Published on 31 August 2007 Statement No. 746

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

MAXIMA 3-DIMENSIONAL MARINE SEISMIC SURVEY
SCOTT REEF

Proposal: The acquisition of three-dimensional seismic data using towed air guns and towed hydrophones at Scott Reef, approximately 430 kilometres north of Broome.

Proponent: Woodside Energy Ltd (ABN 63 005 482 986)

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

Assessment number: 1675

Report of the Environmental Protection Authority: Bulletin 1255

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* 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 In addition to any other reporting requirements under this statement, the proponent shall submit to the CEO an environmental compliance report within three months after completion of the Maxima 3-D Marine Seismic Survey.

4-2 The environmental compliance report 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.

The environmental compliance report shall:

1. be endorsed by signature of the proponent's Managing Director and Chief Executive Officer or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's Managing Director and Chief Executive Officer;

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; and

7. review the effectiveness of all corrective and preventative actions taken.

4-3 The proponent shall make the environmental compliance report required by condition 4-1 publicly available in a manner approved by the CEO.

5 Seismic Survey Parameters

5-1 The proponent shall not discharge air gun arrays of combined capacity exceeding 70 cubic inches outside the survey area defined in Schedule 2 and illustrated in Figure 1 other than that required for the Soft Start Procedure as outlined in Item E of Schedule 3.

5-2 Prior to the commencement of phase II (see note 2) of the Maxima 3-D Marine Seismic Survey, the proponent shall conduct preliminary surveys to determine minimum air gun capacities required for seismic data acquisition and shall use these minimum levels for all seismic data acquisition during phase II of the Maxima 3-D Marine Seismic Survey. At no time shall air gun arrays with a combined capacity greater than 3000 cubic inches be discharged.

5-3 Seismic shots shall be no less than 18 metres apart when air guns are fired.

5-4 The total number of seismic shots fired at the minimum air gun capacity for seismic data acquisition, as determined in accordance with condition 5-2, shall not exceed 70,000 shots in State Waters without the prior written approval of the CEO.

5-5 In water depths of 100 metres or less, the proponent shall not discharge seismic shots within a mapped horizontal distance of 800 metres from a previous sail line of seismic shots unless six hours, or the time interval greater than six hours determined in accordance with conditions 5-7, has elapsed since the previous sail line of seismic shots was discharged.

5-6 In water depths greater than 100 metres, the proponent shall not discharge seismic shots within a mapped horizontal distance of 400 metres from a previous sail line of seismic shots unless six hours, or the time interval greater than six hours determined in accordance with conditions 5-7, has elapsed since the previous sail line of seismic shots was discharged.

5-7 For the duration of phase II of the Maxima 3-D Marine Seismic Survey, the proponent shall ensure that the maximum temporary threshold shift recovery time defining category 1 impacts (refer to Table 2) is no greater than the minimum time interval between sail lines of seismic shots within horizontal distances of 800 metres and 400 metres as outlined in conditions 5-5 and 5-6 and shall ensure that the maximum temporary threshold shift recovery time defining category 1 impacts, and the minimum time interval between sail lines of seismic shots are both greater than or equal to six hours.

5-8 The proponent shall limit the discharge of air guns during phase I of the Maxima 3-D Marine Seismic Survey to that necessary for the purpose of scientific investigation associated with:

1. The approved Adaptive Management Program required by condition 7;
2. The Fish Monitoring Program adopted following peer review in accordance with condition 9;
3. The testing of minimum air gun capacities required for acquisition of seismic data in accordance with condition 5-2;

unless otherwise approved in writing by the CEO.

6 Prevention of Disturbance of Marine Fauna

6-1 To prevent damage to benthic communities, the seismic and support vessels shall not anchor within State Waters except:

1. Where required to support the safe conduct of scientific research and monitoring outlined in this statement; or
2. In the case of an emergency.

6-2 The proponent shall not construct moorings within State Waters at Scott Reef without the prior written approval of the CEO.

6-3 To minimise impacts on breeding turtles, the proponent shall:

1. not discharge air gun arrays:

   (1) with a combined capacity exceeding 70 cubic inches at any time within a three kilometre radius of the Sandy Island weather station tower located at 121º 46'34"E, 14º 03'23"S (datum GDA94);

   (2) within a five kilometre radius of the Sandy Island weather station tower located at 121º 46'34"E, 14º 03'23"S (datum GDA94) between 1 October and 1 April in any year;

2. where practicable, undertake seismic surveys nearest to Sandy Island before the commencement of, or after the end of, the main turtle nesting period (being 1 October to 1 April).

6-4 To minimise impacts on the mass spawning of corals, the proponent shall not discharge air guns during a period of seven days commencing two days prior to the mass release of coral spawn as determined by field monitoring of corals in a manner approved by the CEO.

6-5 The proponent shall not cause category 1, category 2 or category 3 impacts as defined in Table 2 and in accordance with condition 5-7, in areas of the mapped habitats in State waters depicted in Figure 2, that exceed the predicted percentage areas in Table 3 by more than five percent of the total area of each habitat in State Waters.

6-6 Subject to any authority under another written law, nothing in this Statement authorises the proponent to kill any animal except:

1. pelagic fish eggs and larvae within ten metres of the airgun array as a result of air gun emissions; and
2. fish collected and used for research purposes under condition 7 or 9.

6-7 The proponent shall not cause damage to coral or other habitats as a result of air gun emissions.

7 Adaptive Management Program for Seismic Operations

7-1 The proponent shall undertake seismic operations in accordance with the operational framework in Schedule 3.

7-2 Prior to the commencement of phase I of the Maxima 3-D Marine Seismic Survey, the proponent shall obtain approval from the CEO (on advice of the Department of Fisheries and the Department of Industry and Resources) for a Draft Adaptive Management Program.

The objective of this Program is to ensure the implementation of the proposal complies with conditions 6-5, 6-6 and 6-7.

7-3 Following approval of the Draft Program, the proponent shall undertake a preliminary field survey, or phase I of the Maxima 3-D Marine Seismic Survey:

1. at Scott Reef, but not in State Waters other than within the areas defined in Schedule 2 and Figure 1; and
2. using the same air gun array and other seismic acquisition equipment to be used during phase II of the Maxima 3-D Marine Seismic Survey.

7-4 This object of the preliminary survey, or phase I, is to develop the Final Adaptive Management Program for Phase II of the survey, and is to include:

1. Defined and measurable trigger values for modifying and ceasing operations plus a framework of associated operational responses to ensure compliance with conditions 6-5, 6-6 and 6-7 and with the provisions of this statement within State Waters.

2. Operational procedures for ensuring trigger values referred to in point 1 above are met, including:

   (1) time-frames for responses;

   (2) responsible personnel; and

   (3) communication pathways which will ensure that the responsible personnel can assess measured impacts against the required trigger values and implement necessary operational procedures within the required time-frames.

7-5 The preliminary field survey, or phase I of the Maxima 3-D Marine Seismic Survey is to be:

1. of sufficient duration to complete field experimentation necessary to ensure that phase II of the Maxima 3-D Marine Seismic Survey will be compliant with conditions 6-5, 6-6 and 6-7 and to address the requirements of condition 5-2; and

2. in sufficient time prior to the commencement of phase II of the Maxima 3-D Marine Seismic Survey to allow the results of field experimentation to be interpreted and used where necessary to refine the design and operational procedures for the delivery of phase II of the Maxima 3-D Marine Seismic Survey in a manner compliant with this statement.

7-6 Following completion of Phase I of the survey, the proponent is to submit to the CEO a Final Adaptive Management Program at least two business days prior to the commencement of Phase II. The report shall include:

1. confirmation that implementation of Phase II of the survey will comply with this Statement; and
2. details of any proposed modifications to the design or operation to Phase II as a result of the findings of Phase I.

7-7 The proponent shall implement the Final Adaptive Management Program required by condition 7-6.

7-8 The proponent shall make the Final Adaptive Management Program required by condition 7-6 publicly available in a manner approved by the CEO.

8 Cetacean Monitoring

8-1 Prior to the commencement of phase I of the Maxima 3-D Marine Seismic Survey, the proponent shall design and prepare a Cetacean Monitoring Program.

The objective of this Program is to gather information about the patterns of use by cetacean species of the waters around Scott Reef.

This Program shall include methodologies for:

1. Determining the seasonal abundance and locations of listed and priority cetacean species around Scott Reef for a continuous twelve month period; and

2. Recording cetacean sightings in a manner compatible with the National Whale and Dolphin Sightings and Strandings Database which is housed at the Australian Antarctic Division, (Hobart).

8-2 The proponent shall ensure that the Cetacean Monitoring Program required by condition 8-1 has been peer-reviewed and is submitted to the CEO together with peer-reviewer reports and the proponent's responses to the peer-reviewer reports at least ten business days prior to the scheduled commencement of phase I of the Maxima 3-D Marine Seismic Survey.

8-3 The proponent shall implement the peer-reviewed Cetacean Monitoring Program required by condition 8-1.

8-4 The proponent shall make the peer-reviewed Cetacean Monitoring Program required by condition 8-1 publicly available in a manner approved by the CEO.

8-5 Within two years following the commencement of the Maxima 3-D Marine Seismic Survey, the proponent shall:

1. forward to the CEO and to the National Whale and Dolphin Sightings and Strandings Database, all cetacean sightings data from the Cetacean Monitoring Program required by condition 8-1;

2. have prepared peer-reviewed reports or publications addressing the patterns of use by cetaceans of the waters surrounding Scott Reef; and

3. provide to the CEO copies of the reports or publications referred to in point 2 above within fifteen days following their completion.

9 Fish Monitoring

9-1 Prior to the commencement of phase I of the Maxima 3-D Marine Seismic Survey, the proponent shall design and prepare a Fish Monitoring Program.

The objective of this Program is to acquire information about the impacts of seismic surveys on fish.

This Program shall include methodologies for:

1. Characterisation of the behaviours of tropical marine fish species representing members of those groups predicted to flee from seismic shots and members of those groups predicted not to flee from seismic shots, prior to, during and after exposure to a range of seismic shot sequences;

2. Investigation of the types and magnitudes of physiological impacts on the auditory and non-auditory tissues of tropical marine fish as a result of exposure to a range of seismic shot sequences;

3. Investigation of the time-related sequence of damage to, and repair of, auditory hair cells of tropical marine fish following exposure to a range of seismic shot sequences;

4. Investigation of the hearing sensitivity of tropical marine fish species prior to and after exposure to a range of seismic shot sequences; and

5. Characterisation of any changes to the levels of fish diversity and abundance resulting from the Maxima 3-D Marine Seismic Survey, and if changes are detected, characterisation of the recovery of fish diversity and abundance levels until there are no significant differences from the levels of diversity and abundance prior to the Maxima 3-D Marine Seismic Survey, or until three years has elapsed since completion of the Maxima 3-D Marine Seismic Survey.

9-2 The proponent shall ensure that the Fish Monitoring Program required by condition 9-1 has been peer-reviewed and shall submit the Program to the Department of Fisheries and the CEO together with peer-reviewer reports and the proponent's responses to the peer-reviewer reports not less than ten business days prior to the scheduled commencement of phase I of the Maxima 3-D Marine Seismic Survey.

9-3 The proponent shall implement the Fish Monitoring Program required by condition 9-1.

9-4 The proponent shall make the Fish Monitoring Program required by condition 9-1 publicly available in a manner approved by the CEO.

9-5 Within two years following the commencement of the Maxima 3-D Marine Seismic Survey, the proponent shall have prepared peer-reviewed reports or publications addressing the first four components of the Fish Monitoring Program listed above (condition 9-1, points 1 to 4).

Copies of each report / publication shall be provided to the Department of Fisheries and to the CEO as soon as possible after they are completed.

9-6 Within twelve months of finding no significant difference between the pre-survey and post-survey levels of fish diversity and abundance or within one year after monitoring ceases in accordance with condition 9-1(5), the proponent shall complete peer-reviewed reports or publications addressing the fifth component of the Fish Monitoring Program listed above (condition 9-1, point 5).

Copies of each report / publication shall be provided to the Department of Fisheries and to the CEO as soon as possible after they are completed.

10 Non-Indigenous Marine Species Management

10-1 Prior to the deployment to Scott Reef of vessels or any other in-water equipment required to conduct the Maxima 3-D Marine Seismic Survey, the proponent shall obtain approval from the Department of Fisheries for a Non-Indigenous Marine Species Management Plan.

The objective of this Plan is to prevent the introduction of non-indigenous marine organisms into the marine communities of Scott Reef.

This Plan shall:

1. Address the risk of introducing pest species to Scott Reef by documenting a comprehensive recent history of:

   (1) activities;

   (2) locations;

   (3) anti-fouling maintenance; and

   (4) ballast water management, including a description of any internal treatment systems,

   relating to all vessels and in-water equipment required for the seismic survey.

2. Identify management measures required to achieve the objective commensurate with the level of risk associated with the vessel and equipment histories outlined in point 1 above; and

3. Identify operational protocols and response procedures in the event that marine pests are identified. This shall include a flow chart of actions, designation of responsibilities and clear communication pathways.

10-2 The proponent shall implement the approved Non-Indigenous Marine Species Management Plan required by condition 10-1.

10-3 The proponent shall make the Non-Indigenous Marine Species Management Plan required by condition 10-1 publicly available in a manner approved by the CEO.

Notes

1. 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.

2. The Maxima 3-D Marine Seismic Survey includes two phases:
    - Phase I - a preliminary survey required under condition 7-2; and
    - Phase II - the main seismic data acquisition phase.

3. Except as expressly provided, nothing in these conditions should be taken to authorise the discharge of waste, or the causing of pollution or environmental harm under Part V of the Act.

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

Schedule 1

The Proposal (Assessment No. 1675)

A three-dimensional marine seismic survey covering an area of approximately 172 square kilometres within State Waters at Scott Reef, 430 kilometres north of Broome.

The proposal involves short pulse, low frequency, acoustic emissions from air gun arrays towed behind a dedicated seismic vessel. During the acquisition of seismic data, the vessel will move slowly and air guns will be fired every seven to ten seconds which is equivalent to every 18.75 metres. Reflected sound waves are recorded by sensitive hydrophones attached to four solid streamers. The streamers are each up to approximately five kilometres long and they are to be spaced up to approximately 120 metres apart while being towed behind the seismic vessel. The survey is planned to commence during the middle of July 2007. There will be two phases; the first phase is a preliminary survey to validate predicted impacts and ensure compliance with this statement, the second phase is the main seismic data acquisition phase which will be conducted 24 hours per day for approximately 50 days.

The proposal is described in the following document:

Environmental Protection Statement, Maxima 3D Marine Seismic Survey, Scott Reef, Woodside Energy Ltd., Perth, Western Australia (April 2007).

Summary Description
A summary of the key proposal characteristics is presented in Table 1.

Table 1: Summary of Key Proposal Characteristics

Element	Description
Petroleum Permit area	TR/5
Area of seismic acquisition within State Waters	172 square kilometres (approximate)
Length of pre-planned seismic lines	920 kilometres (approximate)
Distance between lines	200 metres (approximate)
Minimum distances of data acquisition from geographical features:	800 metres from the 10-metre lowest astronomical tide level within south Scott Reef Lagoon. 400 metres from the 10-metre lowest astronomical tide level around the outer edges of Scott Reef. 3 kilometres from the old weather station tower on

Element	Description
	Sandy Island 121°46'34"E 14°03'23"S (Datum GDA94).
Range of surveyed water depths	20 metres to 1100 metres (approximate)
Timing: • Commencement of preliminary survey or phase I, • Duration of seismic acquisition survey phase II.	Mid-July 2007 Approximately 50 days
Number of seismic data acquisition shots in State Waters (including pre-planned and infill seismic lines)	Not more than 70,000
Acoustic emissions: • Air gun capacity • Tow depth of air guns • Planned distance between seismic lines • frequency of emissions • shot point interval • Noise profile	 Dual air gun arrays with a combined capacity of up to 3,000 cubic inches 5 metres (approximately) 200 metres (approximately) 7 to 10 seconds 18.75 metres (approximately) Short-pulsed (less than 200 milliseconds) low frequency, with most spectral energy less than 500Hz
Acoustic reception: • Number of solid streamers • Length of solid streamers • Tow depth of streamers • Distance between streamers • Streamer type	 4 up to 5 kilometres 7 metres (approximately) Not less than 100 metres Solid (not filled with kerosene) and fitted with pressure-activated self-inflating buoys.

Tables (attached)

Table 2: Impact categories.
Table 3: Total areas and predicted percentages of benthic habitats in State Waters exposed to the three levels of impacts as defined in Table 2.

Figures (attached)

Figure 1: Maxima 3-D Marine Seismic Survey Acquisition Areas in State and Commonwealth Waters.
Figure 2: Map showing the distribution of benthic habitats at Scott Reef.

Table 2: Impact categories – fish

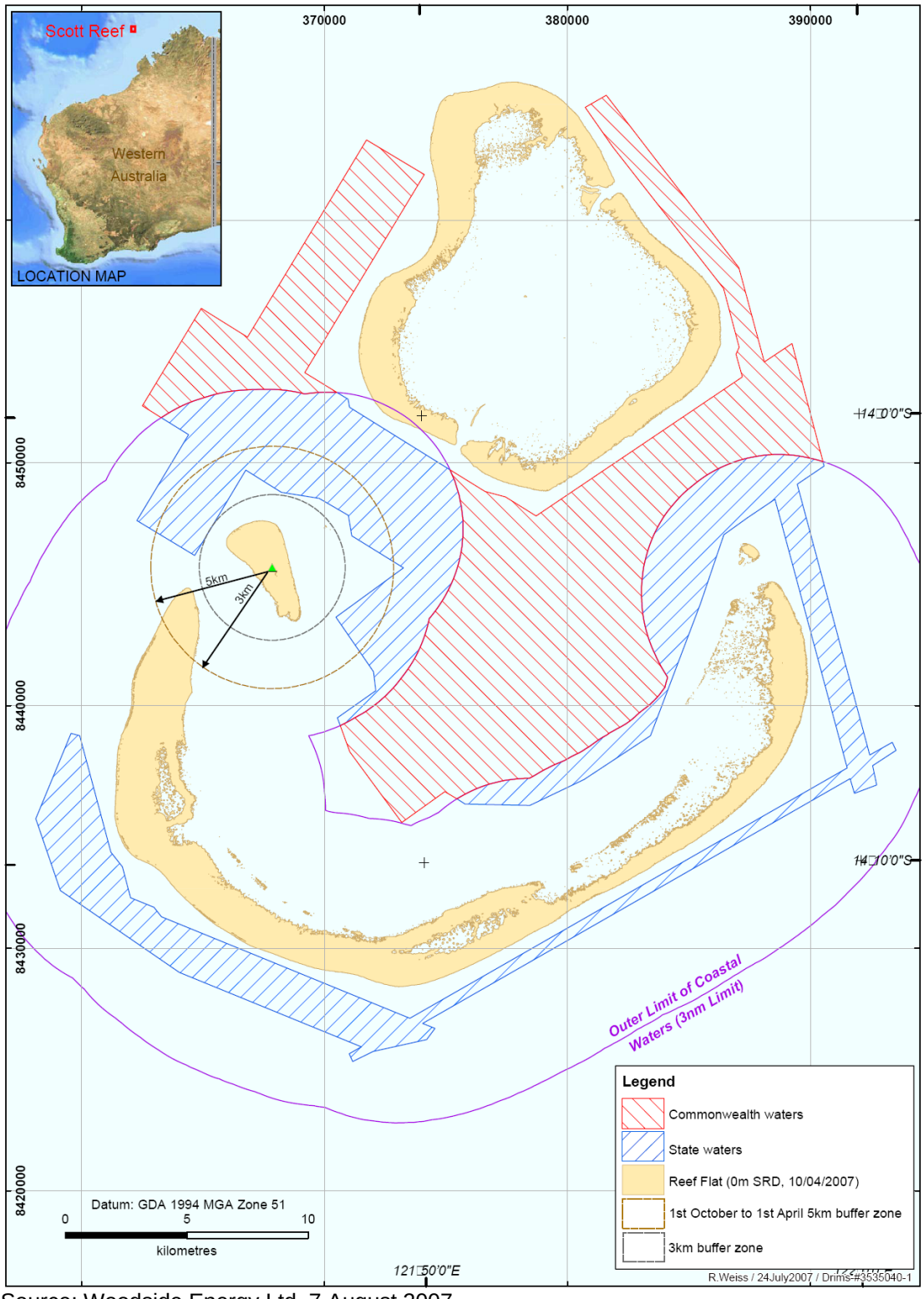
Impact category	Range of Cumulative Sound Energy Levels (*over single seismic line sequence*) predicted to cause each level of impact (dB re 1 µPa^2.s)	Impacts to fish associated with each category as a result of exposure to air gun emissions from a single seismic line or from adjacent planned and infill seismic lines.
1	180 to <187	• Temporary threshold shift from which at least 98 percent of fish recover within 6 hours or the time interval greater than six hours, determined in accordance with conditions 5-7 • No non-auditory tissue damage. • No direct mortality
2	187 to <200	• Temporary threshold shift from which fish may not recover within 6 hours or the time interval greater than six hours, determined in accordance with conditions 5-7; • Permanent threshold shift. • Non-auditory tissue damage unlikely, (less than 5 percent of any fish population exhibiting non-auditory tissue damage). • No direct mortality.
3	Equal to or greater than 200	• Temporary threshold shift • Permanent threshold shift • Possible injury to non-auditory tissues • No direct mortality

Table 3: Total areas and predicted percentages of benthic habitats in State Waters exposed to the three levels of impacts as defined in Table 2.

Benthic Habitat Type	Total Habitat Area (km^2)	Predicted Percentages of Total Habitat Areas Exposed to the three levels of impacts as defined in Table 2 – State Waters Only		
		Percentage area exposed to impacts above the threshold for category 1	Percentage area subject to impacts above the threshold for category 2	Percentage area subject to category 3 impacts
		%	%	%
Deeper-Water High Diversity	16.38	**50**	**44**	**9**
Deep-Water Coral Assemblage	64.21	**46**	**39**	**8**
Deep-Water Foliaceous Coral	49.77	**27**	**23**	**3**
Reef Slope	35.87	**14**	**1**	**0**
Deep-Water Outcrops	3.21	**8**	**6**	**1**
Reef Flat	85.70	**1**	**0**	**0**
All other benthic habitat type not included above	74.10	**0**	**0**	**0**
Total	329.24			

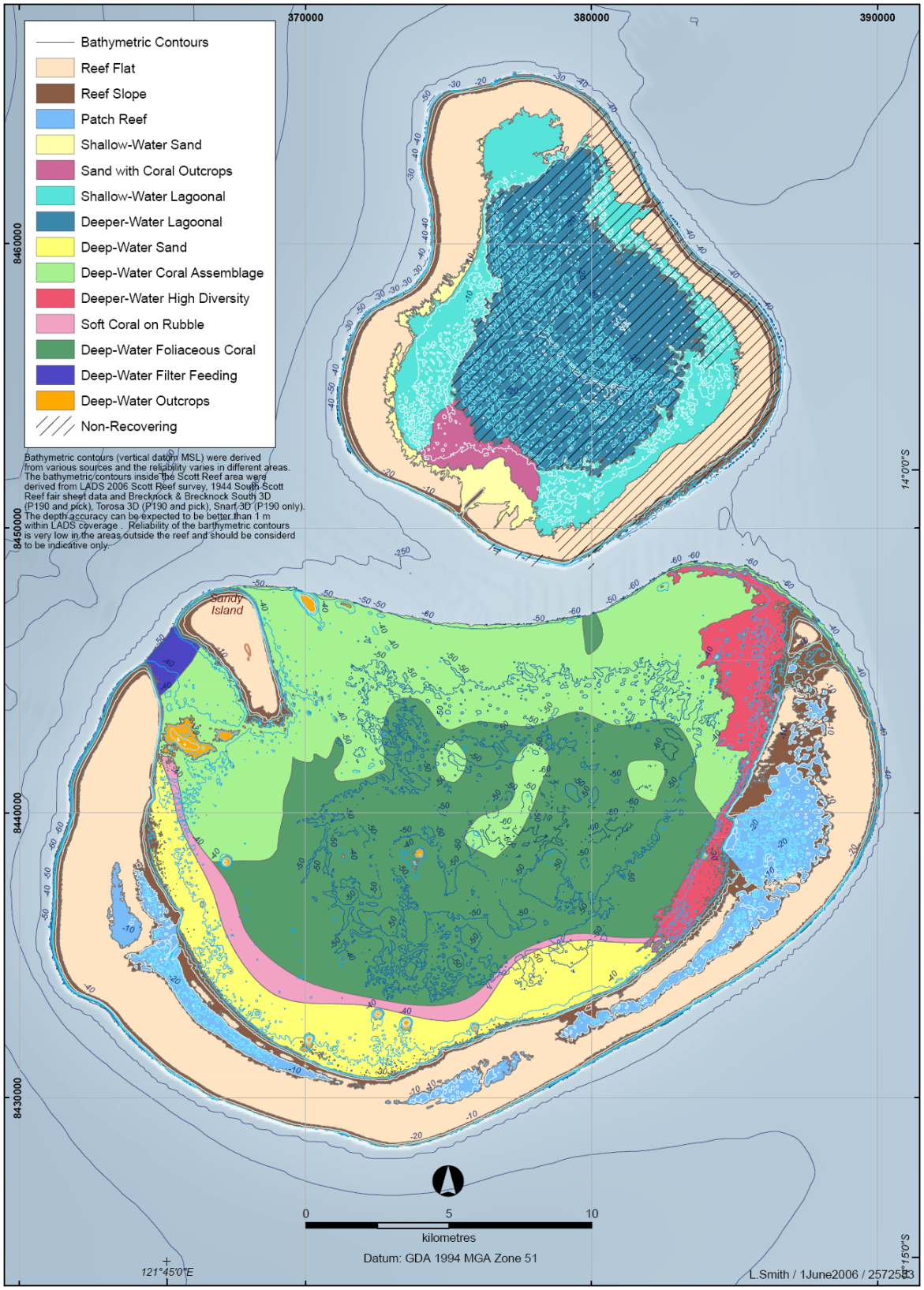
Based on: Woodside (2007)

Figure 1
Maxima 3-D Marine Seismic Survey Acquisition Areas in State and Commonwealth Waters



Source: Woodside Energy Ltd, 7 August 2007.

Figure 2
Map showing the distribution of benthic habitats at Scott Reef



Source: Australian Institute of Marine Science (2006)

Schedule 2
Delineation coordinates for Maxima 3-D Marine Seismic Survey

Coordinate boundaries for survey in State Waters

The coordinates listed below are joined sequentially by straight lines other than where it is stated that the seismic survey boundary follows the boundary between State and Commonwealth Waters. The seismic survey areas defined by these coordinates are illustrated in Figure 1.

All coords GDA 1994 MGA Zone 51

Maxima State Southern Area	**Maxima State North- Western Area**
start 375451.768E, 8436153.164N 375792.311E, 8435948.073N 378448.620E, 8435880.222N 380682.343E, 8436950.606N 383414.808E, 8438758.363N 385478.302E, 8444199.123N 386441.475E, 8447044.833N 387415.254E, 8447750.818N 388540.706E, 8448510.631N 391510.023E, 8437429.013N 373519.387E, 8427112.915N 363296.254E, 8431292.054N 362987.342E, 8431688.419N 362030.237E, 8432079.680N 361688.337E, 8433355.166N 361214.921E, 8433962.600N 359928.858E, 8438760.412N 359575.475E, 8438855.099N 358124.481E, 8435341.207N 359135.607E, 8432382.933N 364028.600E, 8429005.508N 371524.899E, 8425941.589N 371026.176E, 8425648.699N 371159.766E, 8425326.201N 372013.475E, 8425742.045N 374206.433E, 8426231.747N 374549.770E, 8426691.698N 374035.916E, 8426901.758N 391627.812E, 8436989.350N 391803.386E, 8436379.169N 392718.429E, 8436732.134N 392561.077E, 8437524.621N 393523.775E, 8438151.637N 393369.617E, 8438482.217N 392443.279E, 8437964.293N 389452.554E, 8449126.236N 390565.435E, 8449877.562N 390518.101E, 8450057.386N and then generally along the boundary between State and Commonwealth waters back to the start at 375451.768E, 8436153.164N end	start 375167.874E, 8449723.916N 371031.130E, 8452293.993N 370973.027E, 8452624.406N 370522.749E, 8452904.153N and then generally along the boundary between State and Commonwealth waters to 363284.658E, 8451867.812N 364418.417E, 8451163.431N 362285.062E, 8447621.381N 364658.120E, 8446192.101N 366771.729E, 8449701.367N 368230.272E, 8448795.205N 369783.598E, 8448546.238N 370984.806E, 8447835.002N 371126.683E, 8446995.725N 373254.891E, 8445673.511N 370472.804E, 8443640.648N 372024.230E, 8441394.075N 372119.047E, 8440613.934N 370537.117E, 8439491.575N 370651.311E, 8439179.150N and then generally along the boundary between State and Commonwealth waters back to the start at 375167.874E, 8449723.916N end

Schedule 3

Operational Framework for Fauna Interactions

Interpretation

In this framework, unless the contrary intention appears –

"acoustic source" means the source of acoustic emissions generated by the implementation of the seismic survey, otherwise known as air guns;

"assistants" means a person with expertise in cetacean and other marine fauna observation techniques plus distance estimation assisting the Marine Fauna Observer within the meaning of this Framework;

"large cetacean" means all species of baleen whales and sperm whales.

"Marine Fauna Observer" or "MFO" means a person or persons qualified and experienced in identifying marine fauna, estimating distances and interpreting fauna behaviour;

"marine fauna" includes cetaceans, marine reptiles, marine mammals and fish;

"party chief" means the person in control of the vessels undertaking the seismic survey;

"Phase I and Phase II" has the same meaning as in condition 7;

"power down" means a reduction in acoustic emissions from the airguns to a maximum frequency of 6 pulses per minute;

"seismic survey" means the proposal the subject of this Ministerial Statement, including Phases I and II;

"seismic vessel" means the vessel by which the seismic survey is being undertaken or proposed to be undertaken;

"shut down" means to cease the discharge of acoustic emissions from the air guns;

"soft start" means a gradual increase in warning pulses from air guns, over a period of 30 minutes;

"support vessel" means any vessel in addition to the seismic vessel used in association with the seismic survey;

"vessels" means the seismic vessel and support vessels

A Marine Fauna Observer

1. The proponent shall engage one or more Marine Fauna Observers to undertake marine fauna observations in accordance with this Framework.
2. A Marine Fauna Observer shall be onboard the seismic survey vessel or support vessel and performing the obligations under this Framework at all times during Phases I and II of the Seismic Survey in State waters.
3. The proponent shall provide the MFO with:
   a) such assistants as are necessary to perform the obligations under this Framework;
   b) equipment necessary for performing the role, including range-finder binoculars, cameras, plus positioning equipment, recording and communication equipment; and
   c) access to other project vessels and aircraft as required.
4. The role of the MFO is to conduct visual observations of marine fauna throughout the survey and maintain a log of observational activities and marine fauna sightings.

B Vessel operations without air gun discharge

1. Except where constrained by the deployment of in-water seismic equipment, all vessels are to maintain a distance of no less than 300 metres from large cetaceans.
2. In the event that a large cetacean is within 300 metres of any vessel unconstrained by the deployment of in-water seismic equipment, the speed of that vessel is to be reduced to "no wake" and a course is to be steered away from the cetacean.
3. In the event that a large cetacean is within 300 metres of a seismic vessel with seismic equipment deployed in a manner which prevents it steering away and slowing to "no wake" speed, the seismic vessel shall progress at a speed which is as slow as practically possible whilst maintaining streamer buoyancy and steer away from the cetacean subject to safe navigation and management of deployed in-water seismic equipment.

C Pre Start-up Visual Observation Procedures

All State waters

1. MFO observations which ensure effective visual monitoring of a 3-kilometre radius around the seismic survey vessel (concentration of observations within the 210 degree forward arc) will begin at least 90 minutes prior to the use of any acoustic sources.
2. The MFO is to use binoculars; be located in suitably elevated observation areas with 360 degree vision; and be able to communicate with the Party Chief.

Night operations

3. Night operations are not to take place within State waters if there have been three or more cetacean instigated shut-down or power-down procedures within State waters during the preceding 24 hour period.

Additional requirements for State waters within south Scott Reef Lagoon

4. The MFO will survey all State Waters of south Scott Reef lagoon for the presence of any large cetaceans for a minimum 120 minutes during day light immediately prior to commencement of air gun discharges within the lagoon or immediately prior to any recommencement of air gun discharges where no discharges occurred in the lagoon within 24 hours preceding the recommencement.
5. The survey referred to in 4 is to be repeated at least every three days during continuous seismic surveys within the lagoon.
6. Data from lagoon surveys for large cetaceans are to be applied by the proponent to determine the timing and sequencing of acquisition of the different seismic lines with the objective of avoiding large cetaceans by at least 10 kilometres, both during day and night operations.

D Start-up Delay Procedures

1. The discharge of air guns must not commence if a large cetacean is observed within 3 kilometres of the survey vessel.
2. If a large cetacean is observed within 3 kilometres of the seismic survey vessel, the start-up of acoustic sources will be delayed until the cetacean has

been observed to move outside the 3-kilometre radius or, if it is no longer observable, 30 minutes after the last sighting within 3 kilometres.

E Soft Start Procedures

1. Air gun operations can commence when:
a. pre Start-up Visual Observation Procedures have been completed;
b. there are no large cetaceans observed within 3 kilometres of the seismic vessel; and
c. the Department of the Environment and Water Resources has not issued directives to the contrary.
2. The soft start procedures are to commence with a gun (guns) of no more than 70 cubic inch capacity and increase emissions by approximately 6 dB per minute over a period of 30 minutes until the data acquisition air gun capacity is reached.
3. Air guns can be used continuously during line turns or changes, but must be 'powered down' to the smallest air gun of no more than 70 cubic inch capacity.
4. MFO visual observation shall be maintained continuously during soft start and 'powered down' operations to determine the presence or absence of large cetaceans within 3 kilometres of the vessel and to make observations of other marine fauna.
5. If a large cetacean is sighted within 3 kilometres during soft start procedures, the seismic source shall be shut down or 'powered down'. Re-commencement of soft start procedures can take place after 30 minutes has elapsed since the last sighting of a large cetacean within 3 kilometres of the survey vessel, whether the array has been shut down or 'powered down'.
6. If the air gun array is completely shut down between survey lines, the full start-up delay procedures and soft start procedures must be undertaken prior to the commencement of the next survey line.

F Operations Procedures

1. Continuous daylight visual observations of the waters within 3 kilometres of the seismic vessel shall be carried out during seismic operations by the MFO and assistants.
2. Where a seismic vessel with an operating acoustic source approaches within 3 kilometres of a large cetacean, the acoustic source will be shut down or 'powered down' to a gun (guns) of no more than 70 cubic inch capacity.
3. Where a large cetacean is within 3 kilometres of a seismic vessel, the acoustic source will be 'powered down' or shut down unless the cetacean maintains a 3-kilometre distance.
4. The acoustic source will be fully shut down if
a) any large cetacean is within 1.5 kilometres of the seismic vessel; or
b) any large cetacean shows signs of distress or disorientation between 1.5 and 3-kilometres of the seismic vessel.
5. Re-commencement of soft start procedures can take place after 30 minutes has elapsed since the last cetacean sighting within the 3-kilometre zone, whether the array has been shut down or 'powered down'.
6. Following acquisition of the first line and the first adjacent lines over each mapped habitat acquired, the MFO shall conduct post-seismic line observations of the waters over these seismic lines for a period equivalent to

the time period approved by the CEO under condition 5-7 or if that time falls at night, as soon as possible during daylight hours.

7. The proponent shall immediately shut down the array if observations of marine fauna during post-seismic line observations, or during any other surveillance activity, provide a reasonable basis to suspect that the survey is in non-compliance with conditions 6-5, 6-6, or 6-7.
8. If any marine fauna shows signs of distress which could reasonably be attributed to acoustic emissions, the proponent shall investigate the matter and report the observations and results of the investigation (including any modifications to the implementation of the proposal) to the CEO within six hours of the observation having been made.

G Recording and Reporting Procedures

1. The MFO is to maintain a log of observation activities and of marine fauna observations for the entire seismic survey.
2. Data which will not be incorporated into the cetacean monitoring report, as required under condition 8-5, are to be forwarded to the Marine Branch of the Department of Environment and Conservation within six months of completing the Maxima 3-D Marine Seismic Survey.