Proposed offshore petroleum exploration drilling in EP 325, North West Shelf

Minora Resources NL

Report and recommendation
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 546
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1. Introduction

In 1988 Minora Resources NL submitted a proposal for drilling within petroleum exploration permit area EP 325, situated in the Exmouth Gulf area .

A seismic survey and two wells were proposed, namely Rivoli No 1 and Whalebone No 1 (see Figure 1). The proposal had the potential to affect environmentally sensitive areas such as coral reefs, seagrass banks and beaches within Exmouth Gulf and Minora was required to prepare a Public Environmental Review (PER) for public review and formal assessment.

The Rivoli proposal was assessed and found to be environmentally acceptable subject to certain conditions. The Whalebone well and seismic survey were sited within Ningaloo Marine Park, and assessment of these proposals was deferred until the Government review of petroleum exploration activities in marine parks and nature reserves was concluded.

2. Current policy

The review of petroleum activities in marine parks has been completed and the current Government position, as stated in "Resolution of Conflict-A Clear Policy for National Parks", (1990) is as follows:

- "Drilling and production for petroleum will continue to be banned in Marine Parks."

The Environmental Protection Authority's position is aligned with this and can be summarised as:

- 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. However, seismic surveys which are proposed in order to define targets outside marine parks but fall partly within parks may be permitted.**
- in environmentally sensitive areas, other than marine parks, petroleum exploration proposals need to clearly show 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 including an approved oil spill contingency plan.

The Authority has assessed several other offshore petroleum exploration proposals in the region and wishes to maintain a consistent policy toward subsequent proposals, where appropriate.

3. Project description

The Whalebone well site lies about 4.3km east south east of Bundegi Reef within Ningaloo Marine Park. Minora proposes to use a jack-up drill rig for drilling the well which is expected to take up to 30 days to complete. A stand by vessel would be stationed in close proximity to the rig whilst drilling was under way to assist with fuelling and emergency operations, should they be needed.

The seismic survey is proposed for areas surrounding the Whalebone well site and lies almost wholly within the marine park.

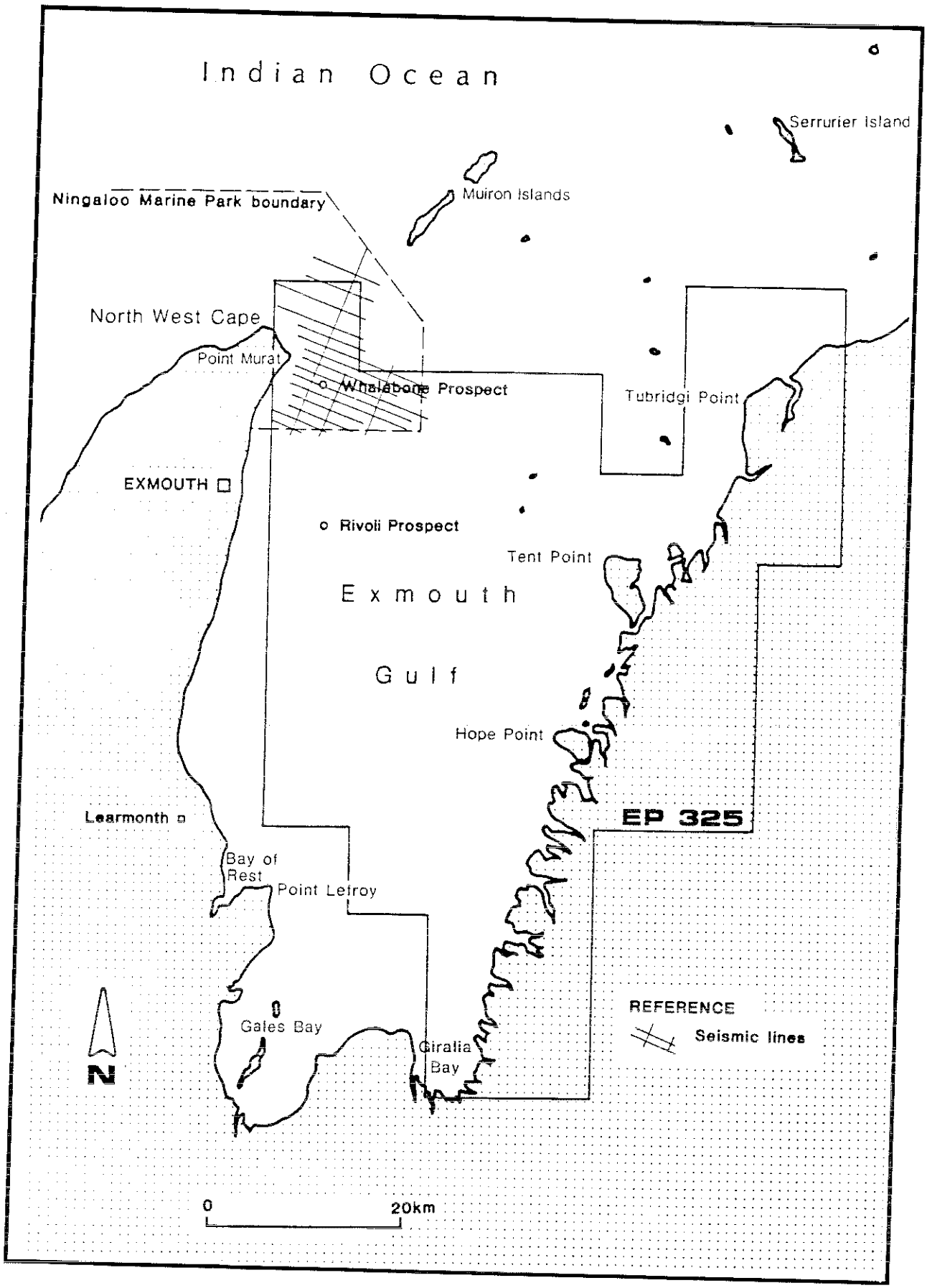

Figure 1: Location of permit area and proposed activities

4. Existing environment and use

Many areas in the vicinity of the proposals are regarded as being environmentally sensitive, with several locations having high conservation values. The region is subject to strong winds and currents and lies within the cyclone-affected belt of Australia. Bundegi Reef and the marine environment between the reef and the coast are defined as a "sanctuary zone". The shallow waters and intertidal zones in Exmouth Gulf support a diverse range of biota which gives the area its high conservation, commercial fishing and tourist values.

The main activities in the region rely on its marine resources. Recreational and commercial fisheries and tourist-based activities are centred around Exmouth. The prawn fishery season begins in late March and continues through until November with prawn fishing activity generally confined to the southern portion of the permit area.

Concerns raised in public submissions centred around the fate of drill cuttings, domestic wastes, oil spills and their probability, the use of dispersants in the event of an oil spill, the impacts of each of these on the wildlife and resources of the permit areas and the potential loss of earnings of the substantial prawn, pearl, commercial fishing and tourist industries reliant on these resources.

5. Environmental impacts

The Authority considers that marine parks are the equivalent of national parks on land. As such, one of their primary functions is to recognise outstanding areas of unspoilt, natural significance and to protect them.

In previous reports the Environmental Protection Authority has recognised the low risk of oil spill associated with exploration drilling in Australia. There have been minor incidents of spillage, including one in the week during which this report was written, but no major spill into the ocean from exploration drilling in Australia.

In other exploration drilling proposals assessed by the Authority, the proponent wishing to do exploration drilling in environmentally sensitive marine areas outside of marine parks has been required to put in place contingency plans to deal with the consequences of oil spills. In marine parks, however, the consequences of an oil spill are held to be so considerable as to make the proposal environmentally unacceptable. This present proposal, because of its extremely sensitive location in a marine park is considered by the Environmental Protection Authority to be not environmentally acceptable.

While the Authority recommends against this proposal for seismic surveying and exploration drilling, it is also appropriate at this time to discuss the environmental impacts and risks arising from a producing field in the marine park, which is the proponent's desired outcome. These are significantly higher than those for an exploration well only, particularly when the attendant tanker traffic is also taken into account, and would be expected to occur over the much longer period of the producing life of the field.

There are several important marine-based industries potentially at risk, these being the prawn trawling, recreational fishing and tourist industries.

5.1 Marine seismic surveying

Impacts from seismic surveys on marine organisms are generally considered to be relatively minor where air guns are employed to provide the source of energy, although some studies point to the localised acute effects of the blast on those organisms with air bladders (such as fish), and on eggs and larvae. Subacute effects are far more difficult to measure, however there are accounts of disruption to feeding, migrating and mating behaviour of creatures, and effects on the acoustic abilities of creatures such as whales.

5.2 Drilling

Impacts on the marine environment from drilling activities can arise either from routine or from accidental discharges. Depending on the time of year and the prevailing winds and currents there could be a range of effects varying from insignificant to potentially serious, at least in the short-term.

Domestic wastes including treated sewage, "grey" water and galley wastes are pulverised and disinfected before discharge into the sea. No significant environmental impacts are expected because of the biodegradability of the product, short period of drilling activities and large dilution factor.

Drilling generates rock cuttings with residual amounts of drilling muds adhering to the chips. Depending on the adjacent environment and the type of mud these wastes could have a visual and environmental impact.

Accidental oil spills can occur, in order of increasing size, from the rig refuelling operation, from a production test, or because of a blowout of crude oil from the well.

The most common type of spill is a minor spill of up to $20m^3$ arising from refuelling.

Refuelling of the rig usually occurs about once every 14 days.

Partly controlled or uncontrolled well blowouts are less common but can lead to much greater loss of oil. Little of this flow can be recovered in most cases and thus, the impacts of such an accident are likely to be extensive, although not necessarily long-term.

5.3 Production of petroleum

Production facilities carry a far higher risk of spills than do exploration wells because petroleum being produced requires production, separation and storage facilities. In addition there are pipelines and tanker loading points, and the complex would be expected to be in operation for several years. Tanker traffic is responsible for some of the world's worst oil spills and the chances of an incident over an operating period of several years are significant.

5.4 Discussion and conclusion

Seismic surveying can have environmental impacts on marine organisms, although the long term and subacute effects are poorly understood.

Drilling can lead to partly controlled or uncontrolled well blowouts, which can lead to much loss of oil. Little of this flow can be recovered in most cases and thus 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 the Environmental Protection Authority considers that the potential impacts of such an event occurring in a marine park are significant and unacceptable.

The production scenario, giving rise to the transfer and transport of produced oil from a site such as Whalebone within the park to tanker traffic represents an even greater risk which the Authority believes is unacceptable.

Recommendation 1

The Environmental Protection Authority concludes that the proposal to conduct an offshore exploration seismic and drilling programme within the Ningaloo Marine Park, as described in the Public Environmental Review, is environmentally unacceptable.

In reaching this conclusion, the Environmental Protection Authority identified the main factors requiring detailed consideration as the consequences of accidental discharges arising from the drilling operations upon the environmentally sensitive areas within the park boundaries.

The Environmental Protection Authority considers that, despite the fact that these and other issues have been recognised by the proponent, the consequences of accidental spills into the marine park are environmentally unacceptable. Accordingly the Environmental Protection Authority recommends that the proposal should not proceed.

This is consistent with the Authority's recent assessment of another exploration proposal located nearby in Exmouth Gulf (Bulletin 504), where drilling within Ningaloo Marine Park was also found to be environmentally unacceptable.

6. References

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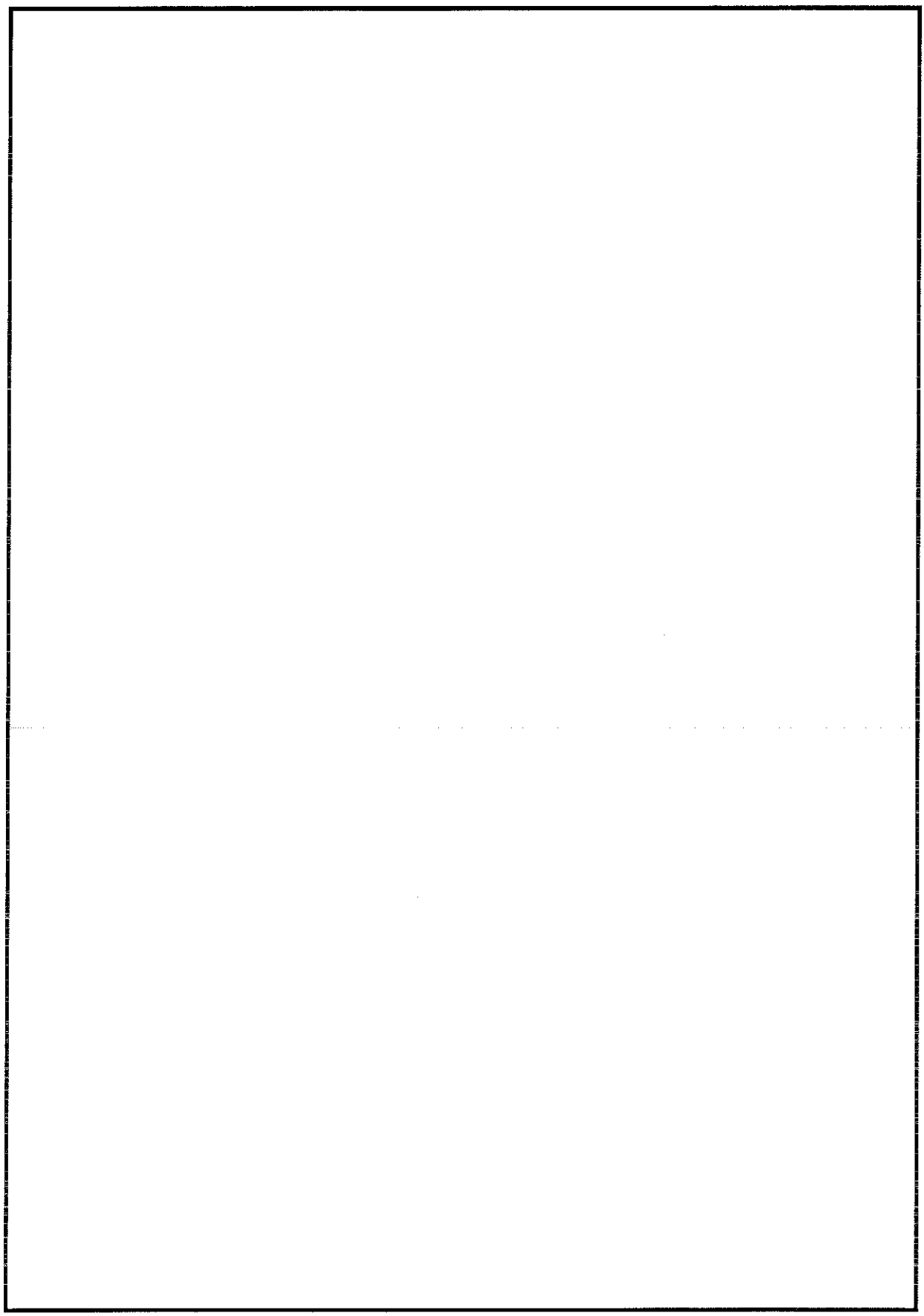

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