

Proposed exploration drilling on the Cody, Spider and Cassidy projects, Exmouth Gulf

Mobil Exploration and Producing Australia Pty Ltd

**Report and recommendations
of the Environmental Protection Authority**

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Cassidy projects, Exmouth Gulf**

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Summary and recommendations

Mobil Exploration and Producing Australia Pty Ltd has taken over as operator of a proposed offshore exploration drilling programme for petroleum within permit area EP-325, within Exmouth Gulf. This proposal seeks environmental approval for the drilling of exploration wells within three areas, known as Cassidy, Cody and Spider (Figure 1) within the permit.

The permit lies within an Environmentally Sensitive Locality, as defined in Department of Conservation and Environment (now EPA) Bulletin 104. Together with the zone called Special Protection Locality, also defined in Bulletin 104, these areas are regarded as being environmentally sensitive to oilspills. Proposals for drilling within these zones are referred to the Environmental Protection Authority for formal assessment.

The Authority has previously assessed a number of petroleum exploration proposals in the Exmouth region. As a consequence, the Authority's general position on these sorts of proposals may be summarised as follows:

- land-based petroleum exploration proposals can usually be made to be environmentally acceptable;
- land-based petroleum exploration proposals in Marine Parks will be assessed for environmental acceptability on their merits;
- marine-based petroleum exploration proposals in Marine Parks are environmentally unacceptable;
- in environmentally sensitive areas, petroleum exploration proposals need to clearly demonstrate the capacity to cope with environmental impacts, especially possible oil spills in terms of credible events, their likely frequency and contingency planning; and
- outside environmentally sensitive areas exploration proposals normally could proceed, subject to standard environmental protection conditions.

Many areas of the Gulf are regarded as being environmentally sensitive, with several locations having high conservation values. Accordingly the proponent prepared a Consultative Environmental Review (CER) for each area for public review and formal assessment, and undertook to prepare sufficient documentation to enable the assessment of permit-wide drilling programmes. Detailed CERs were prepared for the Cody and Spider areas and a brief CER, cross referenced to these two and earlier studies for the nearby Rivoli well, prepared for the Cassidy area. This Assessment Report by the Environmental Protection Authority addresses all three exploration areas covered by the three CERs.

This assessment is designed to cover the permit wide programme, instead of each separate well. This is expected to lead to savings in time and resources for proponents, involved agencies, the public and the Environmental Protection Authority. In the case of this proposal Mobil is applying to drill multiple wells during the currency of their permit and has identified four drill targets for initial investigation. However, further drill sites are expected to be selected in the Cassidy area, and at least one each in the Cody and Spider areas. Under these circumstances the Authority would wish to be assured that the environmental management provisions had been applied in a site-specific manner. The Authority has recommended that an appropriate mechanism for activating this be put in place.

The locations proposed for drill testing are shown on Figure 1. All locations lie outside the boundary of Ningaloo Marine Park which is within an Environmentally Sensitive Locality.

Keeping clear of islands in the area is significant in the context of possible future proposals to develop petroleum reserves outlined by exploration drilling. The Environmental Protection Authority wishes to emphasise the environmental significance of the area and advises that it should not be assumed that production facilities on any islands or pipelines through Ningaloo Marine Park en route to a mainland facility on North West Cape would be environmentally acceptable.

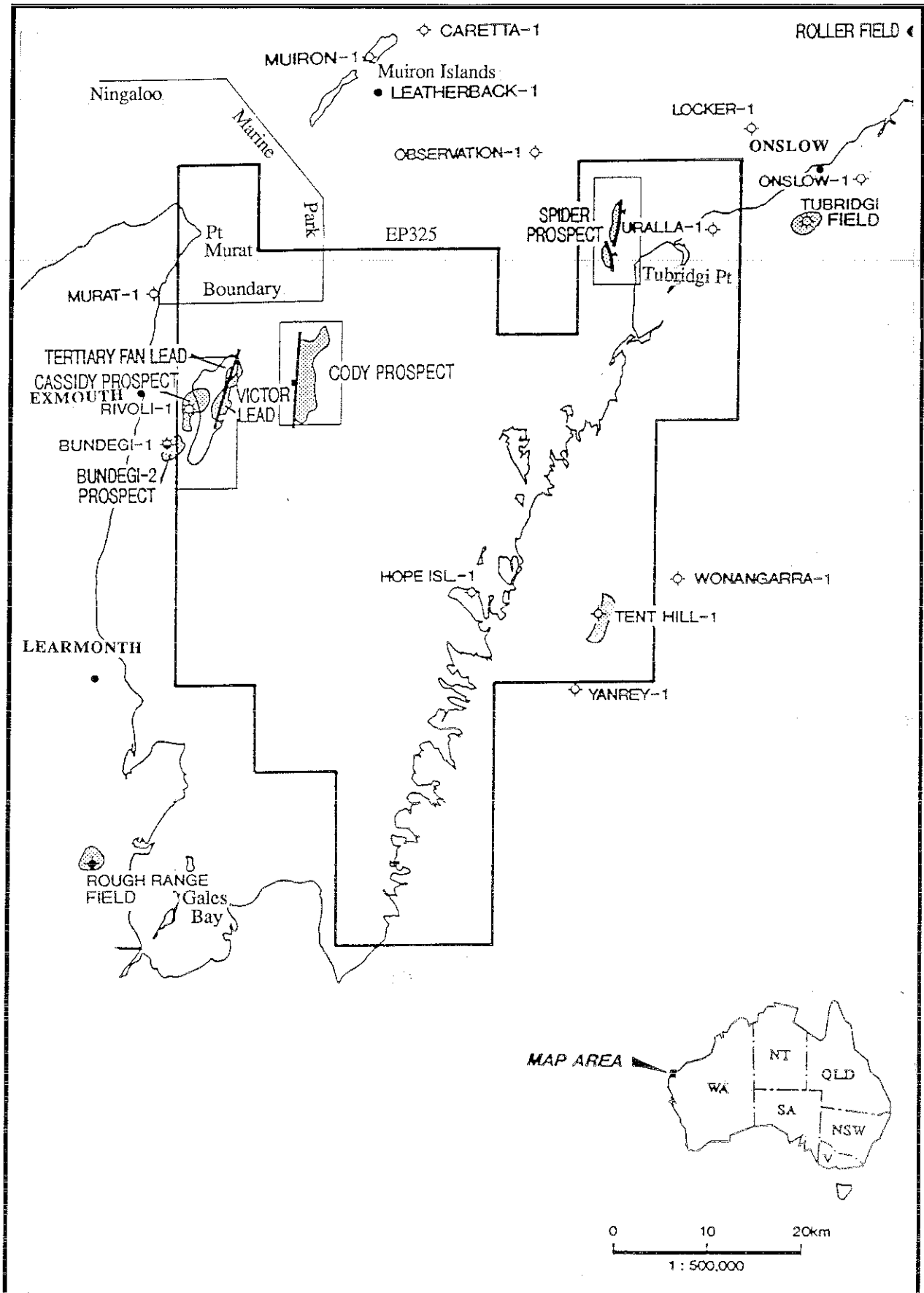


Figure 1. Location of permits and possible drilling sites

The region is subject to strong winds and currents and lies within the cyclone-affected belt of Australia. The shallow waters and intertidal zones support a diverse range of biota which give the area its high conservation, commercial fishing and tourist values.

Concerns raised in public submissions centre around the timing of the proposed drilling, the fate of drill cuttings, domestic wastes and oil spills, and the impacts of each of these on the wildlife and resources of Exmouth Gulf. The ability of an explorer to minimise and manage environmental effects and to respond to cyclone alerts quickly enough (given that cyclones may be very unpredictable) was also questioned.

Mobil has researched the environmental sensitivities of the permit areas and modelled the likely spread of spills of oil from several locations. The company has emphasised that oil from this area typically evaporates very quickly, due to its characteristic lightness or volatility and the high ambient temperatures. Thus, if a spill were to reach a shoreline, it would not be expected to persist as a heavy dark sludge as do spills in many other parts of the world. Statistics of oil spills indicate that, although small spills are reasonably common, they are relatively easy to control and unlikely to have a significant impact if the appropriate equipment is on hand. Larger spills are a more serious problem but are rare, and none is known to have occurred in the history of drilling offshore from Australia.

Routine discharges from the rig consist of domestic waste water, drill cuttings and drill muds. Mobil has committed to dealing with these wastes in a manner which recognises the environmental sensitivity of the area and manages the impacts in an acceptable way.

Recommendation 1

The Environmental Protection Authority concludes that the proposal to conduct an offshore exploration drilling programme in Exmouth Gulf, as described in the three Consultative Environmental Reviews is environmentally acceptable in areas outside of Ningaloo Marine Park.

In reaching this conclusion, the Environmental Protection Authority identified the main factors requiring detailed consideration as the effects of routine and accidental discharges arising from the drilling operations upon the environment, and the industries which are dependant on that environment.

The Environmental Protection Authority considers that these and other issues have been addressed by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly the Environmental Protection Authority recommends that the proposal could proceed, subject to:

- the proponent's commitments; and**
- the Environmental Protection Authority's recommendations in this report.**

The proponent's permit area overlaps the boundary of Ningaloo Marine Park (see Figure 1) although no wells are proposed within the park boundary. The Environmental Protection Authority considers that it would be environmentally unacceptable for the proponent to drill within the marine areas of the Ningaloo Marine Park.

Recommendation 2

The Environmental Protection Authority recommends that there be no drilling permitted within the marine areas of the Ningaloo Marine Park.

The Environmental Protection Authority is aware that this proposal is a programme to access several wells which have not all been accurately located and specified at this stage. Information on specific well sites will need to be forwarded to the Environmental Protection Authority with information on exact location, the receiving environment and any proposed environmental management changes arising from proposed timing and discharges of routine domestic and drilling wastes.

Recommendation 3

The Environmental Protection Authority recommends that, at least three weeks before the start of drilling the proponent prepare and forward details of each exploration well proposal within this programme to the Environmental Protection Authority with additional details of the exact location and its environment, and subsequently implement any proposed site-specific modifications to environmental management provisions, to the satisfaction of the Environmental Protection Authority.

These details could be expected to include, but not necessarily be limited to, plans for:

- routinely washing the drill cuttings with sea water to recover mud prior to discharge of cuttings on the seabed;
- specifying those drilling locations which are near coral reefs, where solids should be retained for transportation and disposal in deep water at least 5km from coral reefs and Ningaloo Marine Park; and
- elsewhere for clear water drill sites, returning solids and excess mud via a pipeline to the sea floor to minimise turbidity, when wind and currents are moving away from any adjacent sensitive areas.

It is proposed to use a jack-up rig for these and subsequent wells.

Recommendation 4

The Environmental Protection Authority recommends that the proponent forwards plans to use any type of drill rig other than a jack-up platform to the Environmental Protection Authority for further evaluation, and also recommends that the proponent forwards details of future exploration drilling (other than that comprising this programme) or development plans resulting from this exploration drilling proposal to the Environmental Protection Authority for assessment.

The proponent has made a commitment (Appendix 1) to accept responsibility for possible environmental impacts of a potential oil spill and the Environmental Protection Authority endorses this.

Recommendation 5

The Environmental Protection Authority endorses the proponent's commitments to accept responsibility for any adverse environmental impacts, which may occur as a consequence of the proposal proceeding, and recommends that the arrangements for meeting this condition should be to the satisfaction of the Minister for Environment after consultation with the Minister for Mines and the Minister for Fisheries.

The proponent has made a commitment (Appendix 1) to provide equipment onsite with the capability to contain a 20m³ oil spill, which the Environmental Protection Authority regards as satisfactory.

Recommendation 6

The Environmental Protection Authority is aware that the proponent includes in the Oilspill Contingency Plan, the capability for containment of small oil spillages on or adjacent to the rig and that a suitable boom and skimmer device, together with operators skilled in their deployment, would be installed on or adjacent to the rig prior to the commencement of drilling and remain there permanently until demobilisation of the rig. The Environmental Protection Authority recommends that this approach should be adopted, to the satisfaction of the Environmental Protection Authority, on advice from the Department of Mines.

Recommendation 7

In order to maximise recovery of spilled oil where an environmentally sensitive location is close enough to the rig to be within its zone of influence from an oil spill, the Environmental Protection Authority recommends that refuelling of the rig should only take place during optimal weather conditions, to the satisfaction of the Environmental Protection Authority, on advice from the Department of Mines.

Refuelling in conditions where current speeds are less than 0.7 knot, wind speed is below 15 knots and in wave heights of 1m or less would be regarded as satisfactory.

Recommendation 8

The Environmental Protection Authority recommends that in order to minimise the likelihood of failure of the well casing, the proponent should, prior to drilling ahead, pressure test each string of casing to the satisfaction of the Director, Petroleum Division, Department of Mines.

Recommendation 9

The Environmental Protection Authority recommends that, prior to the drilling out of the conductor pipe of the top section of the first well, the proponent successfully trial runs a simulated Oilspill Contingency Plan, up to the point of deployment of resources, to ensure that the plan is workable to the satisfaction of the Environmental Protection Authority. The Environmental Protection Authority also recommends that, while drilling is occurring, further simulated Oilspill Contingency drills be run at least once a year, or for each change of drilling rig, whichever is sooner, to maintain a high level of preparedness among all involved personnel.

Recommendation 10

The Environmental Protection Authority recommends that the proponent be responsible for decommissioning the rig and the well, and rehabilitating the site and its environs to the satisfaction of the Environmental Protection Authority, on advice from the Department of Mines.

1. Introduction

Mobil Exploration and Producing Australia Pty Ltd has taken over from Minora Resources N.L. as operator of proposals to drill oil exploration wells in EP325, within Exmouth Gulf (see Figure 1). Mobil is the operator of a joint venture involving:

- Mobil Exploration and Producing Australia Pty Ltd 66%
- Minora Resources NL/Tepstew Pty Ltd 18%
- Metana Energy Ltd 6%
- SAGASCO Resources Ltd 6%
- Petroz NL 4%

The proposal seeks to drill oil exploration wells in three areas within Exmouth Gulf, known as Cody, Spider and Cassidy as shown in Figure 1. At least one, and up to ten wells are proposed in the Cody and Spider areas and four leads have been identified in the Cassidy area, with multiple wells proposed there.

The waters of Exmouth Gulf lie within an area defined in Department of Conservation and Environment (now EPA) Bulletin 104 as an Environmentally Sensitive Locality, and all the proposed areas for drilling are within this zone. Together with the Special Protection Locality zone (also defined in Bulletin 104) these areas contain environments where marine life is concentrated and highly susceptible to the effects of oil. These are discussed more fully in Section 3-Existing Environment.

The Authority has previously assessed a number of petroleum exploration proposals in the Exmouth region. As a consequence, the Authority's general position on these sorts of proposal may be summarised as follows:

- land-based petroleum exploration proposals can usually be made to be environmentally acceptable;
- land-based petroleum exploration proposals in Marine Parks will be assessed for environmental acceptability on their merits;
- marine-based petroleum exploration proposals in Marine Parks are environmentally unacceptable;
- in environmentally sensitive areas, petroleum exploration proposals need to clearly demonstrate the capacity to cope with environmental impacts, especially possible oil spills in terms of credible events, their likely frequency and contingency planning; and
- outside environmentally sensitive areas exploration proposals normally could proceed, subject to standard environmental protection conditions.

The Environmental Protection Authority determined that formal assessment at the level of Consultative Environmental Review would be required for these proposals. The Cody and Spider proposals were on public review from 22 April to 6 May 1991. Prior to the Environmental Protection Authority reporting on these, the proponent advised of an additional proposal on the Cassidy project. It was decided that all three should be jointly assessed by the Environmental Protection Authority. A Consultative Environmental Review on the Cassidy area was on public review from 27 July to 6 August, 1991.

At this stage Mobil is unable to specify the locations of all the proposed wells because some of the later wells are dependant on results from the initial drilling. However, the seismic data have indicated a number of leads which could be drill targets, and approval in principle is being sought for the programme. In order to improve the efficiency of the formal assessment process and reduce repetition it has been agreed that, rather than submitting proposals for one well at a time, it would be acceptable to submit a proposal for a programme to address the entire permit area, provided that all the relevant issues were adequately addressed and that the site-specific

data would be submitted at a later stage, prior to drilling, for further evaluation by the Environmental Protection Authority.

The proponent was asked to define the environmental sensitivity of the areas likely to be within the zone of influence of the proposed drilling; to assess the likelihood and potential impacts of an oil spill; and to demonstrate that routine and credible accidental discharges from the offshore drilling platform could be properly managed at the proposed sites so as to ensure no significant impacts in environmentally sensitive areas. The proponent was also asked to address questions raised in public submissions on the CERs.

Mobil has answered questions raised in public submissions and made commitments (Appendix 1) for the protection of the environment. The Environmental Protection Authority considers that the proposal, subject to the commitments given by Mobil and the Environmental Protection Authority's recommendations in this report, could be implemented in an environmentally acceptable manner.

Recommendation 1

The Environmental Protection Authority concludes that the proposal to conduct an offshore exploration drilling programme in Exmouth Gulf, as described in the Consultative Environmental Review is environmentally acceptable in areas outside of Ningaloo Marine Park.

In reaching this conclusion, the Environmental Protection Authority identified the main factors requiring detailed consideration as the effects of routine and accidental discharges arising from the drilling operations upon the environment, and the industries which are dependant on that environment.

The Environmental Protection Authority considers that these and other issues have been addressed by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly the Environmental Protection Authority recommends that the proposal could proceed, subject to:

- **the proponent's commitments; and**
- **the Environmental Protection Authority's recommendations in this report.**

While this proposal concentrates on exploration, it could lead to a production proposal if payable petroleum reserves are discovered. With regard to production facilities it should be emphasised that islands in the area have high flora and fauna conservation values and it should not be assumed that production facilities on the islands or pipelines routed through Ningaloo Marine Park to a production facility at North West Cape would be environmentally acceptable.

There is a view often put that Australia's heritage of environmental resources should not be subjected to increased risk of damage by petroleum or other resource exploitation whilst our exploitable reserves of petroleum continue to be plentiful and cheap, and used less effectively than would be the case if they were in scarce supply. In this context it is noted that Mobil's permit areas overlap the boundary of the Ningaloo Marine Park and that government policy is to not permit drilling in marine parks for new applications.

Recommendation 2

The Environmental Protection Authority recommends that there be no drilling permitted within the marine areas of the Ningaloo Marine Park.

2. Project description

It is proposed to drill at least four, and possibly more exploration wells in the Cody, Spider and Cassidy areas shown in Figure 1.

Precise locations of wells subject to these proposals have not yet been specified to the Environmental Protection Authority as analysis and interpretive work is continuing.

The Environmental Protection Authority is aware that this proposal is a programme to access several wells and that they have not been accurately located and specified at this stage. The Authority believes that it is appropriate to evaluate the programme as a whole now but that it requires specific details of well locations, the environments there and any additional management required, prior to drilling.

Recommendation 3

The Environmental Protection Authority recommends that, at least three weeks before the start of drilling the proponent prepare and forward details of each exploration well proposal within this programme to the Environmental Protection Authority with additional details of the exact location and its environment, and subsequently implement any proposed site-specific modifications to environmental management provisions, to the satisfaction of the Environmental Protection Authority.

These details could be expected to include, but not necessarily be limited to, plans for:

- routinely washing the drill cuttings with sea water to recover mud prior to discharge of cuttings on the seabed;
- specifying those drilling locations which are near coral reefs, where solids should be retained for transportation and disposal in deep water at least 5km from coral reefs and Ningaloo Marine Park; and
- elsewhere for clear water drill sites, returning solids and excess mud via a pipeline to the sea floor to minimise turbidity, when wind and currents are moving away from any adjacent sensitive areas.

Mobil anticipates using a jack-up drill rig for the current programme.

Two specialist supply boats would be used to service the rig at each location and the personnel based on board. A helicopter would be used for crew changes and supplementary provisioning of the rig.

Recommendation 4

The Environmental Protection Authority recommends that the proponent forwards plans to use any type of drill rig other than a jack-up platform to the Environmental Protection Authority for further evaluation, and also recommends that the proponent forwards details of future exploration drilling (other than that comprising this programme) or development plans resulting from this exploration drilling proposal to the Environmental Protection Authority for assessment.

3. Existing Environment

The permit areas lie at the open end of Exmouth Gulf. In these shallow waters the winds play an important part in modifying the movement of surface waters, which are primarily driven by semi-diurnal tidal movements. Oilspills, being largely restricted to the top few centimetres of the water column, are subject to the same influences.

The prevailing winds are westerly to south westerly at most times of the year except the winter months, when winds off the mainland are most common. In summer diurnal effects act to raise wind speed in the afternoon to about 20 to 25 knots and to reduce it during the night and early morning. Winter winds from the mainland can also be strong. Analysis of the occurrence of cyclones shows that an average of 1.2 cyclones per year occur within 150km of the permit area. These may be accompanied by strong tidal surges and winds from any direction. It is standard industry practice to close down drilling operations and plug and shut in the well during a cyclone Red Alert.

North West Cape lies between the permit and Ningaloo Reef, although the Ningaloo Marine Park curves around the top of the Cape and encompasses Bundegi Reef. At its closest point the limits of the Cassidy prospect are about 7km from Bundegi Reef and 6km from the Marine Park boundary. The Cody prospect is further from Bundegi Reef but approaches within 2km of the Marine Park boundary. The Spider prospect is about 30km from the Marine Park and lies within 2.5km of the eastern shore of Exmouth Gulf.

Two tides usually occur on a daily basis. The mean spring tidal range is 1.7m at Point Murat, resulting in appreciable tidal currents flowing generally parallel to the shore. Water temperatures are warm to moderate throughout the year.

The eastern shores of the Gulf are lined by shallow mud flats and extensive mangrove and salt marsh assemblages. The western shore of the Gulf is mainly a narrow coarse-grained beach abutting a low intertidal limestone platform. Coral reefs and seagrass beds occur around islands to the north of the Cody prospect. A coral reef extends from Point Murat to south of Exmouth and reefs also occur elsewhere, for example around the Muiron Islands and at Y Island. Seagrass beds in the region are important sources of primary production and support dugong populations.

The mangrove stands near the south and eastern portions of the permit area are also considered to be environmentally sensitive, particularly to oil spills, and have high conservation values.

The main activities in the region concentrate on its marine resources. Important recreational and commercial fisheries and tourism-based activities are centred at Exmouth and, to a lesser extent, Onslow. The Exmouth Gulf prawn fishery season begins in late March and continues through until November. The petroleum industry uses Onslow and Exmouth to a limited degree to support offshore bases and drilling activities.

4. Public submissions

Submissions were received from government agencies and from individuals, interest groups and industry in the Exmouth area.

The main concerns raised were:

- effects on the environment of drill cuttings and muds;
- effects on the environment of oil spills;
- the results of environmental impacts on the commercial and recreational sectors;
- the need for adequate compensation for these sectors in the event of impacts;
- the timing of proposed drilling and likely conflicts with the fishing industry;
- the need to consult with interest groups about the actual time of drilling wells;
- the need for additional groups to be advised should action be necessary under the oil spill contingency plan; and
- the effect of unpredictable cyclonic events on securing the rig against leaks.

The proponents responses to questions raised are included as Appendix 2.

5. Management of environmental impacts

Impacts on the marine environment from drilling activities can arise either from routine or from accidental discharges. Depending on how environmentally sensitive the rig location is and how activities on the rig are managed, there could be a range of effects varying from insignificant to potentially serious, at least in the short term.

The north west shelf area typically contains reserves of light grade crude petroleum, (API gravity from 29 to 48 degrees) which evaporates and biodegrades quickly in the warm waters and high ambient temperatures common to the region leaving, in some cases, little sign of its passing after a few days. Accordingly it generally does not require the use of dispersants, in contrast with heavy and waxy crudes from overseas which can be transported over long distances by wind and tide action because they do not readily break up. Observations of spilt oil from the North West Shelf area indicate that up to 75% would be likely to evaporate within 24 hours. The recent small spill from exploration drilling offshore the Muiron Islands indicates the need for very close attention to spill control measures on the rig. The prompt cleanup in the Muiron's case illustrates the advantage of having recovery equipment and personnel available continuously on site.

Heavier grade crude oil has been found in the Roller field to the north-east, again emphasising the need for effective control measures and ready access to recovery equipment. The risk and most likely magnitude of an exploration spill is considered to be sufficiently small to be environmentally acceptable provided adequate control and recovery equipment and personnel are on hand.

The results of modelling simulated spills indicate that the risks of impacts from spills on the Ningaloo Reef are very small, and then only after at least 24 hours on the sea, thus allowing for most of the oil to have evaporated or degraded to less toxic components. Similarly, the modelling indicates that spilt oil could reach almost any point on the Exmouth Gulf coastline within 48 hours from oil spilled within the permit area. However, whilst bearing in mind that such spills are rare, the Muirons and other islands with sensitive reef environments and the Gulf coast would be at significant risk from medium to large uncontrolled spills. The principle area at risk within 6 to 12 hours from the Cody and Cassidy areas is the coast from Pt Murat to Exmouth, which includes the Bundegi Reef. From the Spider area the coast at Tubridgi Point is most at risk, followed by the coast northwards to the Ashburton River and Serrurier Is. In this regard the proponent's commitment to a comprehensive Oilspill Contingency Plan and to deploy equipment to protect vulnerable habitats including Bundegi Reef and the shore is particularly important. This management will also be especially important in the Spider area which is close to the mangrove and seagrass communities.

There are a number of marine-based industries which are potentially at risk from uncontrolled spills. These include the prawn trawling, pearl oyster, recreational fishing and tourist industries. The concerns raised by representatives of these sectors have been addressed in the proponent's responses to submissions and are reflected in Mobil's commitments to manage the drilling operations closely, and to be held responsible for any adverse impacts to the commercial fishery and the tourist and recreation industries that may occur as a result of an oil spill. The Environmental Protection Authority endorses these commitments by the proponent, which are very important under these circumstances.

Recommendation 5

The Environmental Protection Authority endorses the proponent's commitments to accept responsibility for any adverse environmental impacts, which may occur as a consequence of the proposal proceeding, and recommends that the arrangements for meeting this condition should be to the satisfaction of the Minister for Environment after consultation with the Minister for Mines and the Minister for Fisheries.

The oyster collecting industry which is based in Gales Bay at the southern end of Exmouth Gulf is, according to the dispersion studies commissioned for the proponent, at least 48 hours away from an oil spill emanating from the permit area. The proponent's oil spill contingency plan details the management responses to be executed within this period should a spill occur. The likelihood of there being impacts to the southern part of the gulf from spilled oil from the drilling programme is considered to be low enough to be acceptable.

To address potential conflicts with fishing operations arising from the location of the rig and the timing of its operations, Mobil proposes to liaise with representatives of the fishing industry.

A variable that is not considered here is the type of drill rig to be used. Mobil has indicated that its preference is for a jack-up style rig. The Environmental Protection Authority considers the use of this type of offshore rig acceptable and bases its assessment on this option.

5.1 Routine discharges

These can be grouped into domestic and drilling-associated wastes. Treated sewage, 'grey water' and galley wastes are pulverised and disinfected prior to discharge into the sea. No significant environmental impacts are expected due to the biodegradability of the product, short period of drilling activities and large dilution factor, unless the rig is to be set up in a basin with restricted natural circulation.

Drilling generates rock cuttings with residual amounts of drilling muds adhering to the chips. Depending on the local environment and the type of mud these wastes can have a significant impact and may need to be managed appropriately. Mobil and their consultants have recognised these requirements and made commitments to ensure that environmentally sensitive locations would not be significantly impacted. Briefly these include:

- routinely using low toxicity, water-based drilling muds; and
- conducting a pre and post-drilling site assessment by photographing the sea floor before and after operations.

If wells are located within the zone of influence of more sensitive environments, more detailed site assessment may be required.

The provisions of **Recommendation 3** are important to effective management of these issues.

5.2 Accidental discharges

Accidental oil spills can occur, in order of increasing size, from the rig refuelling operation, from a production test, or as a result of a blowout of crude oil from the well. Management of these scenarios is detailed in the oil spill contingency plan.

The most common type of spill is a minor spill of between 1m³ and 20m³ arising from refuelling or from a short term failure of the blowout preventers. Refuelling of the rig usually occurs once every 10 days on average. The proponent has committed to containing and collecting spills of this order with a boom and skimmer. The Authority notes and endorses Mobil's commitments to place the boom and skimmer with the capacity to contain spills up to 20 m³ and a skilled operator at the drilling location, ready for immediate deployment at all times during drilling.

Recommendation 6

The Environmental Protection Authority is aware that the proponent includes in the Oilspill Contingency Plan, the capability for containment of small oil spillages on or adjacent to the rig and that a suitable boom and skimmer device, together with operators skilled in their deployment, would be installed

on or adjacent to the rig prior to the commencement of drilling and remain there permanently until demobilisation of the rig. The Environmental Protection Authority recommends that this approach should be adopted, to the satisfaction of the Environmental Protection Authority.

However, for a reasonable chance of a successful recovery of spilt oil, weather conditions need to be near optimal (current speed <0.7 knot, wind speed <15 knots and wave height <1m). As waves and currents become progressively larger, increasing amounts of oil would be lost beneath the boom so that the attendant oil recovery unit would collect progressively less of the spill. A mitigating factor is that, under more severe weather conditions the oil evaporates far more quickly. The doubling of wind velocity, up to the onset of whitecapping causes the rate of evaporation to increase by a factor of 1.7 and with the onset of extensive whitecapping the rate increases by a factor of 5 to 10. Recognising that the boom and skimmer have limited application, the Environmental Protection Authority makes the following recommendation for refuelling in environmentally sensitive locations:

Recommendation 7

In order to maximise recovery of spilled oil where an environmentally sensitive location is close enough to the rig to be within its zone of influence from an oil spill, the Environmental Protection Authority recommends that refuelling of the rig should only take place during optimal weather conditions, to the satisfaction of the Environmental Protection Authority.

Refuelling in conditions where current speeds are less than 0.7 knot, wind speed is below 15 knots and in wave heights of 1m or less would be regarded as satisfactory.

Partially controlled or uncontrolled blowouts are less common but can result in much greater loss of oil. Little of this flow can be recovered in most cases and thus, in confined areas within Exmouth Gulf, the impacts of such an accident are likely to be extensive, although not necessarily long-term. Whilst there has never been such a spill documented in Australia and there is a low risk of abnormally pressured reservoirs in Mobil's permit area it is clearly vital that the best policy is minimisation of the risks and avoidance of the events leading to an oil spill, together with a well rehearsed Oilspill Contingency Plan to deal with accidents.

Submissions received from the public noted additional organisations which would benefit from advice about the commencement of operations and from notification as part of the oil spill contingency plan. In addition to those groups noted in the proponent's response to submissions (Appendix 2) it is suggested that liaison should also include Morgan and Co Pty Ltd and the Cape Conservation Committee as appropriate.

Recommendation 8

The Environmental Protection Authority recommends that in order to minimise the likelihood of failure of the well casing, the proponent should, prior to drilling ahead, pressure test each string of casing to the satisfaction of the Director, Petroleum Division, Department of Mines.

Recommendation 9

The Environmental Protection Authority recommends that, prior to the drilling out of the conductor pipe of the top section of the first well, the proponent successfully trial runs a simulated Oilspill Contingency Plan up to the point of deployment of resources, to ensure that the plan is workable to the satisfaction of the Environmental Protection Authority. The Environmental Protection Authority also recommends that, while drilling is occurring, further simulated Oilspill Contingency drills be run at least once a year, or for each change of drilling rig, whichever is sooner, to maintain a high level of preparedness among all involved personnel.

Recommendation 10

The Environmental Protection Authority recommends that the proponent be responsible for decommissioning the rig and the well, and rehabilitating the site and its environs to the satisfaction of the Environmental Protection Authority, on advice from the Department of Mines.

6. Conclusion

This drilling proposal has raised public concerns for the environment based on widely held perceptions about the damage that can arise from oil spills. It is important that these concerns are addressed in two ways. Firstly, adequate environmental management controls should be in place to contain and manage any potential impacts. This can be achieved satisfactorily in this case by adherence to the oil spill contingency plan, the proponents commitments and the recommendations of the Environmental Protection Authority in this report.

Secondly, these concerns can be mitigated in large measure by consultation and liaison with affected and interested groups. The proponent's commitment (in the response to submissions, Appendix 2) to liaise with these groups will assist here.

The Environmental Protection Authority concludes that the proposal to conduct oil exploration in Exmouth Gulf could be environmentally acceptable subject to the proponent's commitments and the recommendations in this report.

No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent should take place until the Minister has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request of the Minister for the exercise of that power should be accompanied by an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in any Ministerial statement on this proposal.

The Authority notes that during the detailed implementation of proposals, it is often necessary or desirable to make minor and non-substantial changes to the design and specification which have been examined as part of the Authority's assessment. The Authority believes that subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

The Authority believes that any approval for the proposal based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

Appendix 1

Proponent's consolidated commitments

The proponent, Mobil Exploration and Producing Australia Pty Ltd has made commitments for the protection of the environment in each of the three CERs on the Cody, Spider and Cassidy areas and has made additional commitments in the responses to public submissions.

These commitments are numbered and consolidated below. The commitments are held to apply equally to all exploration activities as part of the proposals by Mobil Exploration and Producing Australia Pty Ltd over the Cody, Spider and Cassidy prospects or elsewhere in Permit EP325.

1. Mobil will adhere to the Proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made in the Public Environmental Report which are that Mobil will:
 - (i) comply with all legislative requirements pertaining to this project;
 - (ii) adopt accepted industry and government standards and guidelines for safe exploration drilling practices;
 - (iii) comply with guidelines provided in the oil spill contingency plan.
2. Mobil will include in the Oilspill Contingency Plan, the capability for containment of oil spillages of up to 20m³ on or adjacent to the rig. A suitable boom and skimmer device, together with an operator skilled in their deployment, shall be installed on the rig prior to the commencement of drilling and shall remain there permanently until decommissioning.
3. In order to minimise the likelihood of failure of the well casing, Mobil will, prior to drilling ahead, pressure test each string of casing to the satisfaction of the Director, Petroleum Division, Department of Mines.
4. Mobil will ensure that drill cuttings and fluid are disposed of in a manner consistent with the requirements of the EPA as described in the EPA's letter to the Director General of Mines on 28 December 1988 and endorsed by the then Minister for Transport and Environment in his letter of 14 April, 1989.
5. Mobil will provide an undertaking to accept responsibility in accordance with the laws of Western Australia for any adverse environmental impacts which may occur as a consequence of the Proposal. These impacts would be intended to include damages for bodily injury, loss of use of property, and of profits or business interruption caused by pollution or seepage or contamination arising directly from a well out of control above the surface of the ground or water bottom. The arrangements for meeting this condition shall be by way of an Energy Exploration and Development Insurance Policy underwritten by members of Lloyds of London whereby seepage and pollution, cleanup and contamination is covered for a sum insured of A\$40,000,000.
6. Mobil will refer any development plans resulting from this Proposal to the Environmental Protection Authority for assessment.
7. Mobil will be responsible for decommissioning the rig and the well, and rehabilitating the site and its environs to the satisfaction of the Director, Petroleum Division, Department of Mines.
8. No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.
9. To confirm the prediction of minimal environmental impact at each well site, the proponent will photograph the sea floor before commencement and at the completion of drilling operations.

10. In the event of an oil spill too large to contain using booms, the oil spill contingency plan contains management plans to deploy the available equipment to protect vulnerable habitats including the Bundegi Reef and its associated shoreline.

Additional commitments by the proponent made in response to submissions:

11. The proponent agrees to consult with North West Seafoods and M G Kailis Group of Companies and to provide at least one month's notice of general timing and specific location of wells to minimise the impacts of exclusion zones around the rigs.
12. The proponent agrees to amend the oil spill contingency plan to notify M G Kailis, North West Seafoods and CALM in the event of an oil spill and to confirm the mobilisation times for oil spill equipment in the oil spill contingency plan. (Note: It is also suggested that Morgan and Co be notified in the event of a spill).
13. The proponent agrees to confirm oil spill response times, obtain written confirmation from other bodies of their ability to meet response times, investigate combined response times to deploy equipment and personnel and assess available stockpiles of dispersant prior to commencement of the drilling programme.
14. The proponent agrees to use sea water based polymer drilling fluids as used to drill the Rivoli-1 well.
15. The proponent agrees to re-activate agreements with the Shires of Ashburton and Exmouth for the shore-based disposal of recovered oil, prior to the commencement of drilling.
16. The proponent agrees that any spilt oil recovered will either be burnt through the rig flare booms, sold through the Airlie Island terminal or disposed of at a site arranged with the Shire of Ashburton (or Exmouth).

Appendix 2

Proponent's response to issues raised in submissions

CONSULTATIONS, ISSUES RAISED IN RESPONSES TO PREVIOUS PROPOSALS

Other than the WA Mines Department and the EPA, Mobil have not consulted with any Government Agencies or Industry Groups. Mobil have deemed it inappropriate to consult with additional groups or agencies until a specific time frame for drilling operations can be formulated.

The Proponent plans to liaise with the following groups and agencies:

Anglis Group

Department of Conservation and Lands Management

EPA

Exmouth and Ashburton Shires

MG Kailis Group of Companies

North West Cape Communications Base

North West Seafoods Group

Western Australian Fisheries Department

Western Australian Fishing Industry Council

Western Australian Mines Department

The following issues were raised up by respondents to the Cody and Spider CER's. Issues appropriate to this Proposal are reproduced here.

Proponent should commit to contain and recover spills on the rig or at sea where possible.

We are prepared to commit to contain and recover any oil spilled either on the rig or at sea wherever practical subject to direction from the EPA.

High risk of large scale oyster mortalities occurring if oil impacted on licence area. Poor knowledge of actual effects of spilt oil on oysters. Oysters spawn spring and summer with residual spawning during Autumn. Larval molluscs, being planktonic, are more sensitive to oil than adults.

Noted.

Slow recruitment expected if the oyster population suffered substantial mortalities. Pearl industry highly vulnerable to an oil spill.

Noted.

Dispersants should be tested to determine toxicity of oil and dispersed oil. If dispersed oil is more toxic to oysters than oil respondent requests a commitment from Proponent not to apply dispersants within 10km of licence.

The CER's and OSCP contemplate use of dispersants only with specific EPA approval. In the unlikely scenario of an oil spill we would be directed by the EPA in the use of dispersants.

Permission should be conditional on Morgan & Co. being compensated for loss of profits caused directly or indirectly by an oil spillage. Proponent should accept responsibility rather than insuring against cost. Government assurances could be provided.

We consider the issue of compensation is adequately covered by Commitment 5 in Section 8 of the CER's which states:

"Minora will provide an undertaking to accept responsibility in accordance with the laws of Western Australia for any adverse environmental impacts which may occur as a consequence of the Proposal. These impacts would be intended to include damages for bodily injury, loss of use of property or business interruption caused by pollution or seepage or contamination arising directly from a well out of control above the surface of the ground or water bottom..."

In arranging a high level of insurance cover the Proponent has ensured a degree of certainty in the capacity for compensation to be paid than might be implied by the financial circumstances of the Proponent from time to time.

We cannot comment for the Government on the issue of Government assurances.

Proponent to accept full responsibility and liability to pay damages to the fishing industry for:

- bodily injury,
- damage or loss of property,
- loss of profits or business interruption caused directly or indirectly as a consequence of the Proposal.

These issues are all covered by the commitments we have made.

Proponent to demonstrate appropriate insurance provisions to the satisfaction of the Minister for Environment in consultation with the Minister for Fisheries.

In this approval process the Minister for Environment ultimately accepts or rejects the recommendations of the EPA regarding the Proposal. In this manner issues like insurance provisions are endorsed by the responsible Minister. The matter of the Minister for Environment consulting the Minister for Fisheries is not under our control.

Proponent to commit to consult with NW Seafoods and Kailis to minimise impacts of exclusion zones.

Noted and agreed.

Amend the OSCP to include Kailis and NW Seafoods Groups to be notified in the event of a spill.

Noted and agreed.

Proponent to confirm mobilisation times for oil spill equipment in OSCP.

We undertake to confirm the mobilisation times for oil spill equipment prior to the drilling programme.

Request one month notice of exact timing and location and more specific details of liaison envisaged.

We undertake to provide parties with at least one months notice of general timing and specific location. As we are dependent on third party contractors to drill the well the timing of rig arrival may be influenced by previous users, weather and other matters beyond the Proponents control. Similarly the period the rig is on location is dependent on drilling progress and can only be estimated at this stage.

We undertake to provide general details of timing in the requested time frame and specific details of timing as we are able.

We plan to establish official contacts with other users of the Gulf and establish communication procedures similar to the successful methods established prior to the drilling of Rivoli-1.

Undertakings as to compensation should be no less comprehensive than previous undertakings.

The undertakings made in the CER are wholly consistent with those undertaken before the drilling of Rivoli-1 and with the undertakings made to acquire the approvals to drill currently in place, all of which were confirmed by the Authorities to be acceptable.

Notify Kailis manager in the event of a spill, offered to use their radio equipment and base for co-ordinating fishing industry to assist if possible.

We agree to notify the Kailis manager in such an event. The offer to use equipment is noted and appreciated.

Confirm response times, obtain written confirmation from bodies of their ability to meet times, investigate combined times to deploy equipment and personnel.

Noted and agreed. We will undertake such an exercise closer to the drilling programme.

CALM should be on the list of organisations to be notified in the event of a spill.

Noted and agreed.

No plans in the OSCP to protect Bundegi Reef and shoreline as mentioned in the text. Oil from Cody would reach Bundegi Reef quicker in cyclonic winds.

The plan to protect vulnerable habitats with booms is addressed in the "Strategy Plan For Oil Spill Treatment" Figure 1 of the OSCP. We note the point that cyclonic winds would hasten the spread of spilt oil and its dispersal. The OSCP has been designed to contain these risks.

Dispersant stockpiles may have been depleted since the Sanko Harvest incident.

Noted, available stockpiles of dispersant will be assessed well before the commencement of drilling.

CER's suggest dispersants would be used on oil threatening mangroves, EPA approval is required before using dispersants.

In discussion of the protection of mangroves and their vulnerability to oil spills the issue of the use of dispersants is addressed. The text makes it very clear that dispersants can only be used with EPA approval.

OSCP should be concise, accurate and easy to use.

Acknowledged, but the OSCP has been prepared following guidelines from Government Departments.

Contingent responses should be made for specific sensitive areas.

In the Oil Spill Trajectory Modelling numerous models are fully investigated. The suggestion has some merit, but considering the number and diversity of possible scenarios the idea is impractical.

Simulation exercises should be considered to test the responses.

This suggestion has some merit and will be considered as suggested.

The composition of drilling fluids needs to be defined.

The drilling fluid proposed for the programme will be the same sea water-polymer drilling fluid used to drill Rivoli-1. The reader is referred to the Cooper-1 NOI p49, for a detailed review of the effects and details of investigations undertaken in selecting the drilling fluid.

Shore based disposal sites need to be defined.

We have previously had arrangements in place with The Shire of Ashburton and The Shire of Exmouth for the disposal of recovered oil. We will reactivate these closer to the time of drilling.

Management proposals for ensuring the protection of sensitive marine resources are too general.

The statement referred to is contained in the Conclusions And Synthesis subsection of Section 6 of the CERs. The reader is referred to the OSCP for more information on protection of sensitive environments in the event an oil spill cannot be contained. The diversity and number of possible scenarios preclude specific planning, especially if the OSCP is to be kept brief and concise. We have had discussions with Mr Ian Fraser of the WADM and we understand the procedures outlined in the CER and OSCP are to the Department's satisfaction.

Pre and Post site specific inspection shall be a condition for approval of the Proposal.

This issue is undertaken in Section 8, Commitment 9 of this CER.