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Published on 3 September 2007

Statement No. 747

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PLUTO LIQUIFIED NATURAL GAS DEVELOPMENT (SITE B OPTION) BURRUP PENINSULA, SHIRE OF ROEBOURNE

Proposal:	The construction of facilities for the development of the Pluto Gas Field on the North-West Shelf, and the processing and export of the gas at a liquefied natural gas plant to be constructed on the Burrup Peninsula. Extensive dredging will be undertaken adjacent to the export facility.
	The proposal is further documented in schedule 1 of this statement.
Proponent:	Woodside Energy Ltd (ABN 63 005 482 986)

- Proponent Address: Woodside Plaza, 240 St. George's Terrace, PERTH WA 6000
- Assessment Number: 1632

Report of the Environmental Protection Authority: Bulletin 1259

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as documented and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* (the Act) is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

- 3-1 The proposal must be substantially commenced within 5 years of the date of publication of this statement.
- 3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

- 4-1 The proponent shall submit to the CEO an annual environmental compliance report relating to the previous twelve-month period, the first report to be submitted within 15 months after the commencement of operations and thereafter annually, unless required by the CEO to report more frequently.
- 4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO.
- 4-3 The environmental compliance reports shall:
 - 1. be endorsed by signature of the proponent's Managing Director or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's Managing Director;
 - 2. state whether the proponent has complied with each condition and procedure contained in this statement;
 - 3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;
 - 4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;
 - 5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;
 - 6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;
 - 7. review the effectiveness of all corrective and preventative actions taken; and

- 8. describe the state of implementation of the proposal.
- 4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO.

5 **Performance Review**

- 5-1 The proponent shall submit a Performance Review report every five years after the start of operations to the Environmental Protection Authority, which addresses:
 - 1. the major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives;
 - 2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;
 - 3. significant improvements gained in environmental management, including the use of external peer reviews;
 - 4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
 - 5. the proposed environmental objectives over the next five years, including improvements in technology and management processes.
- 5-2 The proponent shall make the Performance Review reports required by condition 5-1 publicly available in a manner approved by the CEO.

6 Marine Impacts

6-1 The proponent shall undertake all works to ensure that the Limits of Coral Loss, specified in Schedule 2, associated with each of the designated Impact Criteria Zones described and defined in Figure 3, are not exceeded.

- 6-2 If any Level 1 Coral Condition Management Trigger Criterion referred to in Schedule 3 is exceeded, within 12 hours following detection of the exceedance, the proponent shall notify the CEO and provide details of the actions being taken to reduce turbidity-generating activities which are affecting that site; and within 24 hours of the criterion being exceeded, the proponent shall implement management actions to keep impacts within approved limits specified in schedule 2.
- 6-3 If any Level 2 Coral Condition Management Trigger Criterion referred to in schedule 3 is exceeded at any monitoring site, the proponent shall:
 - 1. immediately suspend all dredging and dredge spoil activities that contributed to the exceedance;
 - 2. provide a report to the CEO on the measures to be implemented to keep impacts below the limits in schedule 2, prior to recommencing any dredging and dredge spoil activities that contributed to the exceedance which could affect that site; and
 - 3. provide a report, on advice of the Dredge Environmental Management Group, defining marine water quality conditions which will be met for the endorsement of the Minister for the Environment on advice of the CEO to allow for the recommencement of dredging to ensure that mortality and / or impacts will not exceed the limits specified in schedule 2.
- 6-4 If any Level 3 Coral Condition Management Trigger Criterion referred to in schedule 3 is exceeded at any monitoring site, the proponent shall:
 - 1. immediately suspend all dredging and dredge spoil activities that contributed to the exceedance; and
 - 2. provide a report to the Minister for the Environment regarding the noncompliance with condition 6-1.
- 6-5 Prior to commencement of turbidity-generating activities, the proponent shall prepare a Dredge Impact Management Plan for dredge activities which demonstrates that the activities can achieve the management targets for the Marine Park as set out in the Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area, and which demonstrates that management strategies will be employed which will minimise impacts on benthic habitats and communities (including corals) outside the Marine Park, to the requirements of the Minister on advice of the Environmental Protection Authority.

This Plan shall address the following:

- 1. comprehensive monitoring of water quality, sediment deposition, and coral condition;
- 2. best practice dredge procedures;
- 3. selection of a suitable location for the off-shore spoil ground which demonstrably does not cause impacts on the Marine Park;

- 4. optimum timing of works with respect to sea and meteorological conditions;
- 5. establishment of conservative 'stop work' trigger levels;
- 6. identification and temporal definition of key ecological windows when dredging activity will not occur, such as during coral spawning periods; and
- 7. contingency plans.

Further details on the content required in this Plan is provided in schedule 4.

- 6-6 The proponent shall implement the Dredge Impact Management Plan required by condition 6-5.
- 6-7 The proponent shall make the Dredge Impact Management Plan required by condition 6-5 publicly available in a manner approved by the CEO.
- 6-8 The proponent shall resource a Dredge Environmental Management Group for the duration of the marine works and for such time before and after the marine works so as to carry out its function, to the requirements of the Minister for the Environment.

The role of the Dredge Environmental Management Group is to provide the Minister for the Environment, the Department of Environment and Conservation and the proponent with advice including, but not limited to:

- 1. the marine management plans;
- 2. the marine monitoring programs;
- 3. the management of turbidity-generating activities and marine works;
- 4. impacts on marine fauna and flora, including corals;
- 5. reporting;
- 6. new management measures; and
- 7. Level 1 and 2 Coral Condition Management Trigger Criteria for Zone C as required in Schedule 3.

The membership of the Dredge Environmental Management Group may include:

- an independent chair appointed by the Minister for the Environment on advice from the CEO; and
- experts appointed by the Minister for the Environment;

and the following may nominate one member each:

- the Department of Fisheries;
- the Dampier Port Authority;
- the Department of Environment and Conservation; and
- the proponent.
- 6-9 Prior to commencement of any marine works, the proponent shall prepare and submit to the Department of Environment and Conservation, a Scope of Baseline Marine Habitat Survey document to the requirements of the Minister for the Environment.

The objective of this document is to specify procedures to quantitatively determine the pre-development baseline distribution, community composition and health of benthic marine habitats (see note below) within the area which may be affected by any works associated with the proposal.

This document shall address the following:

- 1. survey methods;
- 2. location and establishment of survey sites;
- 3. timing and frequency of surveys;
- 4. habitat classification schemes;
- 5. treatment of survey data; and
- 6. mapping methodologies.

Note: "Marine habitats" includes hard and soft coral communities, sponge communities, seagrass and macro-algal communities.

- 6-10 The proponent shall provide an initial report on a detailed survey of coral habitat and communities, and a map showing the general distribution of other benthic habitat types (including soft corals, sponges, algal reef communities) within and adjacent to the area of predicted effects of dredging to the Department of Environment and Conservation at least one month prior to the commencement of dredging.
- 6-11 The proponent shall conduct a comprehensive field survey, consistent with the approved Scope of Baseline Marine Habitat Survey document, and provide a report of the results to the Department of Environment and Conservation within six months following commencement of any marine works associated with the proposal.

This report shall:

1. contain spatially accurate (e.g. rectified and geographically referenced) maps showing the locations and spatial extent of the different marine habitat types and percentage cover of each component of their associated benthic communities including corals, macroalgae, non-coral macro-invertebrates and seagrass;

- 2. record the existing hard and soft corals, macroalgae, non-coral benthic macroinvertebrates, seagrass and demersal fish observed within the communities;
- 3. record the population structure, as size class frequency distributions, and other population statistics, such as recruitment, survival and growth, of key hard coral species;
- 4. evaluate baseline pre-development health of the benthic communities at representative survey sites; and
- 5. include data provided in an appropriate Geographic Information System data set format.
- 6-12 Within three months following completion of the marine works, the proponent shall repeat the Comprehensive Field Survey required by condition 6-11, and shall submit a report on the results of that survey to the Department of Environment and Conservation.

This will constitute the first Post-Dredging Marine Habitat Survey, reporting any changes which may have occurred between the Baseline Marine Habitat Survey and the first Post-Dredging Marine Habitat Survey.

- 6-13 The proponent shall repeat the Post-Dredging Marine Habitat Survey referred to in condition 6-12, at the same time of the year annually for three years, or until such time, as determined by the Minister for the Environment on advice of the Department of Environment and Conservation and the Department of Fisheries.
- 6-14 Within three months following completion of each of the surveys required by conditions6-12 and 6-13, the proponent shall report the findings of each of the surveys to the Department of Environment and Conservation.

7 Deepwater Marine Outfall

- 7-1 If a marine wastewater discharge is required by the proponent, the proponent shall construct the associated infrastructure so that wastewater is discharged into water of depth greater than 30 metres outside the Dampier Archipelago, unless otherwise determined by the CEO under Part V of the Act.
- 7-2 Prior to construction of the wastewater treatment plant or the marine outfall, whichever is the sooner, the proponent, in consultation with Department of Environment and Conservation, shall prepare a Marine Treated Wastewater Discharge Management Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The objective of this Plan is to ensure that the discharge of treated wastewater is managed to achieve simultaneously the following Environmental Quality Objectives as described in the document, *Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives* (Department of Environment, March 2006):

- Maintenance of ecosystem integrity with spatially-assigned levels of protection;
- Maintenance of aquatic life for human consumption assigned to all parts of the marine environment surrounding the ocean outlet;
- Maintenance of primary contact recreation values assigned to all parts of the marine environment surrounding the ocean outlet;
- Maintenance of secondary contact recreation values assigned to all parts of the marine environment surrounding the ocean outlet;
- Maintenance of aesthetic values assigned to all parts of the marine environment surrounding the ocean outlet;
- Maintenance of cultural and spiritual values assigned to all parts of the marine environment surrounding the ocean outlet; and
- Maintenance of Industrial Water Supply.

This Plan shall address the following:

- 1. determination of the effect of wastewater flow rate on the number of dilutions the diffuser is predicted to achieve within the zone of initial dilution at maximum flow rate;
- 2. setting of environmental values, environmental quality objectives and levels of ecological protection to be achieved around the outfall;
- 3. identification of a range of feasible and practical management options and the environmental quality indicators and associated "trigger" levels for the implementation of remedial, management and/or preventative actions to protect the water quality and the marine environment based on the guidelines and recommended approaches in ANZECC/ARMCANZ (2000);
- 4. Whole Effluent Toxicity (WET) testing of wastewater, consistent with ANZECC requirements, and addressing the items in schedule 5 (attached);
- 5. redesign and incorporation of a new diffuser, including timelines, in the event that the WET testing results show that the original wastewater diffuser is not achieving sufficient dilutions to meet a high level of ecological protection at the edge of the mixing zone;
- 6. verification of diffuser performance in terms of achieving the required number of initial dilutions under low energy/calm meteorological and sea-state conditions to

achieve a high level of ecosystem protection (99% species protection) at the edge of the approved mixing zone;

- 7. a monitoring program to permit determination of whether the water quality objectives are being met; and
- 8. protocols and schedules for reporting performance against the Environmental Quality Objectives using the environmental quality trigger levels.
- 7-3 The proponent shall implement the Marine Treated Wastewater Discharge Management Plan required by condition 7-2.
- 7-4 The proponent shall make the Marine Treated Wastewater Discharge Management Plan required by condition 7-2 publicly available in a manner approved by the CEO.
- 7-5 Prior to submitting a Works Approval application for the wastewater treatment plant, the proponent shall:
 - 1. characterise in detail the physical and chemical composition and flow rates of all wastewater streams within the site and, using the toxicity of mixtures principles, predict the theoretical toxicity of the combined wastewater after treatment;
 - 2. determine, for all contaminants and nutrients, the total annual loads of contaminants and nutrients in the wastewater discharge exiting the site; and
 - 3. determine, for normal and worst-case conditions, the concentrations of contaminants and nutrients (for agreed averaging periods) in the wastewater discharge exiting the site.
- 7-6 Prior to submitting a Works Approval application for the wastewater treatment plant, the proponent shall demonstrate that the wastewater discharge will meet "best practicable technology" and waste minimisation principles for contaminants and nutrients.
- 7-7 Prior to submitting a Works Approval application for the wastewater treatment plant, the proponent shall design, and subsequently operate, plant and equipment on the site such that:
 - 1. the contaminant concentrations in the wastewater effluent from the site, just prior to entry to the wastewater discharge system, meet (in order of preference):
 - the ANZECC/ARMCANZ (2000) 99% species protection level; or
 - the ANZECC/ARMCANZ (2000) 99% species protection level at the edge of an approved mixing zone;

- the concentrations of contaminants in the wastewater effluent which can potentially bio-accumulate / bio-concentrate meet the ANZECC/ARMCANZ (2000) 80% species protection trigger levels just prior to entry into the wastewater discharge system; and
- 3. mass balances and inventories of toxicants can be maintained throughout the life of the plant so that their fate can be traced.
- 7-8 Within three months following commissioning and stabilising of plant operations, the proponent shall conduct an analysis of effluent properties and contaminant concentrations, to an analytical limit of reporting agreed by the Department of Environment and Conservation, demonstrating that they are substantially consistent with predictions.
- 7-9 Prior to operation, the proponent shall develop a Contingency Wastewater Management Plan which considers alternate options for wastewater disposal in the event that the Environmental Quality Objectives are not met as determined through Whole Effluent Toxicity testing, diffuser performance monitoring or environmental quality monitoring, to the requirements of the Minister for the Environment.
- 7-10 In the event that the treatment plant malfunctions or goes off-line, the proponent shall include within the Contingency Wastewater Management Plan required by condition 7-9 alternative options for wastewater disposal to the timing and other requirements of the Minister for the Environment.
- 7-11 In the event that the Environmental Quality Objectives are not being met, the proponent shall implement the Contingency Wastewater Management Plan required by condition 7-9.
- 7-12 The proponent shall review and revise the Contingency Wastewater Management Plan required by condition 7-9, as and when directed by the CEO.
- 7-13 The proponent shall make any revisions of the Contingency Wastewater Management Plan, as required by condition 7-12, publicly available in a manner approved by the CEO.

8 Marine Quarantine

- 8-1 Prior to commencement of dredging, the proponent shall prepare and implement a Marine Quarantine Management Plan to prevent the introduction of any non-indigenous species to the waters adjacent to the proposal both during dredging and operation, to the requirements of the Minister for the Environment.
- 8-2 Within 48 hours following entry of dredging equipment and/or other vessels associated with dredging into the Port of Dampier, the proponent shall:
 - 1. for vessels originating from Ports outside of State waters, arrange for an inspection and clearance by an appropriately qualified marine scientist;

- 2. for vessels originating from ports within State waters, provide evidence of;
 - a) the vessel being fully cleaned of fouling organisms and sediments immediately prior to departure for the Port of Dampier; or
 - b) inspection of the vessel at the point of departure for the Port of Dampier immediately prior to departure; or
 - c) a risk assessment based on the history of the vessel, its characteristics and use during the implementation of the proposal,

to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

- 8-3 Prior to commencement of operations the proponent shall develop and implement an appropriate protocol for inspection and clearance of vessels during the operational phase of the proposal, on advice of Department of Environment and Conservation.
- 8-4 Prior to the commencement of dredging, the proponent shall report to the Department of Environment and Conservation on the results of the inspection referred to in condition 8-2.
- 8-5 The proponent shall manage any sediment or fouling organisms found as a consequence of the inspection required by condition 8-2, to the timing and other requirements of the Minister for the Environment.
- 8-6 If, following the completion of dredging and disposal activities, the dredging equipment is to be transferred to another location within Western Australia's territorial waters, the proponent shall undertake an investigation employing an appropriately qualified marine scientist to identify the presence of / the potential for introduced marine pests, to the requirements of the Minister for the Environment.
- 8-7 In the event that any introduced marine pests are detected (see condition 8-5), the proponent shall put in place a Marine Pests Management Strategy to ensure that introduced marine pests are not transferred to other locations within Western Australia's territorial waters, to the requirements of the Minister for the Environment.

Note: In the preparation of the report required by condition 8-4, and in the development of any actions required by conditions 8-4 to 8-6, the Environmental Protection Authority expects that advice of the following agencies will be obtained:

- Department of Fisheries; and
- Australian Quarantine Inspection Service.
- 8-8 The proponent shall, for the life of the project, notify the Department of Environment and Conservation, the Department of Fisheries and the Dampier Port Authority of any non-indigenous species detected in the waters adjacent to the project within 24 hours following detection.
- 8-9 In the event that non-indigenous species introduced by the proponent are detected during dredging or operation, the proponent shall take immediate action to prevent establishment and proliferation and shall take action to control and eradicate them to the requirements of the Minister for the Environment.

9 Turtle Management and Monitoring

9-1 Prior to the commencement of works and in consultation with the Department of Environment and Conservation, the proponent shall prepare a Turtle Management Plan to the requirements of the Minister for the Environment.

The objectives of this Plan are:

- to provide a management framework to enable the proponent to manage the project so as to detect and mitigate as necessary ["mitigate" as defined in Environmental Protection Authority Guidance Statement 9] any impact upon marine turtles from the project; and
- to identify darkness strategies to reduce as far as possible lights or light glow interfering with nesting female turtles and hatchlings.

This Plan shall:

- 1. identify project-related stressors, causes of environmental impacts and potential consequences for marine turtles (including impact of noise, vibration, light overspill and glow, vessel strike, and changes to coastal processes); and
- 2. identify and demonstrate the effectiveness of proposed management measures to mitigate [as defined in Environmental Protection Authority Guidance Statement 9] project-related impacts and consequences for marine turtles.
- 9-2 The proponent shall implement the Turtle Management Plan required by condition 9-1.
- 9-3 The proponent shall make the Turtle Management Plan required by condition 9-1 publicly available in a manner approved by the CEO.
- 9-4 The proponent shall review the Turtle Management Plan required by condition 9-1 annually to the requirements of the Minister for the Environment.
- 9-5 The proponent shall report any mortality of marine turtles or other threatened or specially protected marine fauna to the Department of Environment and Conservation within 24 hours following observation.

10 Indigenous Heritage

10-1 Prior to ground-disturbing activities, the proponent shall prepare, in liaison with the Department of Indigenous Affairs, and submit to the Department of Environment and Conservation, a Cultural Heritage Management Plan.

This Plan shall address:

1. the inclusion of cultural heritage awareness training in the workforce induction;

- 2. the signposting and fencing of nearby heritage sites to prevent unauthorised access;
- 3. the monitoring of ground-disturbing activities by an anthropologist/archaeologist and representatives of the Traditional Custodians; and
- 4. the retrieval and relocation of heritage material which lies within the disturbance footprint in consultation with the Traditional Custodians.
- 10-2 The proponent shall implement the Cultural Heritage Management Plan required by condition 10-1.
- 10-3 The proponent shall make the Cultural Heritage Management Plan required by condition 10-1 publicly available in a manner approved by the CEO.

11 Air Emissions

11-1 Prior to submitting a Works Approval application for the plant, the proponent shall submit a detailed Front End Engineering Design Report demonstrating that the proposed works adopt best practice pollution control measures to minimise emissions from the plant, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

This Report shall:

- 1. set out the base emission rates for major sources for the plant and the design emission targets; and
- 2. address normal operations, shut-down, and start-up, and equipment failure conditions.
- 11-2 At least three months prior to commencement of operations, the proponent shall prepare an Air Quality Management Plan to the requirements of the Minister for the Environment.

The objective of this Plan is to ensure that best available practicable and efficient technologies are used to minimise and monitor air emissions from the plant.

This Plan shall include:

- 1. cumulative air quality modelling which uses data from the Front End Engineering Design Report and includes emissions from approved industrial sources at Cape Preston and Barrow Island;
- 2. proposed targets and standards;
- 3. an emissions monitoring programme, which includes nitrogen compounds, butene, toluene, ethylene, xylene, ozone, acrylene and hydrogen sulphide emissions from the plant;

- 4. an ambient air monitoring programme and a nitrogen deposition monitoring programme; and
- 5. annual reporting.
- 11-3 The proponent shall implement the Air Quality Management Plan required by condition 11-2.
- 11-4 The proponent shall make the Air Quality Management Plan required by condition 11-2 publicly available in a manner approved by the CEO.

12 Greenhouse Gas Abatement

- 12-1 Prior to commencement of construction, the proponent shall develop a Greenhouse Gas Abatement Program:
 - to ensure that the plant is designed and operated in a manner which achieves reductions in "greenhouse gas" emissions as far as practicable;
 - to provide for ongoing "greenhouse gas" emissions reductions over time;
 - to ensure that through the use of best practice, the total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product from the project are minimised; and
 - to manage "greenhouse gas" emissions in accordance with the *Framework Convention on Climate Change 1992*, and consistent with the National Greenhouse Strategy;

to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

This Program shall include:

1. calculation of the "greenhouse gas" emissions associated with the proposal, as advised by the Environmental Protection Authority;

Note: The current requirements of the Environmental Protection Authority are set out in: *Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12* published by the Environmental Protection Authority (October 2002). This document may be updated or replaced from time to time;

2. specific measures to minimise the total net "greenhouse gas" emissions and/or the "greenhouse gas" emissions per unit of product associated with the proposal using a combination of "no regrets" and "beyond no regrets" measures;

- 3. the implementation and ongoing review of "greenhouse gas" offset strategies with such offsets to remain in place for the life of the proposal;
- 4. estimation of the "greenhouse gas" efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing a similar product, both within Australia and overseas;
- 5. implementation of thermal efficiency design and operating goals consistent with the Australian Greenhouse Office Technical Efficiency guidelines in design and operational management;
- 6. actions for the monitoring, regular auditing and annual reporting of "greenhouse gas" emissions and emission reduction strategies;
- 7. a target set by the proponent for the progressive reduction of total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product and as a percentage of total emissions over time, and annual reporting of progress made in achieving this target. Consideration should be given to the use of renewable energy sources such as solar, wind or hydro power;
- 8. a program to achieve reduction in "greenhouse gas" emissions, consistent with the target referred to in (7) above;
- 9. entry, whether on a project-specific basis, company-wide arrangement or within an industrial grouping, as appropriate, into the Commonwealth Government's "Greenhouse Challenge" voluntary cooperative agreement program.

Components of the agreement program include:

- 1. an inventory of emissions;
- 2. opportunities for abating "greenhouse gas" emissions in the organisation;
- 3. a "greenhouse gas" mitigation action plan;
- 4. regular monitoring and reporting of performance; and
- 5. independent performance verification.
- 10. review of practices and available technology; and
- 11. "Continuous improvement approach" so that advances in technology and potential operational improvements of plant performance are adopted.

Note: In (2) above, the following definitions apply:

- 1. "no regrets" measures are those which can be implemented by a proponent and which are effectively cost-neutral; and
- 2. "beyond no regrets" measures are those which can be implemented by a proponent and which involve additional costs which are not expected to be recovered.

- 12-2 For the life of the project, the proponent shall provide a greenhouse gas offset package which, as a minimum, offsets the reservoir carbon dioxide released to the atmosphere, to the requirements of the Minister for the Environment.
- 12-3 The proponent shall implement the Greenhouse Gas Abatement Program required by condition 12-1.
- 12-4 Prior to commencement of construction, the proponent shall make the Greenhouse Gas Abatement Program required by condition 12-1 publicly available in a manner approved by the CEO.

13 Offsets

13-1 The proponent shall implement the offset package set out in Schedule 6 to the requirements of the Minister for the Environment on advice of the Department of Environment and Conservation.

14 Decommissioning

- 14-1 Prior to submitting a Works Approval application for the plant, the proponent shall prepare a Preliminary Decommissioning Plan for approval by the CEO, which describes the framework and strategies to ensure that the site is suitable for future land uses, and provides:
 - 1. the rationale for the siting and design of plant and infrastructure as relevant to environmental protection;
 - 2. a conceptual description of the final landform at closure;
 - 3. a plan for a care and maintenance phase; and
 - 4. initial plans for the management of noxious materials.
- 14-2 At least six months prior to the anticipated date of closure, or at a time approved by the CEO, the proponent shall submit a Final Decommissioning Plan designed to ensure that the site is suitable for future land uses, for approval of the CEO.

The Final Decommissioning Plan shall set out procedures and measures for:

- 1. removal or, if appropriate, retention of plant and infrastructure agreed in consultation with relevant stakeholders;
- 2. rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and
- 3. identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.

- 14-3 The proponent shall implement the Final Decommissioning Plan required by condition 14-2 until such time as the Minister for the Environment determines, on advice of the CEO, that the proponent's decommissioning responsibilities have been fulfilled.
- 14-4 The proponent shall make the Final Decommissioning Plan required by condition 14-2 publicly available in a manner approved by the CEO.

Notes

- 1. Where a condition states "on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment and Conservation for the preparation of written notice to the proponent.
- 2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.
- 3. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.
- 4. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

David Templeman MLA MINISTER FOR THE ENVIRONMENT; CLIMATE CHANGE; PEEL

Schedule 1

The Proposal (Assessment No. 1632)

The proposal is for the construction of facilities for the development of the Pluto Gas Field on the North-West Shelf. These facilities are for the transport and processing of the gas at a Liquefied Natural Gas (LNG) plant to be constructed on the Burrup Peninsula.

The gas is to be transported by a sub-sea trunkline to the west coast of the Burrup Peninsula where the LNG plant will be sited on two of the designed Industrial Lease Areas. The storage and export facility is to be constructed on Site A and the gas processing plant is to be constructed on Site B.

Extensive dredging will be undertaken to allow tanker access to the export facility and for gas-trunkline installation.

The proposal is described in the document *Pluto LNG Development – Draft Public Environment Report/Public Environment Review*, prepared by Woodside Energy Ltd. (2006).

The main characteristics of the proposal are summarised in Table 1 below.

ן Fable 1 Summary of key	roposal characteristics	(Assessment No	. 1632)
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Elen	nent	Description		
Dree	lging			
•	navigation channel	approximately 10 kilometres long, 275 metres wide		
•	turning basin	approximately 800 metres diameter		
•	berth pocket	approximately 425 metres x 85 metres		
•	nearshore trunkline trench	approximately 23 kilometres long, 25 metres wide		
•	total volume to be dredged	not more than 14 million cubic metres		
Mar	ine disposal of spoil			
•	spoil ground A/B	not more than 0.25 million cubic metres		
•	offshore spoil ground	not more than 14 million cubic metres		
•	reuse of spoil	not more than 0.8 million cubic metres		
		Note: not more than 14 million cubic metres to be disposed of in total		
Gas	Trunkline			
•	gas field to LNG plant	approximately 32 kilometres of route that is within State		
		territorial waters		
•	rock dumping (stabilisation)	not more than 300 000 cubic metres		
•	sand backfill	not more than 300 000 cubic metres		
Site	Works			
•	clearing on Site A	not more than 23.2 hectares (within disturbance		
•	clearing on Site B	footprint)		
•	salvage and relocation of	not more than 96 hectares (within disturbance footprint)		
	heritage material			
•	drilling and blasting			
•	cut and fill activities			

Elen	nent	Description
Prod	luct storage facility	
•	two cryogenic LNG tanks	each with a capacity of not more than 160,000 cubic
•	three condensate tanks	metres
		combined capacity of not more than 130,000 cubic
		metres
LNG	Plant	
Two	LNG processing trains:	
•	total nominal capacity	12 million tonnes per annum of LNG.
•	power generation (each train)	5 x Frame-6 'dry low NOX' gas turbines
•	gas compression (each train)	3 x Frame-/ dry low NOX gas turbines
•	liquefaction plan (each train)	1 x Frame-5 gas turbine.
•	administration buildings	
•	workshop and control	
	buildings	
•	car parks	
•	internal roads	
D		
Dom	igas	anne simulately 4 million tanges and another (to be refined
Dom	esuc gas supply	approximately 4 million tonnes per annum (to be refined
		at a fater stage)
Flar	es	
•	one on Site A	storage and loading flare
•	three (combined) on Site B	wet flare, LNG flare and common spare flare.
Expo	ort Jetty	
•	jetty	approximately 500 metres long.
Was	tewater treatment plant and	
deep	water marine outfall	
•	discharge of treated	not more than 1000 cubic metres per day.
	wastewater	

Figures (attached)

Figure 1 – Site location and disturbance footprint (Site A)

Figure 2 – Site location and disturbance footprint (Site B)

Figure 3 – Impact criteria zones – coral.



Figure 1:Site location and disturbance footprint (Site A).
(See coordinates attached.)

Site A Disturbance Zone (20/08/2007) Coordinates

(all coordinates	GDA	1994 MGA	Zone 50)
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Pt No	Fasting	Northing	Pt No	Fasting	Northing
Pt 01	474861.80	7721571 10	Pt 57	474790 10	7721595.00
Pt 02	474864 55	7721586 74	Pt 58	474790.10	7721592.90
Pt 03	475127 10	7721438.20	Pt 59	474790 50	7721590.80
Pt 04	475167.20	7721415.60	Pt 60	474791.00	7721588 70
Pt 05	475526.10	7721212 70	Pt 61	474791.60	7721586 70
Pt 06	475539.10	7721203 70	Pt 62	474792.50	7721584.80
Pt 07	475509.30	7721163.10	Pt 63	474793.50	7721582.90
Pt 08	475489.20	7721163.40	Pt 64	474794 80	7721580.30
Pt 09	475414 49	7721064.30	Pt 65	474795.90	7721577 70
Pt 10	475351.90	7721084.00	Pt 66	474796.80	7721574.90
Pt. 11	475327.30	7721094.40	Pt. 67	474797.50	7721572.10
Pt. 12	475325.50	7721091.00	Pt. 68	474797.90	7721569.20
Pt. 13	475327.50	7721086.90	Pt. 69	474798.10	7721566.40
Pt. 14	475322.80	7721075.70	Pt. 70	474798.00	7721563.50
Pt. 15	475313.00	7721055.30	Pt. 71	474797.70	7721560.60
Pt. 16	475305.00	7721039.80	Pt. 72	474797.10	7721557.80
Pt. 17	475293.40	7721020.50	Pt. 73	474796.30	7721555.00
Pt. 18	475279.60	7720999.50	Pt. 74	474796.00	7721554.20
Pt. 19	475272.50	7720989.20	Pt. 75	474795.70	7721553.30
Pt. 20	475264.90	7720979.00	Pt. 76	474795.50	7721552.50
Pt. 21	475257.30	7720965.00	Pt. 77	474795.30	7721551.60
Pt. 22	475094.00	7720917.00	Pt. 78	474795.30	7721550.70
Pt. 23	474927.10	7721009.90	Pt. 79	474795.30	7721549.80
Pt. 24	474923.30	7721083.40	Pt. 80	474795.40	7721549.00
Pt. 25	475016.70	7721247.70	Pt. 81	474795.50	7721548.10
Pt. 26	475010.40	7721271.00	Pt. 82	474795.80	7721547.20
Pt. 27	475046.72	7721334.91	Pt. 83	474796.10	7721546.40
Pt. 28	474856.89	7721442.90	Pt. 84	474796.40	7721545.60
Pt. 29	474854.81	7721442.40	Pt. 85	474796.40	7721545.60
Pt. 30	474843.76	7721441.00	Pt. 86	474796.90	7721544.80
Pt. 31	474833.48	7721441.00	Pt. 87	474797.40	7721544.10
Pt. 32	474825.69	7721441.48	Pt. 88	474797.90	7721543.40
Pt. 33	474819.49	7721441.29	Pt. 89	474802.20	7721540.00
Pt. 34	474807.46	7721441.55	Pt. 90	474803.20	7721539.30
Pt. 35	474795.47	7721444.63	Pt. 91	474804.30	7721538.80
Pt. 36	474785.30	7721449.58	Pt. 92	474805.40	7721538.40
Pt. 37	474777.51	7721454.69	Pt. 93	474806.60	7721538.10
Pt. 38	474765.58	7721462.54	Pt. 94	474807.80	7721537.90
Pt. 39	474755.79	7721469.91	Pt. 95	474809.00	7721537.80
Pt. 40	474748.15	7721477.66	Pt. 96	474810.20	7721537.80
Pt. 41	474744.23	7721480.92	Pt. 97	474811.40	7721537.90
Pt. 42	474732.01	7721484.60	Pt. 98	474812.60	7721538.10
Pt. 43	474710.54	7721483.17	Pt. 99	474813.70	7721538.40
Pt. 44	474697.13	7721509.16	Pt. 100	474814.90	7721538.80
Pt. 45	474707.10	7721556.30	Pt. 101	474816.00	7721539.30
Pt. 46	474727.80	7721582.90	Pt. 102	474817.00	7721539.90
Pl. 47	474769.60	7721620.00	Pl. 103	474020.00	7721545.10
Dt 40	474802.90	7721621 64	Dt 105	414033.10	7721562 40
Г I. 49 Df 50	474002.09	7721600.00	Dt 100	474000.00	7721562.20
Dt 51	414134.00	7721607.00	Dt 107	474857.90	7721564 10
Pt 52	474702.20	7721605 30	Pt 108	474858 70	7721565 10
Pt 52	474701 50	7721603.30	Pt 100	474850.70	7721566 20
Pt 54	474790.80	7721601 30	Pt 110	474860 30	7721567 30
Pt 55	474790.40	7721599 30	Pt 111	474860.00	7721568 50
Pt 56	474790.20	7721597 10	Pt 112	474861 40	7721569.80
		1121001110	Pt. 113	474861.80	7721571.10



Figure 2:Site location and disturbance footprint (Site B).
(See coordinates attached.)

Site B Disturbance Zone (15/06/2007) Coordinates (all coordinates GDA 1994 MGA Zone 50)

P001 476791 62	P002 476756 65	P003 476607 98	P004 476695 96	P005 476693 32	P006 476690 49
7720054 78	7720976 18	7721012.08	7721013 27	7721014 69	7721016.08
D007 476688 20	P008 476684 00	P000 476682 03	D010 476677 68	P011 476672 56	P012 476665 53
7721017.04	7721018 34	7721010 35	7721020 58	7721021 66	7721022 53
D012 476660 52	D014 476655 05	D015 476651 71	D016 476647 86	D017 476644 47	D018 476640 20
7721022 72	F014, 470035.95,	7721022.24	7721021 68	7721021 02	7721010.00
7721022.75, D010_476627.21	7721022.01, D020_476622_92	7721022.24, D021_476620_60	7721021.08,	7721021.02,	7721019.99,
P019, 476637.31,	P020, 476633.82,	P021, 476630.69,	P022, 476628.11,	P023, 476626.48,	P024, 476614.27,
7721019.04,	//21017.78,	//21016.48,	//21015.2/,	7721014.44,	7721026.65,
P025, 4/6613.8/,	P026, 476570.65,	P027, 476531.25,	P028, 476531.33,	P029, 476523.87,	P030, 476524.03,
7721063.11,	7721062.64,	7/21062.21,	7/21054.77,	7721046.21,	7/21041.95,
P031, 476528.14,	P032, 476527.49,	P033, 476526.52,	P034, 476525.08,	P035, 476525.09,	P036, 476516.18,
7721032.14,	7721023.41,	7721013.59,	7721003.37,	7720997.37,	7720995.97,
P037, 476506.42,	P038, 476496.84,	P039, 476486.98,	P040, 476477.00,	P041, 476466.49,	P042, 476462.18,
7720994.18,	7720993.74,	7720993.60,	7720993.72,	7720993.66,	7720989.19,
P043, 476462.20,	P044, 476462.39,	P045, 476462.63,	P046, 476463.78,	P047, 476455.58,	P048, 476445.43,
7720985.49,	7720975.44,	7720965.28,	7720951.43,	7720951.95,	7720952.00,
P049, 476435.11,	P050, 476424.30,	P051, 476414.05,	P052, 476411.45,	P053, 476401.38,	P054, 476399.95,
7720953.07,	7720953.82,	7720953.22,	7720953.25,	7720944.20,	7720932.76,
P055, 476396.99,	P056, 476394.45,	P057, 476385.99,	P058, 476379.80,	P059, 476375.95,	P060, 476347.41,
7720923.34,	7720915.04,	7720908.64,	7720900.44,	7720894.23,	7720906.96,
P061, 476314.71,	P062, 476299.38,	P063, 476298.45,	P064, 476292.18,	P065, 476274.08,	P066, 476229.47,
7720937.09,	7720958.94,	7720961.41,	7720965.24,	7720959.37,	7720994.87,
P067, 476230.52,	P068, 476229.78,	P069, 476230.17,	P070, 476223.65,	P071, 476216.61,	P072, 476209.70,
7721004.03,	7721005.50,	7721017.44,	7721027.32,	7721034.86,	7721043.28,
P073, 476207.63,	P074, 476201.16,	P075, 476177.12,	P076, 475806.16,	P077, 475707.20,	P078, 475628.26,
7721044.47,	7721049.82,	7721058.33,	7721054.27,	7721110.18,	7721154.88,
P079, 475599.15,	P080, 475594.12,	P081, 475593.23,	P082, 475592.47,	P083, 475591.89,	P084, 475591.24,
7721171.34,	7721174.88,	7721175.45,	7721175.96,	7721176.37,	7721176.92,
P085, 475590.53,	P086, 475589.99,	P087, 475589.34,	P088, 475588.53,	P089, 475587.32,	P090, 475582.44,
7721177.49,	7721177.99,	7721178.65,	7721179.47,	7721180.61,	7721185.56,
P091, 475582.16,	P092, 475581.79,	P093, 475581.33,	P094, 475580.51,	P095, 475579.69,	P096, 475578.43,
7721187.41,	7721189.07,	7721191.02,	7721192.85,	7721194.21,	7721196.07,
P097, 475576.24,	P098, 475569.41,	P099, 475543.19,	P100, 475512.21,	P101, 475455.00,	P102, 475425.85,
7721197.51,	7721188.02,	7721153.77,	7721113.29,	7721038.57,	7720999.67,
P103, 475449.49,	P104, 475463.19,	P105, 475463.55,	P106, 475465.20,	P107, 475466.02,	P108, 475478.22,
7721000.72,	7721009.21,	7721009.45,	7721010.44,	7721010.71,	7721016.32,

P109, 475480.44,	P110, 475481.90,	P111, 475483.17,	P112, 475484.69,	P113, 475486.00,	P114, 475487.53,
7721017.06,	7721017.47,	7721017.68,	7721017.90,	7721017.90,	7721017.90,
P115, 475488.83,	P116, 475490.31,	P117, 475493.64,	P118, 475497.02,	P119, 475499.28,	P120, 475500.96,
7721017.68,	7721017.47,	7721016.36,	7721014.67,	7721012.86,	7721011.18,
P121, 475501.98,	P122, 475502.38,	P123, 475503.17,	P124, 475504.26,	, P125, 475504.46,	P126, 475504.76,
7721009.91,	7721009.31,	7721008.32,	7721006.14,	7721005.54,	7721004.94,
P127, 475505.47,	P128, 475505.68,	P129, 475505.78,	P130, 475506.00,	P131, 475506.00,	P132, 475506.00,
7721002.81,	7721001.33,	7721000.73,	7720999.21,	7720997.90,	7720996.37,
P133, 475505.78,	P134, 475505.68,	P135, 475505.43,	P136, 475504.86,	P137, 475504.71,	P138, 475504.55,
7720995.07,	7720994.37,	7720992.88,	7720991.14,	7720990.80,	7720990.16,
P139, 475503.30,	P140, 475466.97,	P141, 475466.82,	P142, 475466.47,	P143, 475464.66,	P144, 475463.38,
7720987.60,	7720912.03,	7720911.88,	7720911.18,	7720908.92,	7720907.64,
P145, 475460.12,	P146, 475457.94,	P147, 475457.34,	P148, 475456.54,	P149, 475454.40,	P150, 475452.53,
7720905.03,	7720903.94,	7720903.74,	7720903.34,	7720902.73,	7720902.42,
P151, 475451.01,	P152, 475449.70,	P153, 475448.29,	P154, 475448.00,	P155, 475370.00,	P156, 475299.13,
7720902.20,	7720902.20,	7720902.20,	7720902.24,	7720821.53,	7720687.00,
P157, 475197.02,	P158, 475207.26,	P159, 475206.63,	P160, 475210.58,	P161, 475214.04,	P162, 475221.88,
7720556.13,	7720529.62,	7720521.71,	7720511.40,	7720500.87,	7720493.11,
P163, 475223.71,	P164, 475232.80,	P165, 475236.89,	P166, 475240.29,	P167, 475244.53,	P168, 475247.88,
7720483.13,	7720474.71,	7720466.73,	7720457.42,	7720448.20,	7720439.51,
P169, 475249.25,	P170, 475250.65,	P171, 475252.33,	P172, 475254.45,	P173, 475256.51,	P174, 475259.37,
7720430.08,	7720420.01,	7720409.88,	7720399.99,	7720389.89,	7720381.09,
P175, 475258.60,	P176, 475252.74,	P177, 475264.18,	P178, 475271.14,	P179, 475275.25,	P180, 475280.90,
7720372.66,	7720363.99,	7720352.36,	7720342.81,	7720330.13,	7720323.06,
P181, 475283.21,	P182, 475287.90,	P183, 475289.14,	P184, 475292.61,	P185, 475297.55,	P186, 475301.20,
7720313.80,	7720305.07,	7720295.45,	7720285.08,	7720275.99,	7720266.73,
P187, 475306.03,	P188, 475311.99,	P189, 475315.53,	P190, 475317.20,	P191, 475321.61,	P192, 475326.76,
7720257.12,	7720248.62,	7720240.40,	7720230.41,	7720220.78,	7720207.03,
P193, 475330.83,	P194, 475333.43,	P195, 475336.25,	P196, 475338.22,	P197, 475340.16,	P198, 475341.79,
7720192.87,	7720183.18,	7720173.75,	7720164.15,	7720154.24,	7720146.92,
P199, 475342.34,	P200, 475344.29,	P201, 475346.60,	P202, 475350.56,	P203, 475337.45,	P204, 475312.88,
7720144.46,	7720134.58,	7720124.61,	7720110.87,	7720106.12,	7720102.93,
P205, 475291.40,	P206, 475266.41,	P207, 475250.88,	P208, 475238.65,	P209, 475051.99,	P210, 475036.21,
7720105.06,	7720113.03,	7720122.50,	7720132.81,	7720331.37,	7720354.81,
P211, 475026.11,	P212, 475028.12,	P213, 475042.47,	P214, 474864.89,	P215, 475409.47,	P216, 475427.61,
7720390.66,	7720424.80,	7720461.50,	7720265.52,	7719943.19,	7719948.63,
P217, 475462.67,	P218, 475472.36,	P219, 475481.94,	P220, 475491.57,	P221, 475500.45,	P222, 475508.96,
7719944.28,	7719947.53,	7719950.98,	7719954.94,	7719959.67,	7719962.64,

P223, 475518.75,	P224, 475528.84,	P225, 475538.11,	P226, 475548.27,	P227, 475559.45,	P228, 475569.74,
7719963.57,	7719965.50,	7719967.20,	7719966.57,	7719966.48,	7719968.82,
P229, 475579.54,	P230, 475589.45,	P231, 475599.25,	P232, 475608.87,	P233, 475618.56,	P234, 475628.36,
7719970.81,	7719972.90,	7719975.30,	7719977.63,	7719979.50,	7719981.13,
P235, 475638.30,	P236, 475648.12,	P237, 475658.41,	P238, 475669.19,	P239, 475680.08,	P240, 475689.42,
7719982.46,	7719983.69,	7719984.08,	7719985.28,	7719988.77,	7719996.34,
P241, 475698.18,	P242, 475704.12,	P243, 475711.47,	P244, 475721.09,	P245, 475731.31,	P246, 475739.80,
7720005.11,	7720016.57,	7720018.47,	7720020.22,	7720021.64,	7720023.91,
P247, 475752.05,	P248, 475763.56,	, P249, 475774.36,	P250, 475782.69,	P251, 475791.44,	P252, 475809.90,
7720019.70,	7720025.83,	7720044.36,	7720049.04,	7720049.04,	7720045.76,
P253, 475788.31,	P254, 475973.11,	P255, 476009.48,	P256, 475895.38,	P257, 475837.53,	P258, 475859.88,
7719990.24,	7719926.86,	7719952.82,	7719991.95,	7720011.79,	7720067.30,
P259, 475873.49,	P260, 475878.81,	P261, 475886.04,	P262, 475884.85,	P263, 475878.87,	P264, 475874.58,
7720069.90,	7720071.14,	7720078.54,	7720088.18,	7720097.69,	7720106.42,
P265, 475870.26,	P266, 475871.42,	P267, 475872.53,	P268, 475873.83,	P269, 475878.11,	P270, 475887.68,
7720116.74,	7720117.95,	7720118.72,	7720119.39,	7720120.73,	7720123.84,
P271, 475897.21,	P272, 475906.25,	P273, 475915.48,	P274, 475925.07,	P275, 475935.57,	P276, 475946.98,
7720127.10,	7720130.29,	7720131.79,	7720132.21,	7720130.90,	7720129.80,
P277, 475958.14,	P278, 475960.89,	P279, 475981.19,	P280, 475929.12,	P281, 475973.74,	P282, 475965.29,
7720131.39,	7720132.44,	7720162.38,	7720336.08,	7720369.44,	7720397.62,
P283, 475970.58,	P284, 475971.94,	P285, 475973.08,	P286, 475974.07,	P287, 475975.11,	P288, 475976.16,
7720407.27,	7720410.43,	7720413.47,	7720416.34,	7720419.15,	7720422.19,
P289, 475977.02,	P290, 475977.60,	P291, 475978.19,	P292, 475978.24,	P293, 475978.05,	P294, 475977.84,
7720425.45,	7720428.58,	7720431.92,	7720435.49,	7720438.67,	7720441.59,
P295, 475977.67,	P296, 475977.25,	P297, 475977.12,	P298, 475976.73,	P299, 475976.08,	P300, 475975.79,
7720444.70,	7720447.58,	7720450.45,	7720454.05,	7720456.14,	7720457.01,
P301, 475975.33,	P302, 475975.11,	P303, 475974.47,	P304, 475974.17,	P305, 475974.10,	P306, 475990.89,
7720458.43,	7720459.09,	7720460.70,	7720462.03,	7720462.60,	7720493.77,
P307, 475977.72,	P308, 475978.08,	P309, 475978.92,	P310, 475979.51,	P311, 475980.05,	P312, 475980.62,
7720537.72,	7720538.54,	7720540.76,	7720542.92,	7720544.87,	7720547.03,
P313, 475981.00,	P314, 475981.33,	P315, 475981.59,	P316, 475981.83,	P317, 475982.07,	P318, 475982.40,
7720549.25,	7720551.23,	7720552.72,	7720553.51,	7720554.25,	7720554.98,
P319, 475982.85,	P320, 475983.24,	P321, 475983.59,	P322, 475984.13,	P323, 475984.88,	P324, 475985.53,
7720555.96,	7720556.82,	7720557.45,	7720558.27,	7720559.47,	7720560.73,
P325, 475986.10,	P326, 475986.57,	P327, 475987.21,	P328, 475987.84,	P329, 475988.27,	P330, 475989.01,
7720561.85,	7720562.78,	7720563.80,	7720564.91,	7720565.51,	7720566.27,
P331, 475990.14,	P332, 475992.45,	P333, 475997.04,	P334, 475998.69,	P335, 476000.80,	P336, 476000.73,
7720567.47,	7720570.17,	7720569.70,	7720569.70,	7720569.23,	7720562.68,

P337, 476003.14,	P338, 476003.40,	P339, 476007.95,	P340, 476014.96,	P341, 476017.56,	P342, 476025.27,
7720557.12,	7720556.77,	7720546.25,	7720539.82,	7720528.58,	7720517.16,
P343, 476039.06,	P344, 476045.01,	P345, 476052.66,	P346, 476059.45,	P347, 476066.74,	P348, 476081.77,
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Figure 3: Impact criteria zones - coral.

Schedule 2

Limits of Coral Loss

Impact Criteria Zones	Direct Loss	Indirect Loss
Α	12,100 m ²	100%
В	0	10% averaged net detectable mortality
С	0	Zero net detectable mortality

Notes:

Direct loss is defined as permanent removal of Benthic Primary Producer Habitat (BPPH) substrate and mortality of coral.

Indirect loss is defined as mortality of coral with no removal of BPPH substrate. BPPH may return at some future time, but this will be dependent upon the condition of substrate and successful recruitment.

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.

Net detectable coral mortality at a monitoring location is the result of subtracting the Change in coral mortality at the Reference Site from the Change in coral mortality at that Monitoring Site.

Net detectable coral mortality averaged is the result of averaging the net mortality of all monitoring locations within the Zone i.e. the mean of net 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.

See Figure 3.

Schedule 3

Coral Condition Management Trigger Criteria

The following Coral Condition Management Trigger Criteria apply to the management of all turbidity-generating activities:

Impact Criteria Zones	Level 1	Level 2	Level 3
Α	N/A	N/A	N/A
В	5% averaged net mortality of coral taxa at monitoring sites	8% averaged net mortality of coral taxa at monitoring sites within Zone B.	10% averaged net mortality of coral taxa at monitoring sites within Zone B.
С	7-day running median suspended sediments concentration at any coral monitoring site is greater than the 7-day running 80th percentile of the reference site/s data collected at the same time or some other water quality parameter determined by the proponent and approved by the Minister on advice from the DEMG.	Sub-lethal effect on more than 10% of coral at any monitoring site within Zone C (sub-lethal indicators to be determined by the proponent and approved by the Minister on advice from the DEMG.	Zero net detectable mortality of coral at <u>any</u> monitoring site within Zone C.

NOTE: In determining that trigger level 3, Zone C has been breached by the proponent, the following should apply. If a level 3 trigger is breached following a level 1 and 2 trigger also being breached, then it should be assumed that the proposal is causing the mortality, whereas if a level 3 trigger is breached without a level 1 and 2 trigger also being breached, then it should be assumed that the proposal is not causing the mortality.

See Figure 3.

Dredge Impact Management Plan

The objectives of this Plan are:

- to demonstrate that dredge activities can achieve the management targets for the Marine Park as set out in the Indicative Management Plan for the Proposed Dampier Archipelago Marine Park and Cape Preston Marine Management Area;
- to demonstrate that management strategies will be employed which will minimise impacts on benthic habitats and communities (including corals) outside the Marine Park;
- to manage turbidity-generating activities and works associated with the proposal;
- to ensure that the Limits of Coral Loss specified in schedule 2 are not exceeded; and
- to select an optimum location for the offshore spoil ground.

This Plan shall include the following elements:

- (1) Scale maps showing:
 - 1. the marine habitats, marine and coastal infrastructure, and Impact Criteria Zones A, B and C shown in Figure 3 and other parts of the Marine Park and Mermaid Sound that might be affected by spoil disposal or related turbidity generating activities;
 - 2. the locations and geographical coordinates of each Impact Monitoring Site and each Reference Site for water quality, sediment deposition and coral condition monitoring; and
 - 3. site designs showing the placement of replicate sample stations, permanent benthic transects, re-locatable quadrats along the transects and marked individual coral colonies within each Impact Monitoring and Reference Site.
- (2) A Water Quality and Sediment Deposition Monitoring Program which:
 - 1. specifies monitoring frequency and the parameters to be measured;
 - 2. details the use of *in-situ* deployable water quality and sediment deposition monitoring instruments, including those with the capability of real-time telemetry access to data;
 - 3. sets out Operating Procedures and QA/QC protocols for environmental condition monitoring methods, site and field instrument maintenance, and data capture, analyses and interpretation;
 - 4. demonstrates that the program has statistical power of 0.8 or greater to detect exceedances of the coral condition management trigger criteria specified in schedule 3 so far as the trigger relates to coral mortality;

- 5. establishes a program to monitor environmental condition to establish predictive links between water quality, sediment deposition and the health of benthic biota and to enable timely management of turbidity-generating activities and marine works to ensure that limits specified in schedule 2 are not exceeded; and
- 6. establishes a survey program for determining the spatial and temporal extent of any changes in the physical properties of surface sediments (less than or equal to 10 cm depth), including sediment particle size composition, within the area of influence of the dredging.
- (3) A remote sensing Water Quality Monitoring Program which:
 - 1. evaluates options for collection of air-borne and/or satellite-borne hyperspectral data, to provide broad-scale, semi-quantitative information on extent and intensity of natural turbidity and the turbidity associated with the construction of marine infrastructure associated with the project;
 - 2. specifies the techniques which will be employed, including the monitoring frequency, resolution and extent of coverage, and showing that coverage extends over at least the entire area predicted to be influenced by turbidity associated with the construction of marine infrastructure associated with the project;
 - 3. sets out Operating Procedures and QA/QC protocols for remote-sensing monitoring methods, instrument maintenance where appropriate, and data capture, analyses and interpretation, including algorithm development; and
 - 4. establishes a program to acquire remotely-sensed water quality data, for a period of at least one month prior to commencement of any turbidity-generating activities, and at regular intervals to enable timely management of turbidity-generating activities and marine works to ensure that limits specified in schedule 2 are not exceeded, and for a period after turbidity-generating activities have ceased, to evaluate the timing and extent of attenuation of turbidity back to pre-development background levels.
- (4) A Coral Condition Monitoring Program which:
 - 1. specifies monitoring frequency for monitoring and reference sites;
 - 2. sets out Operating Procedures and QA/QC protocols for coral condition monitoring methods, site maintenance, and data capture, analysis and interpretation;
 - 3. demonstrates that the program has statistical power of 0.8 or greater to detect exceedances of the coral condition management trigger criteria specified in schedule 3 so far as the trigger relates to coral mortality; and
 - 4. establishes a program to monitor coral condition against the Coral Condition Management Trigger Criteria in schedule 3.

- (5) A Coral Management Framework which:
 - 1. identifies the predicted autumn coral mass spawning periods;
 - 2. specifies procedures to determine when coral spawning will occur outside the autumn mass spawning period;
 - 3. specifies procedures to ensure that turbidity-generating activities which may impact on coral larvae survival cease at least five days prior to the coral spawning events predicted in accordance with items 1 and 2 above, on advice of the Department of Environment and Conservation and the Dredge Environmental Management Group;
 - 4. specifies procedures to ensure that turbidity-generating activities do not recommence until at least three days after completion of each of the mass spawning events to allow for fertilisation, larval competency and settlement; and
 - 5. specifies reporting procedures and protocols.
- (6) An offshore Spoil-ground Site Selection Study that addresses the following:
 - 1. Where site 2B (referred to in the PER) is to be used for dredge spoil disposal apply modelling to determine the extent of any impacts to ensure that the offshore spoil-ground demonstrably does not cause impacts on the Marine Park.
 - 2. In the event that site 2B is unsuitable, identify options for the offshore spoil-ground and then evaluate these options through modelling to determine the extent of any impacts and ensure that the offshore spoil-ground demonstrably does not cause impacts on the Marine Park;
 - 3. Monitoring to ensure that spoil disposed to the spoil-ground does not result in impacts greater than that predicted.
- (7) Develops a Best Practice Dredge Program which:
 - 1. reviews current best practice dredge methods and equipment;
 - 2. compares the proposed dredge equipment with best practice;
 - 3. identifies improvements which could be made to the proposed dredge equipment;
 - 4. evaluates best practice management options for scheduling dredging with respect to meteorological conditions and sea state;
 - 5. addresses the need for blasting and appropriate measures to minimise blast impacts; and
 - 6. prepares a dredge program based on the above information, to minimise impacts generally, and specifically to avoid impact on the Marine Park.

Schedule 5

Whole Effluent Toxicity Testing of Wastewater Discharge

- 1. The objectives of the Whole Effluent Toxicity (WET) testing program are:
 - to determine the toxicity of the wastewater;
 - to evaluate the potential risks to the marine environment associated with the marine discharge; and
 - to determine the number of dilutions of the wastewater which would be required to meet a high level of ecological protection (99% species protection level).
- 2. WET testing must be undertaken in accordance with the protocols and procedures recommended in ANZECC/ARMCANZ (2000);
- 3. WET testing shall be undertaken on the untreated produced water and the actual treated wastewater as soon as they become available;
- 4. After commissioning of the wastewater treatment plant, the proponent shall identify worst-case wastewater composition conditions and collect wastewater samples during these conditions for any further WET testing required;
- 5. WET testing shall be undertaken on the treated wastewater sampled during worst-case conditions one month after commissioning of the wastewater treatment plant and annually thereafter, or immediately following any significant change in the composition of the treated wastewater; and
- 6. The number of dilutions of the wastewater required to meet a 99% species protection level will be calculated using the BurrliOZ software provided free with ANZECC/ARMCANZ (2000).

Schedule 6

Schedule 6 - Summary of the Proponent Offsets

OFFSET	GOVERNANCE	TIMELINE	COST
The management and monitoring of the proposed conservation zone at Site A for the life of the project and identification of the long-term conservation outcome post project completion.	WEL and DEC to agree management and monitoring scope. WEL to implement.	Ongoing for the life of the project.	\$30,000 p.a. management and monitoring costs during construction phase (2008-10). Ongoing operational costs to be reevaluated following initial monitoring and maintenance phase.
Rehabilitation/restoration of degraded areas that fall both outside of the lease and outside areas of potential industrial development. Woodside to work with DEC to identify potential rehabilitation areas.	 WEL and DEC to agree scope of rehabilitation areas and criteria. WEL and DEC to agree the mechanism for implementation from one of three options: 1. WEL implementation 2. DEC implementation 3. Contractor implementation 	Commence in 2008. Reevaluation post construction phase.	\$70,000 for establishment of a restoration program in 2008. \$30,000 p.a. maintenance and monitoring costs during remaining construction phase (2009-13). Ongoing operational costs to be reevaluated following initial monitoring and maintenance phase.
Taxonomic studies on the 37 flora species of conservation significance (undescribed, poorly known, taxonomic problem taxa) on the Burrup.	WEL and DEC to agree scope. DEC funded to undertake taxonomic studies as the capacity, facilities and skills are readily available at the WA Herbarium	Completed by DEC 2008.	\$250,000
Research and monitoring consistent with the Indicative Management Plan for the Dampier Archipelago Marine Park.	WEL and DEC to agree scope. DEC funded to undertake research in collaboration and partnership with other key partners.	2008-2012	\$3.8 million (\$760,000 pa)
Improving capacity within government and the private sector to manage dredging impacts on tropical coral reef communities involving: Phase 1. the acquisition of field data, and Phase 2. the acquisition of laboratory- generated data.	WEL and DEC to agree scope. WEL to implement.	Before, during and following dredging.	Phase 1 - \$2.6 M Phase 2 - \$600,000
Genetic work to resolve taxonomic uncertainties in relation to Rhagada sp 12	University of Western Australia commissioned to undertake this project (in consultation with DEC and WAM).	2008-2011	\$100,000
Enthno-botanical study to examine likely links between past habitation and use of botanical resources on Woodside leases.	WEL and DEC to agree scope. WEL to implement.	2007-08	\$150,000