person taking the action must collect

water quality data and data on natural rates, and spatial patterns of sediment deposition for at least one full annual cycle prior to the construction of the marine facilities listed in Condition 11.3.

12. Long-term Marine Turtle Management Plan

12.1 Prior to commencement of construction of any facility listed in Condition 5.2 or Condition 11.3 to be located on the east coast of Barrow Island, the person taking the action must prepare and submit to the Minister, for approval, a Long-term Marine Turtle Management Plan (the Plan) that meets the objectives set out in Condition 12.3 and the requirements of Condition 12.4, as determined by the Minister, unless otherwise allowed in Condition 12.1A.

12.1A In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities in Condition 5.2 and the marine facilities in Condition 11.3) of the action are not submitted as required by Condition 12.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, taking into account the advice of the MTEP that meets the objectives identified in Condition 12.3 and the requirements of condition 12.4 as determined by the Minister.

12.2 The person taking the action must consult with MTEP, DEC and DEWHA in the preparation and future updating of the Plan.

12.3 The objectives of the Plan are to:

- I. Address the long-term management of the marine turtles that utilise the east coast beaches and waters where there are action related stressors to marine turtles.
- II. Establish baseline information on the populations of marine turtles that utilise the beaches adjacent to the east coast facilities identified in Conditions 5.2 and 11.3;
- III. Establish a monitoring program to measure and detect changes to the flatback turtle population in accordance with Condition 12.4ii; and
- IV. Specify design features, management measures and operating controls to manage, as far as practicable, and avoid adverse impacts to marine turtles, with specific reference to reducing light and noise emissions as far as practicable.

12.4 The Plan must include the following:

- I. Report the baseline information on the population of marine turtles that utilise the beaches on the east coast of Barrow Island adjacent to the east coast facilities identified in Conditions 5.2 or 11.3;
- II. Define the monitoring program to measure and detect changes to the flatback turtle populations. Monitoring methods must have the ability to detect at a statistical power of 0.8 or greater, or an alternative statistical power as determined by the Western Australian Minister, on advice of the MTEP, changes or impacts on parameters related to population viability;
- III. Identify the significant action related stressors with the potential to cause adverse impact on marine turtles;
- IV. Specify design features, management measures and operating controls to manage and as far as practicable avoid adverse impacts to the marine turtles, including, in relation to light emissions, consideration of the following options:
 - a. shrouding of lights, including ships and other vessels; and
 - b. relocation or shrouding of flares;
- V. Define the scope of studies aimed at understanding the ecology of marine turtles that utilise the east coast beaches and waters where there are action related stressors to marine turtles and studies aimed at understanding links between stressors and marine turtle behaviour to improve the management of impacts;
- VI. Performance Standards against which achievement of the objectives of this condition

can be determined;

VII. Management Triggers; and

VIII. Requirements to comply with the obligations of the person taking the action under the North West Shelf Flatback Turtle Intervention Program as agreed between the person taking the action and the Western Australian Minister.

12.5 Annually audit and review the effectiveness of lighting design features, management measures and operating controls and if reasonably practicable propose and implement improvements to any of those lighting design features, management measures or operating controls in accordance with Condition 25.

12.6 The person taking the action must implement the Plan.

12.7 If the Minister believes, after consideration of the results of monitoring programs under this Plan, and any other information he or she believes to be relevant, that significant adverse effects (attributable to the action) are occurring, he or she may request that the person taking the action undertake contingency measures as he or she directs in accordance with Condition 26.

13. Marine Facilities Construction Environmental Management Plan

13.1 Prior to the commencement of construction of the marine facilities listed in Condition 13.2, the person taking the action must prepare and submit to the Minister, for approval, a Marine Facilities Construction Environmental Management Plan (the Plan) that meets the objectives set out in Condition 13.4 and requirements set out in Conditions 13.5 and 13.6, as determined by the Minister, unless otherwise allowed in Condition 13.1A.

13.1A In the event that any portions of the Plan related to specific elements or sub-elements (marine facilities listed in Condition 13.2) of the action are not submitted as required by Condition 13.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Plan must meet the objectives identified in Condition 13.4 and the requirements of Condition 13.5 as determined by the Minister.

13.2 The marine facilities relevant to this condition are:

- I. Materials Off-loading Facility (MOF); and
- II. LNG jetty.

13.3 The person taking the action must consult with the DEC, DoF, DoT and DEWHA in the preparation of the Plan.

13.4 The objectives of the Plan are:

- I. To reduce the impacts from the construction of the marine facilities listed in Condition 13.2 (excepting from the generation of turbidity and sedimentation from dredging and spoil disposal) as far as practicable; and
- II. To ensure that construction of the marine facilities listed in Condition 13.2 does not cause Material or Serious Environmental Harm outside the Marine Disturbance Footprint associated with those facilities (except from the generation of turbidity and sedimentation from dredging and spoil disposal).

13.5 The Plan must include the following:

- I. Management measures to reduce the impacts from the construction of the marine facilities listed in Condition 13.2 as far as practicable;
- II. Management measures to ensure that construction of the marine facilities listed in

Condition 13.2 does not cause Material or Serious Environmental Harm outside the Marine Disturbance Footprint;

- III. The measures required by Conditions 13.5.i. and 13.5.ii. must address but not be limited to:
- a. Generation and dispersion of turbidity caused by construction activities other than dredging;
 - b. Monitoring and managing the quality of any decant water released from the MOF bunded area;
 - c. Preventing harm to or fatalities of marine turtles or cetaceans;
 - d. Noise and percussion and other potential impacts associated with drilling and/or piling;
 - e. Generation and dispersion of drilling fluids and drill cuttings;
 - f. Direct disturbance of habitat; and
 - g. The avoidance of blasting as far as practicable and management measures to be applied if blasting is required.
- IV. Performance Standards against which achievement of the objectives of this condition can be determined.

13.6 The person taking the action must implement the Plan.

14. Dredging and Spoil Disposal Management and Monitoring Plan

14.1 Prior to commencement of dredging or spoil disposal activities associated with the marine facilities listed in Condition 13.2, the person taking the action must prepare and submit to the Minister, for approval, a Dredging and Spoil Disposal Management and Monitoring Plan (the Plan) that meets the objectives set out in Condition 14.3 and the requirements of Condition 14.4, as determined by the Minister, unless otherwise allowed in Condition 14.2A.

14.2 In preparing this Plan the person taking the action must consult with CDEEP, MTEP, DEC, DoF, DoT, and DEWHA.

14.2A In the event that any portions of the Plan related to specific elements or sub-elements (the marine facilities listed in Condition 13.2) of the action are not submitted as required by Condition 14.1, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, taking into account the advice of the CDEEP that meets the objectives identified in Condition 14.3 and the requirements of Condition 14.4, as determined by the Minister.

14.3 The objective of the Plan is to manage, and as far as practicable, avoid adverse impacts to marine turtles and EPBC Act listed marine fauna from the works associated with the construction of facilities listed in Condition 13.2.

14.4 The Plan must include the following:

- I. In consultation with MTEP, the following marine turtle monitoring and management elements:
 - a. Design features and operating procedures that will be used to minimise as far as practicable adverse impacts to marine turtles from dredging and spoil disposal activities;
 - b. Descriptions of practicable additional management measures to be implemented during marine turtle aggregation and nesting periods, intended to prevent harm or fatalities.

- c. Operating procedures that will be used to detect, record and report to DEC injury or mortality to listed marine turtles from dredging or spoil disposal activities;
- d. Performance Standards against which achievement of the objectives of this condition can be determined; and
- e. Management Triggers.

14.5 Dredging and spoil disposal activities associated with works for the marine facilities listed in condition 13.2 are to cease five days prior to the predicted commencement of significant autumn and spring mass coral spawning or as soon as coral spawning is detected if prior to that predicted time, and to remain suspended for seven days from commencement of mass spawning.

14.6 The person taking the action must implement the Plan.

15. Horizontal Directional Drilling Management and Monitoring Plan

15.1 Prior to the commencement of construction of the Feed Gas Pipeline System Shoreline Crossing on the west coast of Barrow Island, the person taking the action must prepare and submit to the Minister, for approval, a Horizontal Directional Drilling (HDD) Management and Monitoring Plan (the Plan) for the management of HDD activities on the west coast of Barrow Island that meets the objectives and requirements below.

15.2 The person taking the action must consult with the DEC, DoF and DMP in the preparation of the Plan.

15.3 The objectives of the Plan are to:

- I. Reduce the impacts of HDD activities on the Terrestrial and Marine Disturbance Footprints associated with those activities as far as practicable; and
- II. Ensure that HDD activities do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with those activities or exceed the coral loss limit in Condition 15.6.

15.4 The Plan must include:

- I. Management measures to reduce the impacts from HDD activities as far as practicable;
- II. Management measures to ensure that HDD activities do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with those activities, or the coral loss limit in Condition 15.6 to be exceeded; and
- III. Performance Standards against which achievement of the objectives of this condition can be determined.

15.5 The measures required by Condition 15.4i. and 15.4ii. must address:

- I. The generation and dispersion of turbidity associated with discharge of drill cuttings and fluids to the marine environment;
- II. Noise and percussion;
- III. Direct disturbance of habitat;

- IV. Preventing harm to, or fatalities of marine turtles;
- V. The use of low toxicity polymer drilling fluids or water based fluids unless otherwise authorised by the Western Australian Minister;
- VI. Management and disposal of drill cuttings and fluids returned to the surface by circulation to prevent pollution; and
- VII. A marine monitoring program to detect changes to ecological elements outside the Marine Disturbance Footprint components associated with the marine facilities listed in Condition 11.3.

15.6 The Detectable Net Mortality of Coral Assemblages for the HDD activities associated with the construction of the shoreline crossing on the west coast of Barrow Island must not exceed 1.2 ha.

15.7 The person taking the action must implement the Plan.

16. Offshore Gas Pipeline Installation Management Plans

16.1 Prior to commencement of installation of the Feed Gas Pipeline System in State waters and Domestic Gas Pipeline respectively, the person taking the action must submit to the Minister, for approval, an Offshore Gas Pipeline Installation Management Plan (the Plan) that meets the objectives and requirements set out in this Condition.

16.2 In preparing the Plan the person taking the action must consult with DEC, DEWHA and DMP.

16.3 The objectives of the Plan are to:

- I. Reduce the impacts of pipeline installation activities in State waters on the Terrestrial and Marine Disturbance Footprints associated with those facilities listed in Condition 16.1, as far as practicable; and
- II. Ensure that pipeline installation activities in State waters do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with the facilities listed in Condition 16.1.

16.4 The Plan must include:

- I. Management measures to reduce the impacts from pipeline installation activities in State waters, as far as practicable;
- II. Management measures to ensure that pipeline installation activities in State waters do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with those facilities listed in Condition 16.1; and
- III. Performance Standards against which achievement of the objectives of this condition can be determined.

16.5 The measures required by Conditions 16.4.i. and 16.4.ii. must address:

- I. The generation and dispersion of turbidity associated with pipeline installation activities;
- II. Direct disturbance of habitat;
- III. Preventing harm to, or fatalities of turtles and other EPBC Act listed marine fauna;

- IV. Program for pre and post pipeline installation seafloor survey of the Marine Disturbance Footprint and the areas at risk of Material or Serious Environmental Harm due to the construction of the pipeline in State waters;
- V. Details of mooring pattern design, including range and bearing from fairleads of individual anchor drops to show how the mooring pattern has been designed to limit impacts in coral habitat in State waters;
- VI. Details of a typical mooring pattern design for areas other than coral habitat areas in State waters;
- VII. Procedures to reduce as far as practicable, the impacts resulting from anchoring, wire and chain sweep, and wash from thrusters and propellers, on benthic communities in State waters;
- VIII. Details of proposed hydrotest water discharge and how this will be managed to avoid Material or Serious Environmental Harm to the marine environment; and
- IX. A marine monitoring program to detect changes to ecological elements outside the Marine Disturbance Footprint for the Offshore Gas Pipelines in State waters.

16.6 The person taking the action must implement the Plan.

17. Post-Development Coastal and Marine State and Environmental Impact Survey Report

17.1 The person taking the action must conduct Post-Development Coastal and Marine State Surveys associated with the construction of marine facilities listed in Condition 13.2 in accordance with the approved scope of works required by Condition 11.1, within three months following the date on which the person taking the action issues a certificate of acceptance of the dredge and dredge spoil disposal program under the contract issued for the Program. Surveys must be repeated at the same time of year where practicable for at least an additional two years, unless otherwise determined by the Minister. In determining the need for additional surveys the Minister will take into consideration any advice of the person taking the action, the CDEEP and the Western Australian Minister.

17.2 The purpose of the Post-Development Coastal and Marine State and Environmental Impact Surveys are to determine if changes have occurred to marine ecological elements, including the Area of Loss of Coral Assemblages expressed as hectares, compared with predevelopment baseline marine environmental state established in the Report required by Condition 11.2.

17.3 Within 3 months of completion of each annual Post-Development Coastal and Marine State and Environmental Impact Survey, the person taking the action, on advice of the CDEEP, must report the results of the survey to the Minister, including detected changes to marine ecological elements listed in Condition 11.2.

17.4 The report of the third and any subsequent Post-Development Coastal and Marine State and Environmental Impact Surveys must contain recommendations as to the need for continuing the surveys and reporting, for determination by the Minister. In determining the need for additional surveys the Minister will take into consideration any advice of the person taking the action, the CDEEP and the Western Australian Minister.

18. Coastal Stability Management and Monitoring Plan

18.1 Prior to the commencement of construction of the marine facilities listed in Condition 13.2, the person taking the action must submit a Coastal Stability Management and Monitoring Plan (the Plan) to the Minister, for approval, that meets the objectives and requirements set out in this Condition, unless otherwise allowed in Condition 18.1A.

18.1A In the event that any portions of the Plan related to specific elements or sub-elements (Condition 13.2) of the action are not submitted, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, that meets the objectives and requirements set out in Condition 18.

18.2 In preparing the Plan the person taking the action must consult with DoT, MTEP, DEWHA and DEC.

18.3 The objectives of the Plan are to:

- I. Ensure that the marine facilities listed in Condition 13.2 do not cause significant adverse impacts to the beaches adjacent to those facilities; and
- II. Establish a monitoring program to detect adverse changes to the beach structure and beach sediments that could have implications for marine turtles nesting on the beaches adjacent to the marine facilities listed in Condition 13.2 on Barrow Island.

18.4 The Plan must include:

- I. Baseline state of the beaches adjacent to Town Point from Mean Low Water to the permanent dune vegetation line;
- II. A monitoring program to detect changes to profiles of beaches and sand grain size adjacent to Town Point from Mean Low Water to the permanent dune vegetation line and the extent of any erosion or accretion of sand;
- III. Performance Standards against which achievement of the objectives of this condition can be determined; and
- IV. Management Triggers.

18.5 The person taking the action must implement the Plan.

18.6 If monitoring shows that the beach profiles and sand grain size do change beyond the Performance Standards set, the person taking the action must submit, with the advice of the MTEP, a report to the Minister within three months of detection describing:

- I. The nature and extent of any change and implications for marine turtle nesting;
- II. The likely causes of that change; and
- III. Proposed mitigation measures, including identifying appropriate sand sources and vegetation stock for any rehabilitation works required.

18.7 In preparing any report required as part of this Condition the person taking the action must consult with DoT, MTEP, DEWHA and DEC.

19. Reservoir Carbon Dioxide Injection System

19.1 Prior to the commencement of operation of the Carbon Dioxide Injection System infrastructure, the person taking the action must prepare and submit to the Minister, for approval, a monitoring program which sets out how the annual reporting requirements for the performance of the Carbon Dioxide Injection System will be met in respect of monitoring any seepage of injected carbon dioxide to the surface or near surface environments, including those which may support subterranean fauna, including the blind gudgeon *Milyeringa verita*.

19.2 The person taking the action must implement the approved Program.

19.3 Within three months of the monitoring program showing a significant increase in the risk

of carbon dioxide leakage into the environment inhabited by the blind gudgeon, a survey focused on the assessment of the habitat of the blind gudgeon must be carried out and a plan for practicable action proposed to avoid or mitigate the risk of significant impact to the environment inhabited by the blind gudgeon must be developed. This plan must be provided to the Minister for approval. Once approved by the Minister the plan must be implemented.

20. Solid and Liquid Waste Management Plan

20.1 Prior to commencement of construction of the terrestrial facilities listed in Condition 5.2, the person taking the action must submit a Solid and Liquid Waste Management Plan (the Plan) to the Minister, for approval, that meets the objectives and the requirements in this condition, unless otherwise allowed in Condition 20.1A, to cover all solid wastes, waste from the wastewater treatment plant and other liquid waste.

20.1A In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities listed in condition 5.2) of the action are not submitted as required by Condition 20.1, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, that meets the objectives and requirements of this Condition.

20.2 The objectives of the Plan are to:

- I. Ensure all action-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;
- II. Ensure discharges from any waste water treatment plant, reverse osmosis plant, or other process water are disposed of via deep well injection, unless otherwise authorised by the Western Australian Minister; and
- III. Ensure any deep well injection of action-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.

20.3 The Plan must include:

- I. A description of the facilities to be provided and management measures to be implemented to ensure wastes are managed to meet the objectives set in this Condition; and
- II. Performance Standards against which achievement of the objectives of this condition can be determined.

20.4 The person taking the action must implement the Plan.

21. Decommissioning and Closure

21.1 A decommissioning and closure plan (covering both Marine and Terrestrial Facilities) must be prepared for the Minister's approval at least one year prior to the anticipated date of decommissioning. Once approved by the Minister, the plan must be implemented.

22. Public Availability of Plans, Reports, Systems and Programs

Management plans, reports, systems and programs (however described) referred to in these conditions of approval must be made publicly available as determined by the Minister.

23. Independent Audit

Upon the direction of the Minister, the person taking the action must ensure that an

independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.

24. Record Keeping

The person taking the action must maintain accurate records of activities associated with or relevant to the above conditions of approval, and make them available on request by the Department. Such documents may be subject to audit by the Department and used to verify compliance with the conditions of approval.

25. Process for Variation to Plans, Reports, Systems or Programs

If the person taking the action wishes to carry out an action otherwise than in accordance with any plan, report, program or system (however described) approved in relation to this approval, they may submit a revised plan, report, program or system (however described) for the Minister's approval. If the Minister approves a revised plan, report, program or system (however described) the person taking the action must implement that plan, report, program or system (however described) instead of the plan, report, program or system (however described) as originally approved.

26. Right of Minister to require Revisions

If the Minister believes that it is necessary or desirable for the better protection of any relevant controlling provision to do so, the Minister may request that the person taking the action make specified revisions to any plans, reports, programs or systems (however described) approved pursuant to these conditions. The person taking the action must comply with any such request. The revised plans, reports, programs or systems (however described) must be implemented.

27. Commencement of Action

If the action has not been substantially commenced within 5 years of the date of this approval the action must not commence without the written agreement of the Minister.

28. Approval for Components of Activities

Where a plan, report, program or system (however described) is required by these conditions prior to construction or operation of any terrestrial facility listed in Condition 5.2 or marine facility listed in Condition 11.3 or offshore facility in Commonwealth marine areas, it will be sufficient for the person taking the action to submit and have approved that component of the plan, report, program or system relevant to that Facility before commencing construction or operation of that facility.

Schedule 1

Figure 1: Dredging and Spoil Disposal – Zones of High Impact, Zones of Moderate Impact and Zones of Influence – Regional Perspective

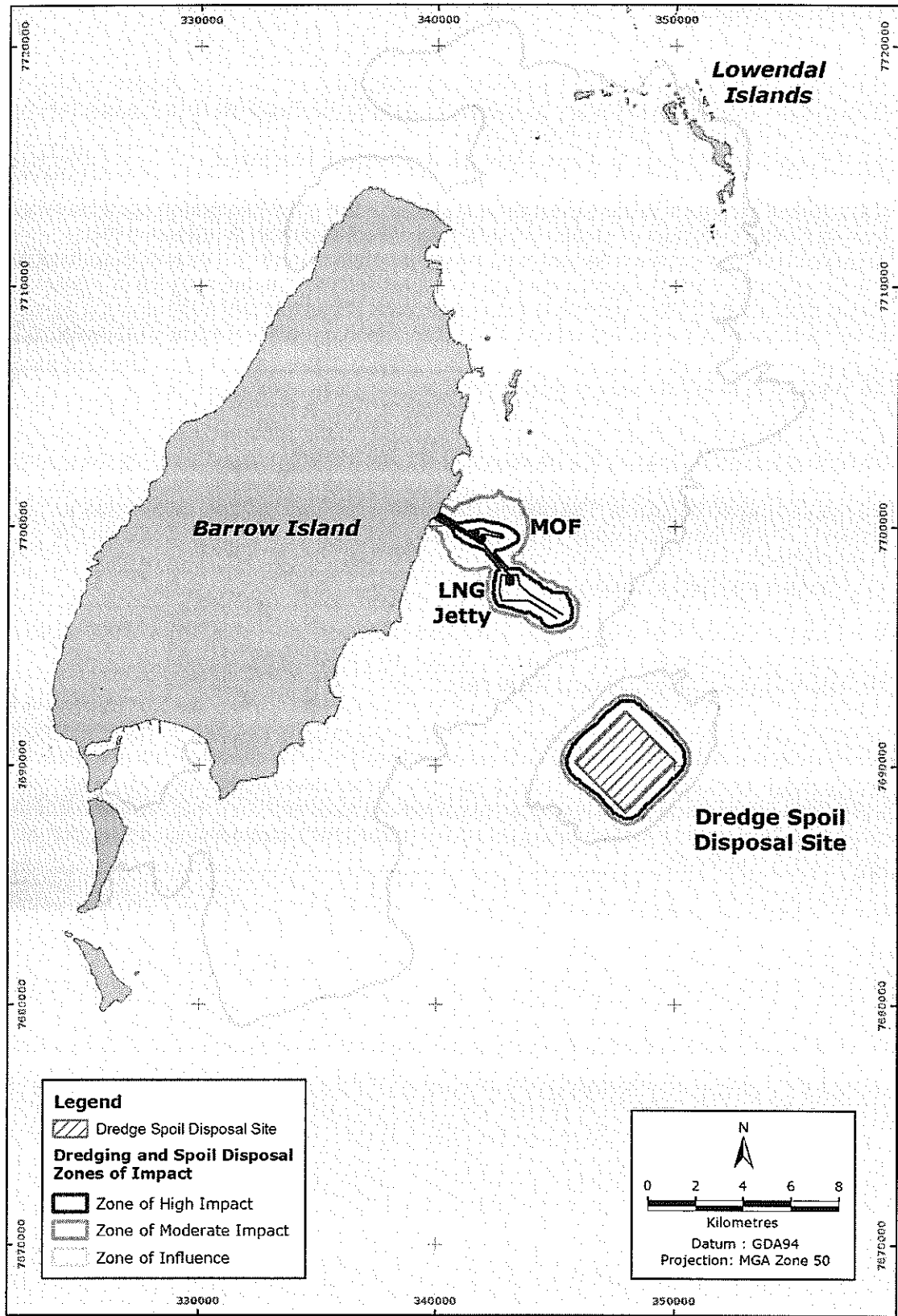
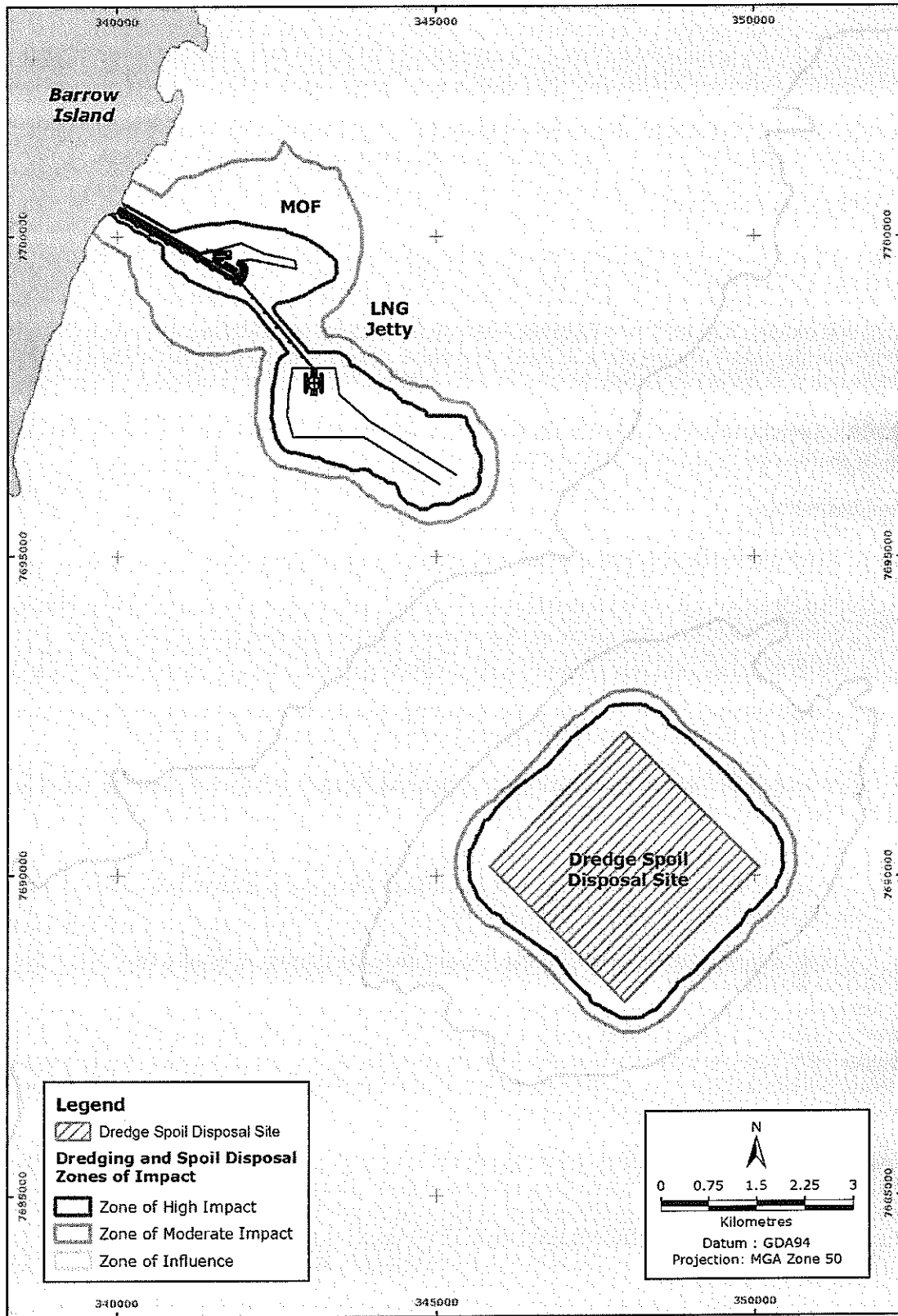


Figure 2: Dredging and Spoil Disposal – Zones of High Impact, Zones of Moderate Impact and Zones of Influence – Focus on Dredging and Spoil Disposal



NOTE: Refer to Schedule 5 for coordinates of the zones.

Schedule 2: Definitions

AQIS – Australian Quarantine Inspection Service.

Associated Terrestrial Infrastructure includes terrestrial component of the barge landing (WAPET Landing) upgrade, construction village, operations workforce accommodation, administration and operations complex, utilities area, utilities corridors, road upgrades, airport modifications, communications and water supply.

Barrow Island Coordination Council Participants – The Gorgon Joint Venture participants, the Barrow Island Joint Venture Participants and any other future Industry Participant.

BI or BWI – Barrow Island

BICC – Barrow Island Coordination Council as established under Schedule 1 of the *Barrow Island Act 2003* (WA).

Carbon Dioxide (CO₂) Injection System – the mechanical components required to be constructed to enable the injection of reservoir carbon dioxide, including but not limited to compressors, pipelines and wells.

CDEEP – Construction Dredging Environmental Expert Panel as established under the Western Australian Minister's approval of this action.

Coral definitions:

Coral Assemblages are benthic areas (minimum 10 m²) or raised seabed features over which the average live coral cover is equal to or greater than 10%.

The Change in coral mortality is determined by subtracting the baseline extent of Gross coral mortality from the extent of Gross coral mortality measured on a sampling occasion.

Detectable Net Mortality is the result of subtracting the Change in coral mortality at the Reference Site(s) from the Change in coral mortality at the Monitoring Site.

Average Net Detectable Mortality is the result of averaging the net detectable mortality of all monitoring sites within the Zone i.e. the mean of net detectable mortality of any Zone.

Gross coral mortality at a site is expressed as a percentage of total coral cover at the time of sampling at that monitoring location.

In determining the coral loss, measurement uncertainty is to be taken into consideration.

Construction – Construction includes any action-related construction and commissioning activities within the Terrestrial and Marine Disturbance Footprints, excluding investigatory works such as, but not limited to, geotechnical, geophysical, biological and cultural heritage surveys, baseline monitoring surveys and technology trials.

Construction Period - The period from the date on which the Gorgon Joint Venture participants first commence construction of the action until the date on which the Gorgon Joint Venture participants issue a notice of acceptance of work under the EPCM, or equivalent contract entered into in respect of the second LNG train of the Gas Treatment Plant.

DAF – Western Australian Department of Agriculture and Food.

DEC – Western Australian Department of Environment and Conservation.

The **Department** is the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

Deep wells (in the context of liquid waste disposal) – refer to injection wells completed in the Barrow Group (a well defined geological formation approximately 1,000 – 1,800m below the surface).

DEWHA is the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

Disposal of carbon dioxide (CO₂) underground – an activity conducted pursuant to Part 4 section 13 and Clauses 7, 8 and 9 of Schedule 1 of the *Barrow Island Act 2003*.

DMP – Western Australian Department of Mines and Petroleum.

DoF - Western Australian Department of Fisheries.

DoT – Western Australian Department of Transport.

DoW – Western Australian Department of Water

Dominant coral species – species with the highest relative percentage cover. Percentage cover is expressed as the proportion of total coral cover.

DRF – Declared Rare Flora has the meaning given by the *Wildlife Conservation Act 1950 (WA)*.

Dredge Management Areas – The Zone of High Impact, the Zone of Moderate Impact and areas in the Zone of Influence including those that contain significant benthic communities including Coral Assemblages.

DSD – Western Australian Department of State Development.

Ecological Community – refers to all the interacting organisms living together in a specific habitat.

EIS/ERMP - the Environmental Impact Statement/Environmental Review and Management Program for the Proposed Gorgon Development dated September 2005 as amended or supplemented from time to time.

Endemic – Unique to an area; found nowhere else.

Environmental Harm - has the meaning given by Part 3A of the *Environmental Protection Act 1986 (WA)*.

EP Act – *Environmental Protection Act 1986 (WA)*.

EPBC Act – *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*.

EPBC listed species means a species included in the list of threatened species established under section 178 of the EPBC Act or the list of migratory species established under section 209 of the EPBC Act.

EPCM - Engineering, Procurement and Construction Management.

GIS – Geographic Information System.

GJV – Gorgon Joint Venture.

Greenhouse gas abatement 'Beyond No Regrets Measures' – are measures that involve additional costs to the action which are unlikely to be recovered.

Greenhouse gas abatement 'No Regrets Measures' – are measures that are cost-neutral and do not add additional cost to the action.

HDD – Horizontal Directional Drilling.

Initial Water Quality Criteria – Numerical criteria, based on the link between water quality and coral health, for measurable water quality parameters that, if exceeded, indicate the potential for adverse impacts on coral health.

Introduced Terrestrial Species - non-indigenous terrestrial species (including weeds).

LNG – Liquefied natural gas

Management Triggers – are quantitative, or where this is demonstrated to be not practicable, qualitative matters, above or below which relevant additional management measures must be considered.

Marine Disturbance Footprint – the area of the seabed to be disturbed by construction or operations activities associated with the marine facilities listed in Condition 11.3 (excepting that area of the seabed to be disturbed by the generation of turbidity and sedimentation from dredging and spoil disposal).

Marine Pests – Species other than the native species known, or those likely to occur, in the waters of the Indo-West Pacific region and the Pilbara Offshore (PIO) marine bioregion as defined in the *Interim Marine and Coastal Regionalisation for Australia: An Ecosystem Based Classification for Marine and Coastal Environments* (IMCRA, 1997), of which Barrow Island is a part, that do, or may, threaten biodiversity in the Pilbara Offshore (PIO) marine bioregion. As a minimum, the National Introduced Pest Information System Database (NIMPIS, Department of the Environment, Water, Heritage and the Arts, Commonwealth Government), National Priority Pests listed in the document National Priority Pests, Part II, Ranking of Australian Marine Pests (CSIRO Marine Research, 2005) will guide the interpretation of this definition. Additional species may be added on the advice of experts from the WA Department of Fisheries and the Quarantine Expert Panel.

Marine Quarantine Controlled Access Zone – The zone that extends from 500m offshore from the Barrow Island MHHW mark and encapsulates the entire coastline of Barrow Island. The zone also extends 500m from all marine facilities contiguous with Barrow Island.

Marine Quarantine Limited Access Management Zone – The zone that commences at the outer boundary approximately 2.5 km from the Barrow Island shoreline (MHHW Mark) up to the 500 metre mark from the shoreline.

Marine Turtles – Refers to flatback, green and hawksbill turtles nesting on Barrow Island.

Material Environmental Harm – means environmental harm that is neither trivial nor negligible.

Modified Water Quality Criteria – Revised or amended Initial Water Quality Criteria that better represent the link between water quality and coral health.

MOF is the Materials (Marine) Offloading Facility.

Minister is the Australian Government Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

MTEP – Marine Turtle Expert Panel as established under the Western Australian Minister's approval of this action.

Nominal – representative value of a measurable property determined under a set of conditions, by which a product may be described. The actual value will be close to, but may not be exactly

the same, as this representative value once real world factors have been taken into account in accordance with standard engineering practice.

Non-indigenous terrestrial species - Any species of plant, animal or micro-organism not native to Barrow Island. (Native - species that are native to (naturally occurring in) a region. (Reference: State of the Environment Advisory Council (1996). Australia: State of the Environment 1996).

Offshore Construction - all activities related to production drilling installation and commissioning of the Gorgon Gas field Development.

Offshore Facilities – The Sub-sea Gathering System and the Feed Gas Pipeline in Commonwealth marine areas.

Operations – for the respective LNG trains, this is the period from the date on which the Gorgon Joint Venture participants issue a notice of acceptance of work under the Engineering, Procurement and Construction Management (EPCM) contract, or equivalent contract entered into in respect of that LNG train of the Gas Treatment Plant; until the date on which the Gorgon Joint Venturers commence decommissioning of that LNG train.

PER – Public Environmental Review for the Gorgon Gas Development Revised and Expanded Proposal dated September 2008 as amended or supplemented from time to time.

Performance Standards – are matters which are developed for assessing performance, not compliance, and are quantitative targets or, where that is demonstrated to be not practicable, qualitative targets, against which progress towards achievement of the objectives of conditions can be measured.

Permanent Loss - in relation to Coral Assemblages, means loss that does not recover within 30 years of the completion of dredging and spoil disposal.

Practicable - In considering whether a draft Plan meets the requirements of these conditions, the Minister will determine what is 'practicable' (where the relevant condition includes that term) having regard to local conditions and circumstances including but not limited to personnel safety, weather or geographical conditions, costs, environmental benefit and the current state of scientific and technical knowledge.

Porites – An important genus of long-lived, reef building corals.

QEP – Quarantine Expert Panel as established under the Western Australian Minister's approval of this action.

QMS – Quarantine Management System.

Reference Sites – specific areas of the environment, that are not at risk of being affected by the action or existing developments, that can be used to determine the natural state, including natural variability, of environmental attributes such as coral health or water quality.

Regionally Significant Areas – are the regionally significant areas outside the Zones of High Impact, Moderate Impact and Influence on the eastern margins of the Lowendal Shelf to the southern boundary of the Montebello Islands Marine Park, and Dugong Reef, Batman Reef and Southern Barrow Shoals.

Reservoir Carbon Dioxide - a gas stream that consists overwhelmingly of carbon dioxide and coming from the acid gas removal units of the Gas Treatment Plant to be located on Barrow Island. The carbon dioxide will contain incidental associated substances derived from the natural gas and the process used to separate the carbon dioxide from that natural gas.

Serious Environmental Harm - means environmental harm that:

- a) is irreversible, of a high impact or on a wide scale; or

- b) is significant or in an area of high conservation value or special significance and is neither trivial nor negligible.

Short-Range Endemics - Taxonomic group of invertebrates that are unique to an area; found nowhere else and have naturally small distributions (i.e. <10,000km²).

Statistical Power - The probability of detecting a meaningful difference, or effect, if one were to occur. Statistical power indicates, in probability terms, the capability of a test to detect a significant effect if one exists in reality. That is, it indicates how often, if the test were repeated many times, a correct interpretation about the effect could be reached. Statistical power can assume values between 0 and 1 (since probability values are expressed by numbers between 0 and 1 only). Sometimes it is expressed as a percentage - 0 referring to 0%, and 1 referring to 100%.

Sub-dominant coral species – species, excluding Dominant coral species, which have greater than or equal to 5% cover. Percentage cover is expressed as the proportion of total coral cover.

Substantially Commenced - physical construction activities for, and progress of, an important or essential element or elements of the action scope.

Terrestrial Disturbance Footprint – the area to be disturbed by construction or operations activities associated with the terrestrial facilities listed in Condition 5.2.

Terrestrial Quarantine Controlled Access Zone – The zone encompassing the following points of entry to Barrow Island:

- a) Quarantine Approved Premises (marine offloading facility, warehouse, remedial facility, quarantine washdown bay and first stage laydown);
- b) Airport; and
- c) WAPET Landing.

Terrestrial Quarantine Limited Access Management Zone – The Zone encompassing areas of the Terrestrial Disturbance Footprint which are used for intensive, long-term development activities on Barrow Island:

- a) Gas Treatment Plant
- b) Construction Village and Barrow Island Oil Joint Venture Camp
- c) Administration and Operations Complex
- d) Onshore Feed Gas Pipeline System and Carbon Dioxide Injection System corridors.

WAPET Landing - Proper name referring to the site of the barge landing existing on the east coast of Barrow Island prior to the date of this approval.

Water Surrounding Barrow Island - refers to the waters of the Barrow Island Marine Park and Barrow Island Marine Management Area (approximately 4,169 ha and 114,693 ha respectively) as well as the port of Barrow Island representing the Pilbara Offshore Marine Bioregion which is dominated by tropical species that are biologically connected to more northern areas by the Leeuwin Current and the Indonesian Throughflow resulting in a diverse marine biota is typical of the Indo-West Pacific flora and fauna.

Western Australian Minister - The Western Australian Minister responsible for administering the *Environmental Protection Act 1986*.

Schedule 3 – Details of Annual Environmental Performance Reporting

The annual Environmental Performance Report must report on the following environmental aspects of the action, relevant management and associated studies:

1. Terrestrial and subterranean environment state

- i. Results of monitoring and any measurable impacts from action including any changes from the baseline;
- ii. Conclusions as to the action stressors (if any) causing the impacts identified;
- iii. Any mitigation measures applied and results of that mitigation; and
- iv. Any changes to monitoring sites.

2. Terrestrial and marine quarantine (including weed management)

- i. Results of the audits and monitoring programs;
- ii. Detected introduction(s) of non-indigenous terrestrial flora or fauna and marine pest species, including procedure breaches and 'near misses' including special reference to weeds;
- iii. Consequences of the introduction;
- iv. Modification, if any, to the QMS because of:
 - a. Audits and monitoring
 - b. detected introductions;
 - c. 'best practice' improvements
- v. Eradication actions if any taken; reasons for any action or non-action; changes to improve procedures and outcomes and progress;
- vi. Mitigation actions;
- vii. Results of any QMS related studies, where conducted, to improve performance; and
- viii. Weed management incidents;
 - a. New infestations
 - b. Proliferations
- ix. Weed eradication performance; and
 - a. Areas treated
 - b. Results against measurable indicators and limits
- x. Targets proposed for the next year.

3. Marine turtles (including light and noise management)

- i. Results of all marine turtle monitoring carried out by the person taking the action including any detected changes to the flatback turtle population;
- ii. Reportable Incidents involving harm to marine turtles;
- iii. Changes to the marine turtle monitoring program;
- iv. Conclusions about the status of flatback and other marine turtle populations on Barrow Island;
- v. Changes (if any) to the Long-Term Marine Turtle Management Plan;
- vi. Findings of the annual audit and review on the effectiveness of lighting design features, management measures and operating controls including details of light management initiatives and activities undertaken during the year;
- vii. Results of studies undertaken; and
- viii. Noise monitoring results and a discussion on the success (or otherwise) in meeting noise emission targets.

4. Fire management

- i. incidence of fires caused by the action, and fires that impact on the person taking the action's facilities including details of cause, lesson learned and recommended actions;
- ii. Material or Serious Environmental Harm caused by fire directly attributable to the action; and
- iii. Changes to management plan including:
 - a. management responses to address Material or Serious Environmental Harm caused by fire directly attributable to the action; and
 - b. improvement to fire management practices.

5. Carbon Dioxide Injection System

- i. Volume of reservoir carbon dioxide and other acid gases removed from the incoming natural gas stream and available for injection;
- ii. Volume of reservoir carbon dioxide and other gases injected;
- iii. Results of environmental monitoring and identified Material or Serious Environmental Harm, if any, resulting from the seepage of injected carbon dioxide to the surface or near surface environments including those which may support subterranean fauna (including the blind gudgeon (*Milyeringa verita*);
- iv. Reasons for any shortfall between the volume of reservoir carbon dioxide extracted and injected;
- v. In the event the amount of carbon dioxide injected falls significantly below the target levels the person taking the action must report on:

- a. measures that could be implemented that would ensure that target level is met or, if injection is not considered feasible for all or some of the gas, measures to otherwise offset
 - b. which if any of these measures the person taking the action intends to implement; and
- vi. In the event that monitoring shows there is an elevated risk of Material or Serious Environmental Harm and/or risk to human health associated with the injection of reservoir carbon dioxide, the person taking the action must report to the Minister on the efficacy of continuing to geo-sequester and alternative offsets considered instead of continuing injection of reservoir carbon dioxide.

6. Coastal stability

- i. Results of beach and sediment monitoring; and
- ii. Any mitigation measures applied in response to action related impacts of beach profile.

Schedule 4 – Details of the Quarantine Management System

The Quarantine Management System must include the following elements:

1. Risk Assessment, Supply Chain Management and Vessel Management and Inspection:

- i. A qualitative risk assessment of all action-attributable introduction pathways for entry of terrestrial non-indigenous species to Barrow Island and entry of marine pests to the Waters Surrounding Barrow Island;
- ii. Procedures and barriers to be applied at each potential introduction pathway that is directly attributable to the action to ensure that the risk of introducing species is consistent with the objectives of the QMS;
- iii. Procedures and specification for the preparation, packing and shipment of all material destined for Barrow Island related to this action;
- iv. Procedures and checklists for the inspection of all material destined for Barrow Island related to this action;
- v. Procedures for ensuring that any item related to this action which is not approved by an authorised inspector approved according to the procedures specified in the QMS is denied entry to Barrow Island unless remedial cleaning in the Quarantine Approved Premises have made such item/s quarantine compliant;
- vi. An accreditation program that all action related quarantine inspectors must complete before engaging in quarantine management activities related to this action, in consultation with DEC, DAF and DoF (and AQIS in the event of Direct Shipments to the Quarantine Approved Premises on BI from overseas ports; and
- vii. Procedures for when DEC officers require access to action site.

2. Detection, Control, Eradication and Mitigation Program:

- i. Identify and define the baseline location and extent of known, past and present, non-indigenous terrestrial species (including weeds) in the Terrestrial Quarantine Controlled Access Zone and the Terrestrial Quarantine Limited Access Management Zone;
- ii. A detection program with the ability to detect at a statistical power of 0.8 or greater, or an alternative statistical power as determined by the Western Australian Minister on advice of the QEP, detect the presence of non-indigenous species introduced to Barrow Island or proliferated within the terrestrial construction sites and marine pests in the waters surrounding the person taking the action's marine facilities;
- iii. NIS (including weeds) Management Procedure(s) which sets the management protocol for the development and implementation of specific actions that mitigate the risk of NIS (including weeds) detected from establishing on Barrow Island;
- iv. Species Action Plans for all (unless otherwise determined by the Western Australian Minister on the advice of the QEP) detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island that controls and (unless otherwise determined by the Western Australian Minister on the advice of the QEP) eradicates any introduced or proliferated non-indigenous species on the advice of the QEP. These Species Action Plans to include:

- a. Contingency measures that can be immediately implemented to control and eradicate detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island; and
 - b. Management measures that can be implemented to mitigate impact caused by detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island, and mitigate impact caused in the management of detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island.
- v. Emergency Response and Eradication Protocols to eliminate any Non-indigenous Species as determined by the Western Australian Minister.

3. Reporting and Recording:

- i. Procedures that will be used to maintain electronic records, including a geographic information system (GIS), of breaches of QMS procedures; quarantine incidents which resulted in the introduction of terrestrial non-indigenous species to Barrow Island and marine pests to Waters Surrounding Barrow Island; and corrective actions taken to rectify those breaches, close out incidents, and address introductions that are verifiably attributable to the action;
- ii. Procedures to make information accessible to DEC;
- iii. Provision for reporting detected terrestrial non-indigenous species on Barrow Island and marine pests in the waters surrounding the person taking the action's marine infrastructure on Barrow Island to DEC; and
- iv. Provisions for ensuring that any information regarding quarantine management is available and provided to the DEC in a timely manner.

4. Reviewing, audits and further studies:

- i. Protocols for regular audits of the person taking the action's quarantine management measures in place under the QMS to determine their effectiveness and to determine if any corrective actions are required;
- ii. The regular audits must be conducted at six monthly intervals during the construction phase and at least biennially upon commissioning;
- iii. The person taking the action will undertake quarantine studies from time to time on advice of the QEP when audits and performance monitoring indicate the need to do so.

Schedule 5 – Coordinates that define the Zones of High Impact, Zones of Moderate Impact and Zones of Influence (Table 1)

Reference "Gorgon Gas Development - Zones of High Impact Zones of Moderate Impact and Zones of Influence" Document Number: G1-NT-REPX0002292 Revision 0, dated 7 August 2009.

VARIATION DECISION

Gorgon Gas Development EPBC 2003/1294

This variation is made under section 143(1)(c) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Proposed action

Person to whom the approval is granted	Chevron Australia Pty Ltd.
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Proposed action	To construct and operate facilities associated with the production and transport of gas from the Gorgon gas fields to Barrow Island, the construction and operation of a gas processing facility on the eastern side of Barrow Island, treatment and disposal of waste products including possible sequestration of carbon dioxide, the shipping of gas products from Barrow Island, and the construction and operation of infrastructure associated with processing and transport of gas including pipelines from Barrow Island to the mainland of Western Australia, and all associated activities comprising the Gorgon Development.
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Approval decision

Relevant controlling provisions	The approval has effect for: <ul style="list-style-type: none">• Listed threatened species and communities (sections 18 & 18A)• Listed migratory species (sections 20 & 20A)• Commonwealth marine areas (sections 23 & 24A)
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Conditions of approval	This approval is subject to the conditions specified below.
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Expiry date of approval	This approval has effect until 26 August 2070.
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Person authorised to make decision

Name and position	PETER ROBERT GARRETT Minister for the Environment, Heritage and the Arts
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Signature	
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Date of decision	Twenty Sixth August 2009
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Conditions attached to the approval

1. Application of these conditions

- 1.1 These conditions shall be read and interpreted as only applying to matters protected by the relevant controlling provisions of the EPBC Act that are specified above.
- 1.2 Where a Condition requires implementation of a plan, report, program or system (however described), the Condition shall be read and interpreted as only requiring implementation of the plan, report, program or system (however described) for managing the impacts of the action on, or protecting, the matters protected by the relevant controlling provisions that are specified above.
- 1.3 To increase transparency, a plan, report, program or system (however described) required by these Conditions may contain information relevant to matters required under Western Australian environmental law. The implementation of those matters only required under Western Australian environmental law is not the subject of these conditions.
- 1.4 Notwithstanding conditions 3, 5, and 6-21, each of the plans, reports, systems or programs (however described) that were approved by the Department pursuant to the (EPBC 2003/1294) Approval, in respect of the Carbon Dioxide Seismic Baseline Survey Program (these being the approvals of the Carbon Dioxide Baseline Seismic Survey Quarantine Management System (QMS), dated 16 April 2009, the Terrestrial Baseline State and Environmental Monitoring Program (dated 21 April 2009) and the Terrestrial Facilities Environmental Management Plan dated (21 April 2009)), apply to this action and the person taking the action may continue with the works approved for a period of 6 months from the date of this approval, unless otherwise agreed by the Minister. Those works must be undertaken in accordance with those plans, reports, systems or programs (however described) unless otherwise agreed to in writing by the Minister.
- 1.5 These conditions shall be read and interpreted consistently with the conditions attached to the (EPBC 2008/4178) Approval.

2. Compliance Reporting

2.1 Each year the person taking the action must provide a report to the Minister addressing compliance with each of the conditions of this approval. The date of the first compliance report must be 15 months from 10 August 2009, (the date of the Western Australian Minister's approval of the action), with each subsequent report 12 months from the date of the previous report. The Compliance report must:

1. be endorsed by the Managing Director for the person taking the action or a person approved in writing by the Department, delegated to sign on behalf of the Managing Director;
2. include a statement as to whether the person taking the action has complied with the conditions;
3. identify any non-compliances and describe corrective and preventative actions taken;
4. make the final report publicly available on the internet within 30 days of it being submitted to the Minister.

2.2 Reports must be provided until the closure of the action.

2.3 To avoid any doubt, each annual compliance report required by this condition may be provided together, as a single document, with the corresponding annual compliance report required by condition 2 attached to (EPBC 2008/4178) Approval. Such a joint compliance report does not need to identify to which approval any non-compliance incident relates.

3. Application and Interpretation of Plans, Programs, Reports and Systems

3.1 For the purpose of there being a single set of environmental management documents relating to the Gorgon Gas Development and the Revised Gorgon Gas Development, the plans, reports, programs and systems (however described) required by these conditions are intended where possible to be prepared and implemented by way of a single document with the equivalent plans, reports, programs and systems (however described) required under the (EPBC 2008/4178) Approval.

3.2 All plans, reports, programs or systems (however described) required under this approval must include the following elements:

1. a description of the EPBC listed species and their habitat likely to be impacted by the components of the action which are the subject of that plan, report, program or system (however described);
2. an assessment of the risk to these species from the components of the action the subject of that plan, relevant to that plan, report, program or system (however described);
3. details of the management measures proposed in relation to these species if it is a requirement of the condition requiring that plan, report, program or system (however described);
4. details of monitoring proposed for that species if it is a requirement of the condition requiring that plan, report, program or system (however described);
5. performance standards in relation to that species if it is a requirement of the condition requiring that plan, report, program or system (however described);
6. management triggers in relation to that species if it is a requirement of the condition requiring that plan, report, program or system (however described); and
7. protocols for reporting to the Department, impacts detected by the monitoring programs described in 3.2.4, on EPBC listed species, whether or not the impact is caused by the action. To avoid any doubt, these protocols may allow for reports provided under Plans required by these Conditions to be provided as a single document with the corresponding reports provided under Plans required by the Conditions attached to the (EPBC 2008/4178) Approval. Such a report does not need to identify to which approval an impact on a species relates.

3.3 In considering draft plans, reports, programs or systems (however described) that are submitted to him or her for approval under this approval, the Minister will require only things that he or she is satisfied are necessary for protecting or repairing or mitigating damage to, the matters protected by the relevant controlling provisions of the EPBC Act that are specified above.

4. Environmental Performance Reporting

4.1 Every year the person taking the action must submit to the Minister an annual Environmental Performance Report covering the following topics as relevant to this approval:

- a) terrestrial and subterranean environment state;
- b) terrestrial and marine quarantine management plan or system;
- c) marine turtles (including light and noise management);
- d) subterranean fauna;

- e) fire management;
- f) carbon dioxide injection system; and
- g) coastal stability;

4.2 The date of the first Environmental Performance Report must be 15 months from 10 August 2009, with each subsequent report 12 months from the date of the previous environmental report

Every five years from the date of the first annual Environmental Performance Report the person taking the action must submit to the Minister an Environmental Performance Report for review by the Minister, covering the previous five year period, comprising the following, as relevant to this approval:

- I. The topics listed in Condition 4.1;
- II. Specific details shown in Schedule 3;
- III. A five year overview of environmental performance;
- IV. Proposed environmental management improvements; and
- V. A review of whether there are any reasonably practicable management measures, operating controls or design features that can be implemented to reduce or eliminate the alteration of the light horizon on the east coast beaches of Barrow Island as a result of the implementation of the action.

4.3 The person taking the action must, if required by the Minister, update Plans, programs, Systems or Reports (however described), in accordance with condition 26, include any practicable improvements identified as part of the Environmental Performance Report referred to in Condition 4.2 iv.

5. Terrestrial and Subterranean Baseline State and Environmental Impact Report

5.1 Prior to commencement of construction of the terrestrial facilities listed in Condition 5.2 on Barrow Island, the person taking the action must submit to the Minister, for approval, a Terrestrial and Subterranean Baseline State and Environmental Impact Report (the Report) that meets the purposes set out in Condition 5.3, as determined by the Minister, unless otherwise allowed in condition 5.3A. The Report must cover the following ecological elements:

- I. vegetation;
- II. fauna (including subterranean fauna);
- III. habitat;
- IV. ecological communities;
- V. groundwater;
- VI. surface water landforms; and
- VII. physical landforms.

5.2 The terrestrial facilities referred to in Condition 5.1 are the:

- I. Gas Treatment Plant;
- II. Carbon Dioxide Injection System;

- III. Associated Terrestrial Infrastructure forming part of the action;
- IV. Areas impacted for seismic data acquisition; and
- V. Onshore Feed Gas Pipeline System.

5.3 The purposes of the Report are to:

- I. Define and map the pre-development baseline state for the ecological elements within the areas that are expected to be, or may be, at risk of Material or Serious Environmental Harm due to any works associated with the terrestrial facilities listed in Condition 5.2;
- II. Define and map the ecological elements within the Terrestrial Disturbance Footprint; and
- III. Define and map the ecological elements of reference sites to be used as part of the Terrestrial and Subterranean Environment Monitoring Program Condition, which are not at risk of Material or Serious Environmental Harm due to construction or operation of the terrestrial facilities listed in Condition 5.2.

5.3A In the event that any portions of the Report related to specific elements or sub-elements of the terrestrial facilities listed in Condition 5.2 are not submitted as required by Condition 5.1, the person taking the action must submit the portions of the Report relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Report must meet the purposes identified in Condition 5.3 and the requirements of Condition 5.4 as determined by the Minister.

5.4 The Report must include:

- I. A review of the results of the qualitative ecological risk assessments of the likelihood and consequence of action impacts on the ecological elements identified in Condition 5.1;
- II. Details of the methodology that was used to survey, collect and collate the baseline data and information for all ecological elements identified in Condition 5.1;
- III. A description and map of the ecological elements within the Terrestrial Disturbance Footprint;
- IV. A description and map of the ecological elements which are at risk of Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint due to construction and operation of the terrestrial facilities listed in Condition 5.2;
- V. A review of the results to include existing areas of disturbance, including clearing, existing non-indigenous species (including weeds) and disturbed landscapes;
- VI. Spatially accurate (i.e. rectified and geographically referenced) maps showing the baseline data and information for the ecological elements identified in Condition 5.1;
- VII. Discussion of the data on the baseline biological, physical and chemical variables including any significant relationships, for the ecological elements identified in Condition 5.1;
- VIII. Significant ecological elements to be protected - e.g. EPBC Act listed species and their habitats;
- IX. An analysis of, and procedures to, address data and information gaps associated

with the baseline data for the areas identified in Condition 5.4.iv for the ecological elements identified in Condition 5.1; and

- X. A description and map of the ecological elements of reference sites in locations which are not at risk of Material or Serious Environmental harm due to construction and operation of the terrestrial facilities listed in Condition 5.2.

6. Terrestrial and Subterranean Environment Protection Plan

6.1 Prior to commencement of construction of any of the terrestrial facilities identified in Condition 5.2, the person taking the action must submit to the Minister for approval, a Terrestrial and Subterranean Environment Protection Plan (the Plan) that meets the objectives identified in Condition 6.4 and the requirements of Condition 6.5 as determined by the Minister, unless otherwise allowed in condition 6.2.

6.2 In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities listed in Condition 5.2) are not submitted as required by Condition 6.1, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Plan must meet the objectives identified in Condition 6.4 and the requirements of Condition 6.5 as determined by the Minister.

6.3 The person taking the action must consult with the DEC and DEWHA in the preparation of the Plan.

6.4 The objectives of the Plan are:

- I. To reduce the adverse impacts from the construction and operation of the terrestrial facilities listed in condition 5.2, as far as practicable; and
- II. To ensure that construction and operation of the terrestrial facilities listed in Condition 5.2 does not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint, including below the surface of the land.

6.5 The Plan must include the following:

- I. Management measures to reduce the adverse impacts (including from light and noise) from the construction and operation of the terrestrial facilities listed in Condition 5.2, as far as practicable; and
- II. Management measures to ensure that construction and operation of the terrestrial facilities listed in condition 5.2 do not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint, including below the surface of the land.

6.6 The measures required by 6.5.i. and ii must address but not be limited to:

- I. Vegetation Clearing Audit Procedures to determine the extent of clearing and rehabilitation on an annual basis;
- II. Procedures in relation to and protocols for capturing, relocating, handling, housing, caring for and reporting to the DEC, threatened or listed fauna found within the Terrestrial Disturbance Footprint that are not required by DEC, for translocation;
- III. Procedures to avoid secondary impacts to fauna as a consequence of risks such as animals being trapped in construction trenches or subject to vehicle strike;
- IV. Measures including detailed drainage and containment designs for all works and infrastructure that control stormwater run-off outside the Terrestrial Disturbance Footprint with the aim of ensuring that runoff is consistent with the pre-development

runoff regime, as far as practicable, and any recharge does not cause pollution; and

- V. Performance Standards against which achievement of the objectives of this condition can be determined.

6.7 The person taking the action must implement the Plan.

7. Terrestrial and Subterranean Environment Monitoring Program

7.1 Prior to commencement of construction of the terrestrial facilities listed in Condition 5.2 the person taking the action must prepare and submit a Terrestrial and Subterranean Environment Monitoring Program (the Program) to the Minister for approval that meets the objective set out in Condition 7.3 and the requirements of Condition 7.4 as determined by the Minister, unless otherwise allowed in Condition 7.2.

7.2 In the event that any portions of the Program related to specific elements or sub-elements (of the terrestrial facilities listed in Condition 5.2) are not submitted as required by Condition 7.1, the person taking the action must submit the portion of the Program relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Program must meet the objective identified in Condition 7.3 and the requirements of Condition 7.4 as determined by the Minister.

7.3 The objective of this Program 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.

7.4 The Program must include:

- I. Indicators, parameters and criteria to be used in measuring changes on the ecological elements identified in Condition 5.1 that are at risk of Material or Serious Environmental Harm due to construction and operation of terrestrial facilities listed in Condition 5.2.
- II. Protocols for on-going reporting of adverse changes to the ecological elements listed in Condition 5.1;
- III. Management Triggers;
- IV. Protocols for identifying additional areas not originally identified that are at risk of sustaining Material or Serious Environmental Harm from the action, and for adding monitoring sites to include these additional locations, if required;
- V. Establishing an ecological 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 Western Australian Minister, any environmental harm to the ecological elements listed in Condition 5.1;
- VI. Location of monitoring sites in areas that are at risk of Material or Serious Environmental Harm due to construction and operation of terrestrial facilities listed in Condition 5.2; and
- VII. Location of reference sites (see Condition 5.3.iii).

7.5 The person taking the action must implement the Program.

8. Terrestrial and Marine Quarantine Management System

8.1 Prior to commencement of construction of any terrestrial facilities listed in Condition 5.2 and the marine facilities listed in Condition 11.3, the person taking the action must submit the Quarantine Management System (QMS) to the Minister, for approval, taking into account the

advice of the Quarantine Expert Panel (QEP) established under the Western Australian Minister's approval for the action, unless otherwise allowed in Condition 8.2.

8.2 In the event that any portions of the QMS related to specific elements or sub-elements (of the terrestrial facilities in Condition 5.2 and the marine facilities in Condition 11.3) of the action are not submitted as required by Condition 8.1, the person taking the action must submit the QMS portions relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, taking into account the advice of the QEP that meets the aim and objectives set out in Condition 8.3 and the requirements of Condition 8.4, as determined by the Minister.

8.3 The overall aim of the QMS is that the person taking the action must not introduce or allow to proliferate Non-indigenous Terrestrial Species and Marine Pests to or within Barrow Island or the Waters Surrounding Barrow Island, as a consequence of the action. The specific objectives of the QMS are:

- I. To prevent the introduction of Non-indigenous Terrestrial Species and Marine Pests;
- II. To detect Non-indigenous Terrestrial Species (including weed introduction and/or proliferation) and Marine Pests;
- III. To control and, unless otherwise determined by the Western Australia Minister on the advice of the QEP, eradicate detected Non-indigenous Terrestrial Species (including weeds) and Marine Pests; and
- IV. Mitigate adverse impacts of any control and eradication actions on indigenous species taken against detected Non-indigenous Terrestrial Species (including weeds) and Marine Pests.

8.4 The QMS must address the following topics. These topics are specified in more detail in Schedule 4:

- I. Risk Assessment, Supply Chain Management, Vessel Management and Inspection;
- II. Detection, Control and Eradication Program;
- III. Mitigation (including a weed hygiene procedure) and any Control and Eradication Program;
- IV. Reporting and Recording;
- V. Integrating with whole of Island Quarantine Management;
- VI. Reviewing and further studies;
- VII. Weed Management Procedures; and
- VIII. 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.

8.5 The person taking the action must implement the QMS required by Condition 8.1.

8.6 The person taking the action must review and update the QMS required by Condition 8.1 annually during the construction phase of the action, and then at least every five years thereafter in accordance with Condition 4.2 (unless this time period is varied by the Minister in accordance with Condition 25).

9. Fire Management Plan

9.1 Prior to commencement of construction of any terrestrial facilities identified in Condition 5.2 the person taking the action must prepare and submit a Fire Management Plan (the Plan) to the Minister, for approval, that meets the objectives set out in Condition 9.4 and the requirements of Condition 9.5, as determined by the Minister, unless otherwise allowed in Condition 9.2, consistent with the requirements of the *Occupational Safety and Health Act*

1984 (WA).

9.2 In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities listed in Condition 5.2) of the action are not submitted as required by Condition 9.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the planned commencement of construction of that element or sub-element. All portions of the Plan must meet the objectives identified in Condition 9.4 and the requirements of Condition 9.5 as determined by the Minister.

9.3 The person taking the action must consult with the DEC, Conservation Commission, DEWHA, the BICC Participants, and DMP in the preparation of the Plan.

9.4 The objectives of the Plan are to ensure that:

- I. The action does not cause Material or Serious Environmental Harm outside the Terrestrial Disturbance Footprint due to fire; and
- II. Fire risk reduction measures are built into the design of the facilities to protect the person taking the action's assets from the impact of fire on Barrow Island.

9.5 The Plan must include the following:

- I. A fire risk assessment of all action infrastructure and measures to protect infrastructure and the surroundings from fires on Barrow Island;
- II. On-going management of infrastructure for fire prevention, suppression and management including incident control systems so that fires do not escape from the Terrestrial Disturbance Footprint;
- III. Performance Standards against which achievement of the objectives of this condition can be determined; and
- IV. A description of the arrangements to identify, suppress and manage fires caused by the action outside the Terrestrial Disturbance Footprint.

9.6 The person taking the action must implement the Plan.

9.7 The person taking the action must review the Plan at least every five years unless otherwise determined by the Minister.

9.8 In the event that a fire attributable to the action occurs outside the Terrestrial Disturbance Footprint and the Conservation Commission requires that site to be rehabilitated, the person taking the action must develop and implement rehabilitation measures in consultation with DEC, BICC and the Conservation Commission.

10. Groundwater Abstraction Management Plan

10.1 Prior to the commencement of construction of facilities to abstract groundwater for water supply purposes, the person taking the action must submit a Groundwater Abstraction Management Plan (the Plan) to the Minister, for approval, that meets the objective set in Condition 10.3 and the requirements of Condition 10.4 as determined by the Minister unless otherwise allowed in Condition 10.2A as determined by the Minister.

10.2 In preparing this Plan the person taking the action must consult with DEWHA, DoW and DEC.

10.2A In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities to abstract groundwater) of the action are not submitted as required by Condition 10.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the planned commencement of

construction of that element or sub-element. All portions of the Plan must meet the objective identified in Condition 10.3 and the requirements of Condition 10.4 as determined by the Minister.

10.3 The objective of the Plan is to ensure that groundwater abstraction does not cause Material or Serious Environmental Harm to the target aquifer, surface vegetation or subterranean fauna habitats of Barrow Island.

10.4 The Plan must include:

- I. Practicable environmental triggers for contingency plans to avoid Material or Serious Environmental Harm to the target aquifer, surface vegetation or subterranean fauna habitats of Barrow Island (this may include separate triggers for within and outside the Terrestrial Disturbance Footprint);
- II. Actions (including an immediate reduction in the rate of or cessation of groundwater abstraction) which will be taken to avoid Material or Serious Environmental Harm to the target aquifer, surface vegetation or subterranean fauna habitats of Barrow Island;
- III. Reporting procedures; and
- IV. Performance Standards against which achievement of the objective of this condition can be determined.

10.5 The person taking the action must implement the Plan.

11. Coastal and Marine Baseline State and Environmental Impact Report

11.1 To establish the methodology to be used in the Report required by Condition 11.2, the person taking the action must submit to the Minister for approval a Scope of Works reporting the methodologies to be used in the preparation of the Report that covers the following as determined by the Minister:

- I. Survey methods for each of the ecological elements as listed in Condition 11.2;
- II. Location and establishment of survey sites;
- III. Timing and frequency of surveys;
- IV. Habitat classification schemes;
- V. Mapping methodologies, including Coral Assemblages;
- VI. Treatment of survey data; and
- VII. Method for hydrodynamics data acquisition and reporting.

11.2 Prior to commencement of construction of marine facilities as listed in Condition 11.3, the person taking the action must submit a Coastal and Marine Baseline State and Environmental Impact Report (the Report) that meets the purposes set out in Condition 11.6, and the requirements set out in Conditions 11.7 and 11.8 as determined by the Minister, unless otherwise allowed in Condition 11.4. The Report must cover the following ecological elements:

- I. Hard and soft corals;
- II. Macroalgae;
- III. Non-coral benthic macro-invertebrates;

- IV. Seagrass;
- V. Mangroves;
- VI. Surficial sediment characteristics;
- VII. Demersal fish; and
- VIII. Water quality (including measures of turbidity and light attenuation).

11.3 The marine facilities to which this condition applies are:

- I. Materials Off-loading Facility (MOF);
- II. LNG Jetty;
- III. Dredge Spoil Disposal Ground;
- IV. Offshore Feed Gas Pipeline System in state waters; and
- V. Offshore Domestic Gas Pipeline.

11.4 In the event that portions of the Report related to specific elements or sub-elements (the marine facilities listed in Condition 11.3) of the action are not submitted as required by Condition 11.2, the person taking the action must submit the portion of the Report relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Report must meet the purposes identified in Condition 11.6 and the requirements of Condition 11.7 and 11.8 as determined by the Minister.

11.5 In preparing this Report the person taking the action must consult with CDEEP, DEC, DoT, DoF and DEWHA.

11.6 The purposes of this Report are to:

- I. Describe and map the ecological elements referred to in Condition 11.2(i-vi) within the Zones of High Impact and the Zones of Moderate Impact and representative areas in the Zones of Influence (Schedule 1, Figures 1 and 2; Schedule 5), associated with the generation of turbidity and sediment deposition from dredging and dredge spoil disposal required for marine facilities listed in Condition 11.3(i-iii);
- II. Describe and map the extent and distribution of Coral Assemblages within the Zones of High Impact and the Zones of Moderate Impact which are to be used to calculate the Area of Loss of Coral Assemblages according to the following formula: $a = h + (m \times 30\%)$ where: a = the area (ha) of loss of Coral Assemblages; h = the area (ha) of Coral Assemblages within the Zones of High Impact; and m = the area (ha) of Coral Assemblages within the Zones of Moderate Impact.
- III. Describe and map the benthic ecological elements referred to in Condition 11.2(i-vi) which are at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3(iv-v);
- IV. Describe and map the benthic ecological elements referred to in Condition 11.2 (i-vi) at Reference Sites which are not at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3;
- V. Describe the ecological elements referred to in 11.2 (vii and viii) within the Zones of High Impact and the Zones of Moderate Impact and representative areas in the

Zones of Influence (Schedule 1, Figures 1 and 2; Schedule 5), associated with the generation of turbidity and sediment deposition from dredging and dredge spoil disposal required for marine facilities listed in Condition 11.3 (i-iii);

- VI. Describe the ecological elements referred to in 11.2 (vii and viii) which are at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3 (iv-v);
- VII. Describe the ecological elements referred to in 11.2 (vii and viii) of Reference Sites which are not at risk of Material or Serious Environmental Harm due to construction or operation of the marine facilities listed in Condition 11.3.

11.7 The geographic extent of the Report must be:

- I. The marine facilities listed in Condition 11.3;
- II. Dredge Management Areas (Schedule 1, Figures 1 and 2, Schedule 5) including the Zones of High Impact, the Zones of Moderate Impact and areas in the Zones of Influence including those that contain significant benthic communities including coral assemblages;
- III. the Marine Disturbance Footprint associated with the facilities listed in Condition 11.3 in State waters; and
- IV. Reference sites outside the Zone of Influence.

11.8 The Report must meet the following requirements:

- I. Contain spatially accurate (i.e. rectified and geographically referenced) maps showing the locations and spatial extent of the marine facilities listed in Condition 11.3;
- II. Present the results of the surveys described in Condition 11.1;
- III. Record the existing dominant and sub-dominant hard and soft coral species/taxa and the dominant species of macroalgae, non-coral benthic macro-invertebrates, seagrass and mangroves, and demersal fish assemblages that characterise these communities;
- IV. Record:
 - a. Population structure of coral communities as colony size-class frequency distributions of dominant hard coral taxa;
 - b. Population statistics of survival and growth of dominant hard coral taxa and, if appropriate, selected other indicator coral taxa that characterise these communities; and
 - c. Recruitment of hard coral taxa within these communities.
- V. Contain descriptions and spatially accurate (i.e. rectified and geographically referenced) maps in accordance with the purposes set out in Condition 11.6;
- VI. Present data in an appropriate Geographic Information System (GIS) format; and
- VII. Establish and report on background water quality (including measures of turbidity and light attenuation), the natural rates and spatial patterns of sediment deposition, and the physical characteristics of the deposited sediment and characteristics of surficial sediments where dredging and dredge spoil disposal may affect the environment and at reference sites where the environment will not be affected.

11.9 To meet the requirements of Condition 11.8, the person taking the action must collect water quality data and data on natural rates, and spatial patterns of sediment deposition for at least one full annual cycle prior to the construction of the marine facilities listed in Condition 11.3.

12. Long-term Marine Turtle Management Plan

12.1 Prior to commencement of construction of any facility listed in Condition 5.2 or Condition 11.3 to be located on the east coast of Barrow Island, the person taking the action must prepare and submit to the Minister, for approval, a Long-term Marine Turtle Management Plan (the Plan) that meets the objectives set out in Condition 12.3 and the requirements of Condition 12.4, as determined by the Minister, unless otherwise allowed in Condition 12.1A.

12.1A In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities in Condition 5.2 and the marine facilities in Condition 11.3) of the action are not submitted as required by Condition 12.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, taking into account the advice of the MTEP that meets the objectives identified in Condition 12.3 and the requirements of condition 12.4 as determined by the Minister.

12.2 The person taking the action must consult with MTEP, DEC and DEWHA in the preparation and future updating of the Plan.

12.3 The objectives of the Plan are to:

- I. Address the long-term management of the marine turtles that utilise the east coast beaches and waters where there are action related stressors to marine turtles.
- II. Establish baseline information on the populations of marine turtles that utilise the beaches adjacent to the east coast facilities identified in Conditions 5.2 and 11.3;
- III. Establish a monitoring program to measure and detect changes to the flatback turtle population in accordance with Condition 12.4ii; and
- IV. Specify design features, management measures and operating controls to manage, as far as practicable, and avoid adverse impacts to marine turtles, with specific reference to reducing light and noise emissions as far as practicable.

12.4 The Plan must include the following:

- I. Report the baseline information on the population of marine turtles that utilise the beaches on the east coast of Barrow Island adjacent to the east coast facilities identified in Conditions 5.2 or 11.3;
- II. Define the monitoring program to measure and detect changes to the flatback turtle populations. Monitoring methods must have the ability to detect at a statistical power of 0.8 or greater, or an alternative statistical power as determined by the Western Australian Minister, on advice of the MTEP, changes or impacts on parameters related to population viability;
- III. Identify the significant action related stressors with the potential to cause adverse impact on marine turtles;
- IV. Specify design features, management measures and operating controls to manage and as far as practicable avoid adverse impacts to the marine turtles, including, in relation to light emissions, consideration of the following options:
 - a. shrouding of lights, including ships and other vessels; and
 - b. relocation or shrouding of flares;
- V. Define the scope of studies aimed at understanding the ecology of marine turtles that utilise the east coast beaches and waters where there are action related stressors to marine turtles and studies aimed at understanding links between stressors and marine turtle behaviour to improve the management of impacts;
- VI. Performance Standards against which achievement of the objectives of this condition

can be determined;

VII. Management Triggers; and

VIII. Requirements to comply with the obligations of the person taking the action under the North West Shelf Flatback Turtle Intervention Program as agreed between the person taking the action and the Western Australian Minister.

12.5 Annually audit and review the effectiveness of lighting design features, management measures and operating controls and if reasonably practicable propose and implement improvements to any of those lighting design features, management measures or operating controls in accordance with Condition 25.

12.6 The person taking the action must implement the Plan.

12.7 If the Minister believes, after consideration of the results of monitoring programs under this Plan, and any other information he or she believes to be relevant, that significant adverse effects (attributable to the action) are occurring, he or she may request that the person taking the action undertake contingency measures as he or she directs in accordance with Condition 26.

13. Marine Facilities Construction Environmental Management Plan

13.1 Prior to the commencement of construction of the marine facilities listed in Condition 13.2, the person taking the action must prepare and submit to the Minister, for approval, a Marine Facilities Construction Environmental Management Plan (the Plan) that meets the objectives set out in Condition 13.4 and requirements set out in Conditions 13.5 and 13.6, as determined by the Minister, unless otherwise allowed in Condition 13.1A.

13.1A In the event that any portions of the Plan related to specific elements or sub-elements (marine facilities listed in Condition 13.2) of the action are not submitted as required by Condition 13.1, the person taking the action must submit the portion of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element. All portions of the Plan must meet the objectives identified in Condition 13.4 and the requirements of Condition 13.5 as determined by the Minister.

13.2 The marine facilities relevant to this condition are:

- I. Materials Off-loading Facility (MOF); and
- II. LNG jetty.

13.3 The person taking the action must consult with the DEC, DoF, DoT and DEWHA in the preparation of the Plan.

13.4 The objectives of the Plan are:

- I. To reduce the impacts from the construction of the marine facilities listed in Condition 13.2 (excepting from the generation of turbidity and sedimentation from dredging and spoil disposal) as far as practicable; and
- II. To ensure that construction of the marine facilities listed in Condition 13.2 does not cause Material or Serious Environmental Harm outside the Marine Disturbance Footprint associated with those facilities (except from the generation of turbidity and sedimentation from dredging and spoil disposal).

13.5 The Plan must include the following:

- I. Management measures to reduce the impacts from the construction of the marine facilities listed in Condition 13.2 as far as practicable;
- II. Management measures to ensure that construction of the marine facilities listed in

Condition 13.2 does not cause Material or Serious Environmental Harm outside the Marine Disturbance Footprint;

- III. The measures required by Conditions 13.5.i. and 13.5.ii. must address but not be limited to:
- a. Generation and dispersion of turbidity caused by construction activities other than dredging;
 - b. Monitoring and managing the quality of any decant water released from the MOF bunded area;
 - c. Preventing harm to or fatalities of marine turtles or cetaceans;
 - d. Noise and percussion and other potential impacts associated with drilling and/or piling;
 - e. Generation and dispersion of drilling fluids and drill cuttings;
 - f. Direct disturbance of habitat; and
 - g. The avoidance of blasting as far as practicable and management measures to be applied if blasting is required.
- IV. Performance Standards against which achievement of the objectives of this condition can be determined.

13.6 The person taking the action must implement the Plan.

14. Dredging and Spoil Disposal Management and Monitoring Plan

14.1 Prior to commencement of dredging or spoil disposal activities associated with the marine facilities listed in Condition 13.2, the person taking the action must prepare and submit to the Minister, for approval, a Dredging and Spoil Disposal Management and Monitoring Plan (the Plan) that meets the objectives set out in Condition 14.3 and the requirements of Condition 14.4, as determined by the Minister, unless otherwise allowed in Condition 14.2A.

14.2 In preparing this Plan the person taking the action must consult with CDEEP, MTEP, DEC, DoF, DoT, and DEWHA.

14.2A In the event that any portions of the Plan related to specific elements or sub-elements (the marine facilities listed in Condition 13.2) of the action are not submitted as required by Condition 14.1, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, taking into account the advice of the CDEEP that meets the objectives identified in Condition 14.3 and the requirements of Condition 14.4, as determined by the Minister.

14.3 The objective of the Plan is to manage, and as far as practicable, avoid adverse impacts to marine turtles and EPBC Act listed marine fauna from the works associated with the construction of facilities listed in Condition 13.2.

14.4 The Plan must include the following:

- I. In consultation with MTEP, the following marine turtle monitoring and management elements:
- a. Design features and operating procedures that will be used to minimise as far as practicable adverse impacts to marine turtles from dredging and spoil disposal activities;
 - b. Descriptions of practicable additional management measures to be implemented during marine turtle aggregation and nesting periods, intended to prevent harm or fatalities.

- c. Operating procedures that will be used to detect, record and report to DEC injury or mortality to listed marine turtles from dredging or spoil disposal activities;
- d. Performance Standards against which achievement of the objectives of this condition can be determined; and
- e. Management Triggers.

14.5 Dredging and spoil disposal activities associated with works for the marine facilities listed in condition 13.2 are to cease five days prior to the predicted commencement of significant autumn and spring mass coral spawning or as soon as coral spawning is detected if prior to that predicted time, and to remain suspended for seven days from commencement of mass spawning.

14.6 The person taking the action must implement the Plan.

15. Horizontal Directional Drilling Management and Monitoring Plan

15.1 Prior to the commencement of construction of the Feed Gas Pipeline System Shoreline Crossing on the west coast of Barrow Island, the person taking the action must prepare and submit to the Minister, for approval, a Horizontal Directional Drilling (HDD) Management and Monitoring Plan (the Plan) for the management of HDD activities on the west coast of Barrow Island that meets the objectives and requirements below.

15.2 The person taking the action must consult with the DEC, DoF and DMP in the preparation of the Plan.

15.3 The objectives of the Plan are to:

- I. Reduce the impacts of HDD activities on the Terrestrial and Marine Disturbance Footprints associated with those activities as far as practicable; and
- II. Ensure that HDD activities do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with those activities or exceed the coral loss limit in Condition 15.6.

15.4 The Plan must include:

- I. Management measures to reduce the impacts from HDD activities as far as practicable;
- II. Management measures to ensure that HDD activities do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with those activities, or the coral loss limit in Condition 15.6 to be exceeded; and
- III. Performance Standards against which achievement of the objectives of this condition can be determined.

15.5 The measures required by Condition 15.4i. and 15.4ii. must address:

- I. The generation and dispersion of turbidity associated with discharge of drill cuttings and fluids to the marine environment;
- II. Noise and percussion;
- III. Direct disturbance of habitat;

- IV. Preventing harm to, or fatalities of marine turtles;
- V. The use of low toxicity polymer drilling fluids or water based fluids unless otherwise authorised by the Western Australian Minister;
- VI. Management and disposal of drill cuttings and fluids returned to the surface by circulation to prevent pollution; and
- VII. A marine monitoring program to detect changes to ecological elements outside the Marine Disturbance Footprint components associated with the marine facilities listed in Condition 11.3.

15.6 The Detectable Net Mortality of Coral Assemblages for the HDD activities associated with the construction of the shoreline crossing on the west coast of Barrow Island must not exceed 1.2 ha.

15.7 The person taking the action must implement the Plan.

16. Offshore Gas Pipeline Installation Management Plans

16.1 Prior to commencement of installation of the Feed Gas Pipeline System in State waters and Domestic Gas Pipeline respectively, the person taking the action must submit to the Minister, for approval, an Offshore Gas Pipeline Installation Management Plan (the Plan) that meets the objectives and requirements set out in this Condition.

16.2 In preparing the Plan the person taking the action must consult with DEC, DEWHA and DMP.

16.3 The objectives of the Plan are to:

- I. Reduce the impacts of pipeline installation activities in State waters on the Terrestrial and Marine Disturbance Footprints associated with those facilities listed in Condition 16.1, as far as practicable; and
- II. Ensure that pipeline installation activities in State waters do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with the facilities listed in Condition 16.1.

16.4 The Plan must include:

- I. Management measures to reduce the impacts from pipeline installation activities in State waters, as far as practicable;
- II. Management measures to ensure that pipeline installation activities in State waters do not cause Material or Serious Environmental Harm outside the Terrestrial and Marine Disturbance Footprints associated with those facilities listed in Condition 16.1; and
- III. Performance Standards against which achievement of the objectives of this condition can be determined.

16.5 The measures required by Conditions 16.4.i. and 16.4.ii. must address:

- I. The generation and dispersion of turbidity associated with pipeline installation activities;
- II. Direct disturbance of habitat;
- III. Preventing harm to, or fatalities of turtles and other EPBC Act listed marine fauna;

- IV. Program for pre and post pipeline installation seafloor survey of the Marine Disturbance Footprint and the areas at risk of Material or Serious Environmental Harm due to the construction of the pipeline in State waters;
- V. Details of mooring pattern design, including range and bearing from fairleads of individual anchor drops to show how the mooring pattern has been designed to limit impacts in coral habitat in State waters;
- VI. Details of a typical mooring pattern design for areas other than coral habitat areas in State waters;
- VII. Procedures to reduce as far as practicable, the impacts resulting from anchoring, wire and chain sweep, and wash from thrusters and propellers, on benthic communities in State waters;
- VIII. Details of proposed hydrotest water discharge and how this will be managed to avoid Material or Serious Environmental Harm to the marine environment; and
- IX. A marine monitoring program to detect changes to ecological elements outside the Marine Disturbance Footprint for the Offshore Gas Pipelines in State waters.

16.6 The person taking the action must implement the Plan.

16A. Plan for the Management of Offshore Impacts

16A.1 Prior to commencement of construction of Offshore facilities in Commonwealth waters, the person taking the action must submit for the Minister's approval a plan (or plans) for managing the impacts of the action. The approved plan must be implemented. The plan (or plans) must address the following, in Commonwealth marine areas:

- I. Design and construction of facilities to allow for the complete removal of all structures and components (except flowlines) above the sea floor;
- II. Sea floor surveys around proposed flowline paths and well sites to identify sensitive marine ecosystems such as reefs, sponge beds and sea grasses and historic shipwrecks;
- III. Selection of flowline paths and well sites to avoid impacts on sensitive marine ecosystems and historic shipwrecks as referred to in 16A.1ii;
- IV. Establish baseline information to inform a risk-based approach to environmental management and monitoring of action-attributable impacts to water quality, benthic flora and fauna and keystone species from the installation and operation of marine facilities.
- V. A schedule of works;
- VI. Managing the impacts on cetaceans, including interaction procedures for aircraft, supply and construction vessels that are consistent with part 8 of the *Environment Protection and Biodiversity Conservation Regulations 2000*;
- VII. Cetacean sightings reporting;
- VIII. Hydrotest fluid type, handling and disposal;
- IX. Ballast water management for international construction vessels arriving in Australia in accordance with Australian Quarantine and Inspection Service *Australian Ballast Water Management Requirements*.

- X. The use and disposal of drilling muds.
- XI. The monitoring and disposal of produced formation water, if it is planned to dispose of it to the Commonwealth marine environment, and
- XII. A plan for contingencies and the management of unplanned events such as oil or gas leaks or spills.

Offshore construction may not commence in Commonwealth marine areas until the plan is approved.

16B. Pipeline Installation Plan

16B.1 The person taking the action must submit for the Minister's approval, a plan or plans to address pipeline installation measures for minimising the potential for impacts on listed threatened turtles and cetaceans during pipeline construction in Commonwealth marine areas. The approved plan must be implemented. The plan (or plans) must address the following impacts in Commonwealth marine areas:

- I. Lighting;
- II. Noise;
- III. Vessel and aircraft interaction procedures;
- IV. Construction methodology;
- V. Any seabed blasting, trenching or rock dumping required and measures to mitigate such effects on listed turtles and cetaceans; and
- VI. The monitoring of any impacts on turtles and cetaceans;

Pipeline construction must not commence in Commonwealth marine areas until the plan or plans are approved.

17. Post-Development Coastal and Marine State and Environmental Impact Survey Report

17.1 The person taking the action must conduct Post-Development Coastal and Marine State Surveys associated with the construction of marine facilities listed in Condition 13.2 in accordance with the approved scope of works required by Condition 11.1, within three months following the date on which the person taking the action issues a certificate of acceptance of the dredge and dredge spoil disposal program under the contract issued for the Program. Surveys must be repeated at the same time of year where practicable for at least an additional two years, unless otherwise determined by the Minister. In determining the need for additional surveys the Minister will take into consideration any advice of the person taking the action, the CDEEP and the Western Australian Minister.

17.2 The purpose of the Post-Development Coastal and Marine State and Environmental Impact Surveys are to determine if changes have occurred to marine ecological elements, including the Area of Loss of Coral Assemblages expressed as hectares, compared with predevelopment baseline marine environmental state established in the Report required by Condition 11.2.

17.3 Within 3 months of completion of each annual Post-Development Coastal and Marine State and Environmental Impact Survey, the person taking the action, on advice of the CDEEP, must report the results of the survey to the Minister, including detected changes to marine ecological elements listed in Condition 11.2.

17.4 The report of the third and any subsequent Post-Development Coastal and Marine State

and Environmental Impact Surveys must contain recommendations as to the need for continuing the surveys and reporting, for determination by the Minister. In determining the need for additional surveys the Minister will take into consideration any advice of the person taking the action, the CDEEP and the Western Australian Minister.

18. Coastal Stability Management and Monitoring Plan

18.1 Prior to the commencement of construction of the marine facilities listed in Condition 13.2, the person taking the action must submit a Coastal Stability Management and Monitoring Plan (the Plan) to the Minister, for approval, that meets the objectives and requirements set out in this Condition, unless otherwise allowed in Condition 18.1A.

18.1A In the event that any portions of the Plan related to specific elements or sub-elements (Condition 13.2) of the action are not submitted, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, that meets the objectives and requirements set out in Condition 18.

18.2 In preparing the Plan the person taking the action must consult with DoT, MTEP, DEWHA and DEC.

18.3 The objectives of the Plan are to:

- I. Ensure that the marine facilities listed in Condition 13.2 do not cause significant adverse impacts to the beaches adjacent to those facilities; and
- II. Establish a monitoring program to detect adverse changes to the beach structure and beach sediments that could have implications for marine turtles nesting on the beaches adjacent to the marine facilities listed in Condition 13.2 on Barrow Island.

18.4 The Plan must include:

- I. Baseline state of the beaches adjacent to Town Point from Mean Low Water to the permanent dune vegetation line;
- II. A monitoring program to detect changes to profiles of beaches and sand grain size adjacent to Town Point from Mean Low Water to the permanent dune vegetation line and the extent of any erosion or accretion of sand;
- III. Performance Standards against which achievement of the objectives of this condition can be determined; and
- IV. Management Triggers.

18.5 The person taking the action must implement the Plan.

18.6 If monitoring shows that the beach profiles and sand grain size do change beyond the Performance Standards set, the person taking the action must submit, with the advice of the MTEP, a report to the Minister within three months of detection describing:

- I. The nature and extent of any change and implications for marine turtle nesting;
- II. The likely causes of that change; and
- III. Proposed mitigation measures, including identifying appropriate sand sources and vegetation stock for any rehabilitation works required.

18.7 In preparing any report required as part of this Condition the person taking the action must consult with DoT, MTEP, DEWHA and DEC.

19. Reservoir Carbon Dioxide Injection System

19.1 Prior to the commencement of operation of the Carbon Dioxide Injection System infrastructure, the person taking the action must prepare and submit to the Minister, for approval, a monitoring program which sets out how the annual reporting requirements for the performance of the Carbon Dioxide Injection System will be met in respect of monitoring any seepage of injected carbon dioxide to the surface or near surface environments, including those which may support subterranean fauna, including the blind gudgeon *Milyeringa verita*.

19.2 The person taking the action must implement the approved Program.

19.3 Within three months of the monitoring program showing a significant increase in the risk of carbon dioxide leakage into the environment inhabited by the blind gudgeon, a survey focused on the assessment of the habitat of the blind gudgeon must be carried out and a plan for practicable action proposed to avoid or mitigate the risk of significant impact to the environment inhabited by the blind gudgeon must be developed. This plan must be provided to the Minister for approval. Once approved by the Minister the plan must be implemented.

20. Solid and Liquid Waste Management Plan

20.1 Prior to commencement of construction of the terrestrial facilities listed in Condition 5.2, the person taking the action must submit a Solid and Liquid Waste Management Plan (the Plan) to the Minister, for approval, that meets the objectives and the requirements in this condition, unless otherwise allowed in Condition 20.1A, to cover all solid wastes, waste from the wastewater treatment plant and other liquid waste.

20.1A In the event that any portions of the Plan related to specific elements or sub-elements (of the terrestrial facilities listed in condition 5.2) of the action are not submitted as required by Condition 20.1, the person taking the action must submit the portions of the Plan relevant to that element or sub-element to the Minister prior to the commencement of construction of that element or sub-element, that meets the objectives and requirements of this Condition.

20.2 The objectives of the Plan are to:

- I. Ensure all action-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;
- II. Ensure discharges from any waste water treatment plant, reverse osmosis plant, or other process water are disposed of via deep well injection, unless otherwise authorised by the Western Australian Minister; and
- III. Ensure any deep well injection of action-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.

20.3 The Plan must include:

- I. A description of the facilities to be provided and management measures to be implemented to ensure wastes are managed to meet the objectives set in this Condition; and
- II. Performance Standards against which achievement of the objectives of this condition can be determined.

20.4 The person taking the action must implement the Plan.

21. Decommissioning and Closure

21.1 A decommissioning and closure plan (covering both Marine and Terrestrial Facilities) must be prepared for the Minister's approval at least one year prior to the anticipated date of decommissioning. Once approved by the Minister, the plan must be implemented.

22. Public Availability of Plans, Reports, Systems and Programs

Management plans, reports, systems and programs (however described) referred to in these conditions of approval must be made publicly available as determined by the Minister.

23. Independent Audit

Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.

24. Record Keeping

The person taking the action must maintain accurate records of activities associated with or relevant to the above conditions of approval, and make them available on request by the Department. Such documents may be subject to audit by the Department and used to verify compliance with the conditions of approval.

25. Process for Variation to Plans, Reports, Systems or Programs

If the person taking the action wishes to carry out an action otherwise than in accordance with any plan, report, program or system (however described) approved in relation to this approval, they may submit a revised plan, report, program or system (however described) for the Minister's approval. If the Minister approves a revised plan, report, program or system (however described) the person taking the action must implement that plan, report, program or system (however described) instead of the plan, report, program or system (however described) as originally approved.

26. Right of Minister to require Revisions

If the Minister believes that it is necessary or desirable for the better protection of any relevant controlling provision to do so, the Minister may request that the person taking the action make specified revisions to any plans, reports, programs or systems (however described) approved pursuant to these conditions. The person taking the action must comply with any such request. The revised plans, reports, programs or systems (however described) must be implemented.

27. Commencement of Action

If the action has not been substantially commenced within 5 years of the date of this approval the action must not commence without the written agreement of the Minister.

28. Approval for Components of Activities

Where a plan, report, program or system (however described) is required by these conditions prior to construction or operation of any terrestrial facility listed in Condition 5.2 or marine facility listed in Condition 11.3 or offshore facility in Commonwealth marine areas, it will be sufficient for the person taking the action to submit and have approved that component of the plan, report, program or system relevant to that Facility before commencing construction or operation of that facility.

Schedule 1

Figure 1: Dredging and Spoil Disposal – Zones of High Impact, Zones of Moderate Impact and Zones of Influence – Regional Perspective

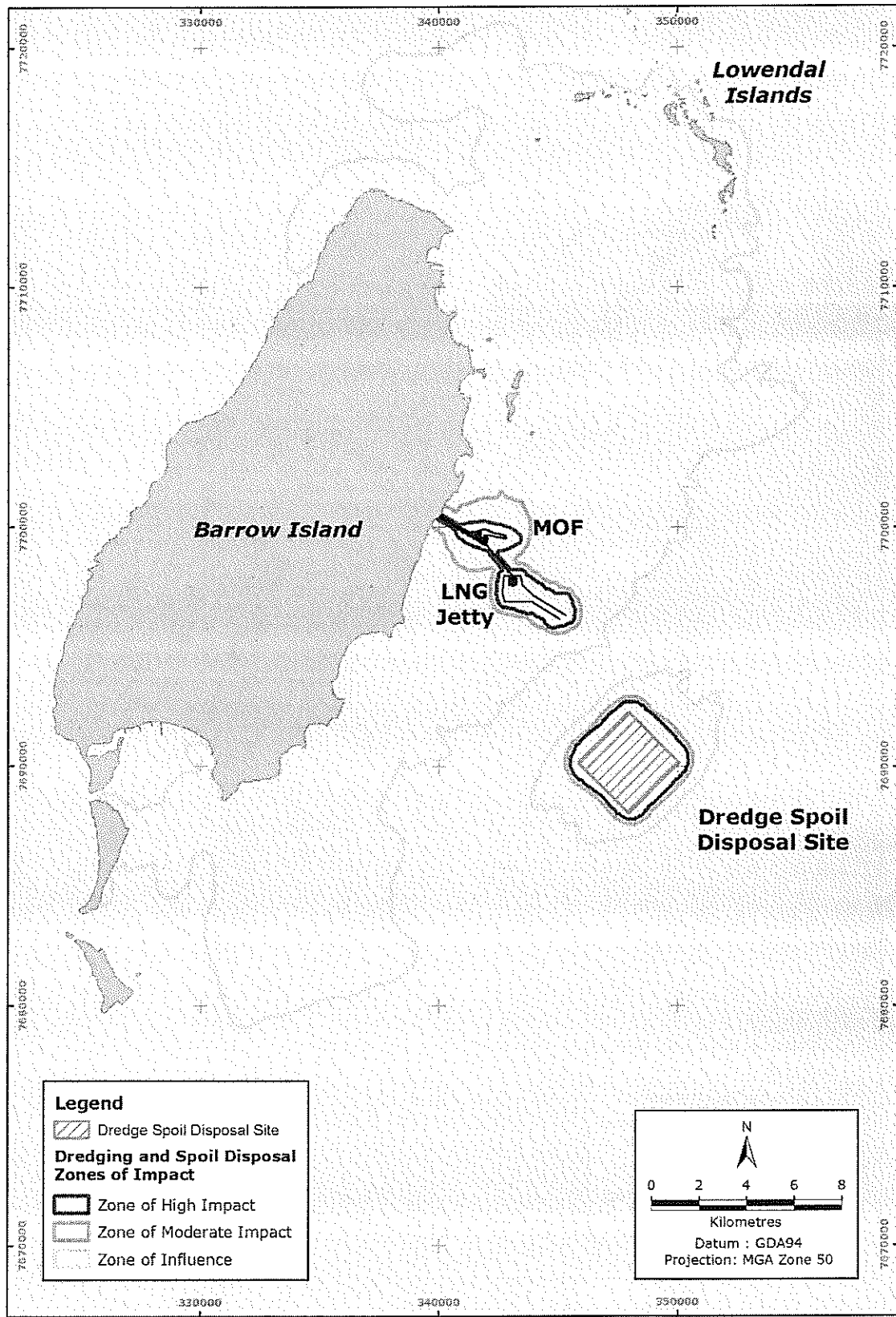
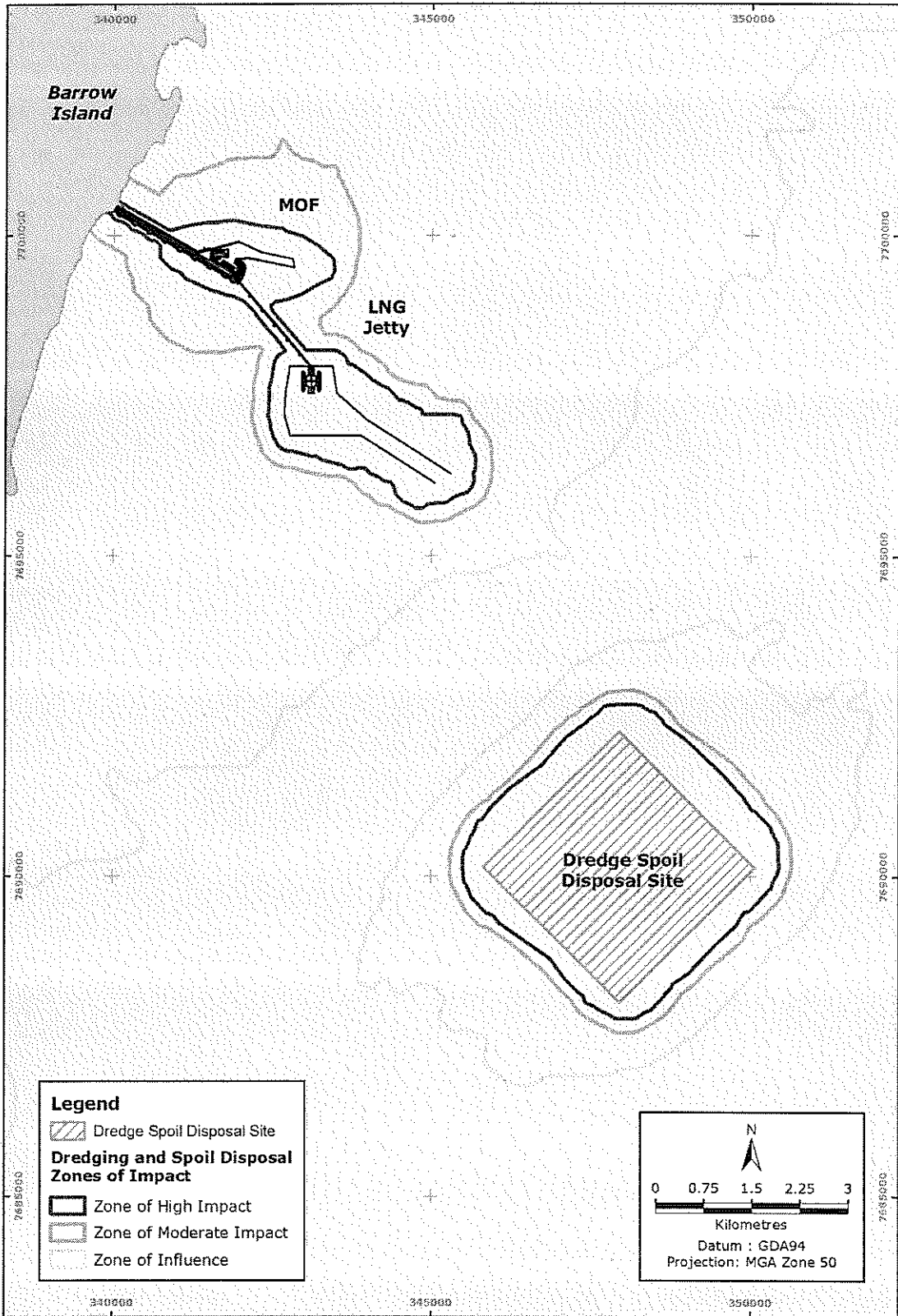


Figure 2: Dredging and Spoil Disposal – Zones of High Impact, Zones of Moderate Impact and Zones of Influence – Focus on Dredging and Spoil Disposal



NOTE: Refer to Schedule 5 for coordinates of the zones.

Schedule 2: Definitions

AQIS – Australian Quarantine Inspection Service.

Associated Terrestrial Infrastructure includes terrestrial component of the barge landing (WAPET Landing) upgrade, construction village, operations workforce accommodation, administration and operations complex, utilities area, utilities corridors, road upgrades, airport modifications, communications and water supply.

Barrow Island Coordination Council Participants – The Gorgon Joint Venture participants, the Barrow Island Joint Venture Participants and any other future Industry Participant.

BI or BWI – Barrow Island

BICC – Barrow Island Coordination Council as established under Schedule 1 of the *Barrow Island Act 2003 (WA)*.

Carbon Dioxide (CO₂) Injection System – the mechanical components required to be constructed to enable the injection of reservoir carbon dioxide, including but not limited to compressors, pipelines and wells.

CDEEP – Construction Dredging Environmental Expert Panel as established under the Western Australian Minister's approval of this action.

Coral definitions:

Coral Assemblages are benthic areas (minimum 10 m²) or raised seabed features over which the average live coral cover is equal to or greater than 10%.

The Change in coral mortality is determined by subtracting the baseline extent of Gross coral mortality from the extent of Gross coral mortality measured on a sampling occasion.

Detectable Net Mortality is the result of subtracting the Change in coral mortality at the Reference Site(s) from the Change in coral mortality at the Monitoring Site.

Average Net Detectable Mortality is the result of averaging the net detectable mortality of all monitoring sites within the Zone i.e. the mean of net detectable mortality of any Zone.

Gross coral mortality at a site is expressed as a percentage of total coral cover at the time of sampling at that monitoring location.

In determining the coral loss, measurement uncertainty is to be taken into consideration.

Construction – Construction includes any action-related construction and commissioning activities within the Terrestrial and Marine Disturbance Footprints, excluding investigatory works such as, but not limited to, geotechnical, geophysical, biological and cultural heritage surveys, baseline monitoring surveys and technology trials.

Construction Period - The period from the date on which the Gorgon Joint Venture participants first commence construction of the action until the date on which the Gorgon Joint Venture participants issue a notice of acceptance of work under the EPCM, or equivalent contract entered into in respect of the second LNG train of the Gas Treatment Plant.

DAF – Western Australian Department of Agriculture and Food.

DEC – Western Australian Department of Environment and Conservation.

The **Department** is the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

Deep wells (in the context of liquid waste disposal) – refer to injection wells completed in the Barrow Group (a well defined geological formation approximately 1,000 – 1,800m below the surface).

DEWHA is the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

Disposal of carbon dioxide (CO₂) underground – an activity conducted pursuant to Part 4 section 13 and Clauses 7, 8 and 9 of Schedule 1 of the *Barrow Island Act 2003*.

DMP – Western Australian Department of Mines and Petroleum.

DoF - Western Australian Department of Fisheries.

DoT – Western Australian Department of Transport.

DoW – Western Australian Department of Water

Dominant coral species – species with the highest relative percentage cover. Percentage cover is expressed as the proportion of total coral cover.

DRF – Declared Rare Flora has the meaning given by the *Wildlife Conservation Act 1950 (WA)*.

Dredge Management Areas – The Zone of High Impact, the Zone of Moderate Impact and areas in the Zone of Influence including those that contain significant benthic communities including Coral Assemblages.

DSD – Western Australian Department of State Development.

Ecological Community – refers to all the interacting organisms living together in a specific habitat.

EIS/ERMP - the Environmental Impact Statement/Environmental Review and Management Program for the Proposed Gorgon Development dated September 2005 as amended or supplemented from time to time.

Endemic – Unique to an area; found nowhere else.

Environmental Harm - has the meaning given by Part 3A of the *Environmental Protection Act 1986 (WA)*.

EP Act – *Environmental Protection Act 1986 (WA)*.

EPBC Act – *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*.

EPBC listed species means a species included in the list of threatened species established under section 178 of the EPBC Act or the list of migratory species established under section 209 of the EPBC Act.

EPCM - Engineering, Procurement and Construction Management.

GIS – Geographic Information System.

GJV – Gorgon Joint Venture.

Greenhouse gas abatement 'Beyond No Regrets Measures' – are measures that involve additional costs to the action which are unlikely to be recovered.

Greenhouse gas abatement 'No Regrets Measures' – are measures that are cost-neutral and do not add additional cost to the action.

HDD – Horizontal Directional Drilling.

Initial Water Quality Criteria – Numerical criteria, based on the link between water quality and coral health, for measurable water quality parameters that, if exceeded, indicate the potential for adverse impacts on coral health.

Introduced Terrestrial Species - non-indigenous terrestrial species (including weeds).

LNG – Liquefied natural gas

Management Triggers – are quantitative, or where this is demonstrated to be not practicable, qualitative matters, above or below which relevant additional management measures must be considered.

Marine Disturbance Footprint – the area of the seabed to be disturbed by construction or operations activities associated with the marine facilities listed in Condition 11.3 (excepting that area of the seabed to be disturbed by the generation of turbidity and sedimentation from dredging and spoil disposal).

Marine Pests – Species other than the native species known, or those likely to occur, in the waters of the Indo-West Pacific region and the Pilbara Offshore (PIO) marine bioregion as defined in the *Interim Marine and Coastal Regionalisation for Australia: An Ecosystem Based Classification for Marine and Coastal Environments* (IMCRA, 1997), of which Barrow Island is a part, that do, or may, threaten biodiversity in the Pilbara Offshore (PIO) marine bioregion. As a minimum, the National Introduced Pest Information System Database (NIMPIS, Department of the Environment, Water, Heritage and the Arts, Commonwealth Government), National Priority Pests listed in the document National Priority Pests, Part II, Ranking of Australian Marine Pests (CSIRO Marine Research, 2005) will guide the interpretation of this definition. Additional species may be added on the advice of experts from the WA Department of Fisheries and the Quarantine Expert Panel.

Marine Quarantine Controlled Access Zone – The zone that extends from 500m offshore from the Barrow Island MHHW mark and encapsulates the entire coastline of Barrow Island. The zone also extends 500m from all marine facilities contiguous with Barrow Island.

Marine Quarantine Limited Access Management Zone – The zone that commences at the outer boundary approximately 2.5 km from the Barrow Island shoreline (MHHW Mark) up to the 500 metre mark from the shoreline.

Marine Turtles – Refers to flatback, green and hawksbill turtles nesting on Barrow Island.

Material Environmental Harm – means environmental harm that is neither trivial nor negligible.

Modified Water Quality Criteria – Revised or amended Initial Water Quality Criteria that better represent the link between water quality and coral health.

MOF is the Materials (Marine) Offloading Facility.

Minister is the Australian Government Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

MTEP – Marine Turtle Expert Panel as established under the Western Australian Minister's approval of this action.

Nominal – representative value of a measurable property determined under a set of conditions, by which a product may be described. The actual value will be close to, but may not be exactly

the same, as this representative value once real world factors have been taken into account in accordance with standard engineering practice.

Non-indigenous terrestrial species - Any species of plant, animal or micro-organism not native to Barrow Island. (Native - species that are native to (naturally occurring in) a region. (Reference: State of the Environment Advisory Council (1996). Australia: State of the Environment 1996).

Offshore Construction - all activities related to production drilling installation and commissioning of the Gorgon Gas field Development.

Offshore Facilities – The Sub-sea Gathering System and the Feed Gas Pipeline in Commonwealth marine areas.

Operations – for the respective LNG trains, this is the period from the date on which the Gorgon Joint Venture participants issue a notice of acceptance of work under the Engineering, Procurement and Construction Management (EPCM) contract, or equivalent contract entered into in respect of that LNG train of the Gas Treatment Plant; until the date on which the Gorgon Joint Venturers commence decommissioning of that LNG train.

PER – Public Environmental Review for the Gorgon Gas Development Revised and Expanded Proposal dated September 2008 as amended or supplemented from time to time.

Performance Standards – are matters which are developed for assessing performance, not compliance, and are quantitative targets or, where that is demonstrated to be not practicable, qualitative targets, against which progress towards achievement of the objectives of conditions can be measured.

Permanent Loss - in relation to Coral Assemblages, means loss that does not recover within 30 years of the completion of dredging and spoil disposal.

Practicable - In considering whether a draft Plan meets the requirements of these conditions, the Minister will determine what is 'practicable' (where the relevant condition includes that term) having regard to local conditions and circumstances including but not limited to personnel safety, weather or geographical conditions, costs, environmental benefit and the current state of scientific and technical knowledge.

Porites – An important genus of long-lived, reef building corals.

QEP – Quarantine Expert Panel as established under the Western Australian Minister's approval of this action.

QMS – Quarantine Management System.

Reference Sites – specific areas of the environment, that are not at risk of being affected by the action or existing developments, that can be used to determine the natural state, including natural variability, of environmental attributes such as coral health or water quality.

Regionally Significant Areas – are the regionally significant areas outside the Zones of High Impact, Moderate Impact and Influence on the eastern margins of the Lowendal Shelf to the southern boundary of the Montebello Islands Marine Park, and Dugong Reef, Batman Reef and Southern Barrow Shoals.

Reservoir Carbon Dioxide - a gas stream that consists overwhelmingly of carbon dioxide and coming from the acid gas removal units of the Gas Treatment Plant to be located on Barrow Island. The carbon dioxide will contain incidental associated substances derived from the natural gas and the process used to separate the carbon dioxide from that natural gas.

Serious Environmental Harm - means environmental harm that:

- a) is irreversible, of a high impact or on a wide scale; or

- b) is significant or in an area of high conservation value or special significance and is neither trivial nor negligible.

Short-Range Endemics - Taxonomic group of invertebrates that are unique to an area; found nowhere else and have naturally small distributions (i.e. <10,000km²).

Statistical Power - The probability of detecting a meaningful difference, or effect, if one were to occur. Statistical power indicates, in probability terms, the capability of a test to detect a significant effect if one exists in reality. That is, it indicates how often, if the test were repeated many times, a correct interpretation about the effect could be reached. Statistical power can assume values between 0 and 1 (since probability values are expressed by numbers between 0 and 1 only). Sometimes it is expressed as a percentage - 0 referring to 0%, and 1 referring to 100%.

Sub-dominant coral species – species, excluding Dominant coral species, which have greater than or equal to 5% cover. Percentage cover is expressed as the proportion of total coral cover.

Substantially Commenced - physical construction activities for, and progress of, an important or essential element or elements of the action scope.

Terrestrial Disturbance Footprint – the area to be disturbed by construction or operations activities associated with the terrestrial facilities listed in Condition 5.2.

Terrestrial Quarantine Controlled Access Zone – The zone encompassing the following points of entry to Barrow Island:

- a) Quarantine Approved Premises (marine offloading facility, warehouse, remedial facility, quarantine washdown bay and first stage laydown);
- b) Airport; and
- c) WAPET Landing.

Terrestrial Quarantine Limited Access Management Zone – The Zone encompassing areas of the Terrestrial Disturbance Footprint which are used for intensive, long-term development activities on Barrow Island:

- a) Gas Treatment Plant
- b) Construction Village and Barrow Island Oil Joint Venture Camp
- c) Administration and Operations Complex
- d) Onshore Feed Gas Pipeline System and Carbon Dioxide Injection System corridors.

WAPET Landing - Proper name referring to the site of the barge landing existing on the east coast of Barrow Island prior to the date of this approval.

Water Surrounding Barrow Island - refers to the waters of the Barrow Island Marine Park and Barrow Island Marine Management Area (approximately 4,169 ha and 114,693 ha respectively) as well as the port of Barrow Island representing the Pilbara Offshore Marine Bioregion which is dominated by tropical species that are biologically connected to more northern areas by the Leeuwin Current and the Indonesian Throughflow resulting in a diverse marine biota is typical of the Indo-West Pacific flora and fauna.

Western Australian Minister - The Western Australian Minister responsible for administering the *Environmental Protection Act 1986*.

Schedule 3 – Details of Annual Environmental Performance Reporting

The annual Environmental Performance Report must report on the following environmental aspects of the action, relevant management and associated studies:

1. Terrestrial and subterranean environment state

- i. Results of monitoring and any measurable impacts from action including any changes from the baseline;
- ii. Conclusions as to the action stressors (if any) causing the impacts identified;
- iii. Any mitigation measures applied and results of that mitigation; and
- iv. Any changes to monitoring sites.

2. Terrestrial and marine quarantine (including weed management)

- i. Results of the audits and monitoring programs;
- ii. Detected introduction(s) of non-indigenous terrestrial flora or fauna and marine pest species, including procedure breaches and 'near misses' including special reference to weeds;
- iii. Consequences of the introduction;
- iv. Modification, if any, to the QMS because of:
 - a. Audits and monitoring
 - b. detected introductions;
 - c. 'best practice' improvements
- v. Eradication actions if any taken; reasons for any action or non-action; changes to improve procedures and outcomes and progress;
- vi. Mitigation actions;
- vii. Results of any QMS related studies, where conducted, to improve performance; and
- viii. Weed management incidents;
 - a. New infestations
 - b. Proliferations
- ix. Weed eradication performance; and
 - a. Areas treated
 - b. Results against measurable indicators and limits
- x. Targets proposed for the next year.

3. Marine turtles (including light and noise management)

- i. Results of all marine turtle monitoring carried out by the person taking the action including any detected changes to the flatback turtle population;
- ii. Reportable Incidents involving harm to marine turtles;
- iii. Changes to the marine turtle monitoring program;
- iv. Conclusions about the status of flatback and other marine turtle populations on Barrow Island;
- v. Changes (if any) to the Long-Term Marine Turtle Management Plan;
- vi. Findings of the annual audit and review on the effectiveness of lighting design features, management measures and operating controls including details of light management initiatives and activities undertaken during the year;
- vii. Results of studies undertaken; and
- viii. Noise monitoring results and a discussion on the success (or otherwise) in meeting noise emission targets.

4. Fire management

- i. incidence of fires caused by the action, and fires that impact on the person taking the action's facilities including details of cause, lesson learned and recommended actions;
- ii. Material or Serious Environmental Harm caused by fire directly attributable to the action; and
- iii. Changes to management plan including:
 - a. management responses to address Material or Serious Environmental Harm caused by fire directly attributable to the action; and
 - b. improvement to fire management practices.

5. Carbon Dioxide Injection System

- i. Volume of reservoir carbon dioxide and other acid gases removed from the incoming natural gas stream and available for injection;
- ii. Volume of reservoir carbon dioxide and other gases injected;
- iii. Results of environmental monitoring and identified Material or Serious Environmental Harm, if any, resulting from the seepage of injected carbon dioxide to the surface or near surface environments including those which may support subterranean fauna (including the blind gudgeon (*Milyeringa verita*);
- iv. Reasons for any shortfall between the volume of reservoir carbon dioxide extracted and injected;
- v. In the event the amount of carbon dioxide injected falls significantly below the target levels the person taking the action must report on:

- a. measures that could be implemented that would ensure that target level is met or, if injection is not considered feasible for all or some of the gas, measures to otherwise offset
 - b. which if any of these measures the person taking the action intends to implement; and
- vi. In the event that monitoring shows there is an elevated risk of Material or Serious Environmental Harm and/or risk to human health associated with the injection of reservoir carbon dioxide, the person taking the action must report to the Minister on the efficacy of continuing to geo-sequester and alternative offsets considered instead of continuing injection of reservoir carbon dioxide.

6. Coastal stability

- i. Results of beach and sediment monitoring; and
- ii. Any mitigation measures applied in response to action related impacts of beach profile.

Schedule 4 – Details of the Quarantine Management System

The Quarantine Management System must include the following elements:

1. Risk Assessment, Supply Chain Management and Vessel Management and Inspection:

- i. A qualitative risk assessment of all action-attributable introduction pathways for entry of terrestrial non-indigenous species to Barrow Island and entry of marine pests to the Waters Surrounding Barrow Island;
- ii. Procedures and barriers to be applied at each potential introduction pathway that is directly attributable to the action to ensure that the risk of introducing species is consistent with the objectives of the QMS;
- iii. Procedures and specification for the preparation, packing and shipment of all material destined for Barrow Island related to this action;
- iv. Procedures and checklists for the inspection of all material destined for Barrow Island related to this action;
- v. Procedures for ensuring that any item related to this action which is not approved by an authorised inspector approved according to the procedures specified in the QMS is denied entry to Barrow Island unless remedial cleaning in the Quarantine Approved Premises have made such item/s quarantine compliant;
- vi. An accreditation program that all action related quarantine inspectors must complete before engaging in quarantine management activities related to this action, in consultation with DEC, DAF and DoF (and AQIS in the event of Direct Shipments to the Quarantine Approved Premises on BI from overseas ports; and
- vii. Procedures for when DEC officers require access to action site.

2. Detection, Control, Eradication and Mitigation Program:

- i. Identify and define the baseline location and extent of known, past and present, non-indigenous terrestrial species (including weeds) in the Terrestrial Quarantine Controlled Access Zone and the Terrestrial Quarantine Limited Access Management Zone;
- ii. A detection program with the ability to detect at a statistical power of 0.8 or greater, or an alternative statistical power as determined by the Western Australian Minister on advice of the QEP, detect the presence of non-indigenous species introduced to Barrow Island or proliferated within the terrestrial construction sites and marine pests in the waters surrounding the person taking the action's marine facilities;
- iii. NIS (including weeds) Management Procedure(s) which sets the management protocol for the development and implementation of specific actions that mitigate the risk of NIS (including weeds) detected from establishing on Barrow Island;
- iv. Species Action Plans for all (unless otherwise determined by the Western Australian Minister on the advice of the QEP) detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island that controls and (unless otherwise determined by the Western Australian Minister on the advice of the QEP) eradicates any introduced or proliferated non-indigenous species on the advice of the QEP. These Species Action Plans to include:

- a. Contingency measures that can be immediately implemented to control and eradicate detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island; and
 - b. Management measures that can be implemented to mitigate impact caused by detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island, and mitigate impact caused in the management of detected terrestrial non-indigenous species on Barrow Island and marine pests in the Waters Surrounding Barrow Island.
- v. Emergency Response and Eradication Protocols to eliminate any Non-indigenous Species as determined by the Western Australian Minister.

3. Reporting and Recording:

- i. Procedures that will be used to maintain electronic records, including a geographic information system (GIS), of breaches of QMS procedures; quarantine incidents which resulted in the introduction of terrestrial non-indigenous species to Barrow Island and marine pests to Waters Surrounding Barrow Island; and corrective actions taken to rectify those breaches, close out incidents, and address introductions that are verifiably attributable to the action;
- ii. Procedures to make information accessible to DEC;
- iii. Provision for reporting detected terrestrial non-indigenous species on Barrow Island and marine pests in the waters surrounding the person taking the action's marine infrastructure on Barrow Island to DEC; and
- iv. Provisions for ensuring that any information regarding quarantine management is available and provided to the DEC in a timely manner.

4. Reviewing, audits and further studies:

- i. Protocols for regular audits of the person taking the action's quarantine management measures in place under the QMS to determine their effectiveness and to determine if any corrective actions are required;
- ii. The regular audits must be conducted at six monthly intervals during the construction phase and at least biennially upon commissioning;
- iii. The person taking the action will undertake quarantine studies from time to time on advice of the QEP when audits and performance monitoring indicate the need to do so.

Schedule 5 – Coordinates that define the Zones of High Impact, Zones of Moderate Impact and Zones of Influence (Table 1)

Reference "Gorgon Gas Development - Zones of High Impact Zones of Moderate Impact and Zones of Influence" Document Number: G1-NT-REPX0002292 Revision 0, dated 7 August 2009.

