

INPEX BROWSE, LTD.

ICHTHYS GAS FIELD DEVELOPMENT

NOTICE OF INTENT


**IN TERMS OF THE ENVIRONMENTAL
ASSESSMENT ACT 1982 (NT)**

**ICHTHYS GAS FIELD
DEVELOPMENT PROJECT**

BLAYDIN POINT, DARWIN

**Document No.
DEV-EXT-RP-0050**


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1 INTRODUCTION

1.1 THE PROJECT

INPEX Browse, Ltd. (INPEX) proposes to develop the Ichthys Field in the Browse Basin to produce liquefied natural gas (LNG), liquefied petroleum gas (LPG) and condensate for export to markets in Japan and elsewhere.


For this purpose, INPEX intends to install offshore facilities for the extraction of natural gas and condensate at the Ichthys Field and a gas export pipeline from the field to onshore facilities at Blaydin Point near Darwin in the Northern Territory. The company intends to construct a two-train gas-processing plant and product offloading jetty at a site zoned for development on Blaydin Point. Additional condensate will be extracted and exported from the offshore facilities.

1.2 THIS DOCUMENT

This Notice of Intent (NOI) represents an initial statement of advice to the Northern Territory Government on the Ichthys Gas Field Development Project (hereafter referred to as the Project). It is intended to initiate the environmental assessment process by the Environment, Heritage and the Arts (EHA) Division of the Department of Natural Resources, Environment and the Arts (NRETA), under the *Environmental Assessment Act 1982* (NT).

The Northern Territory assessment process is limited to the components of the Project that fall within areas of the territory's jurisdiction. The scope of the Northern Territory's EHA assessment and the designated authority responsible for assessing those portions of the Project which are outside this limit will be determined through consultation between the EHA and the Commonwealth Department of the Environment, Water, Heritage and the Arts.

This document, therefore, focuses on those Project components which fall within the Northern Territory's jurisdiction, particularly activities within the Darwin region.

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2 PROPONENT

INPEX CORPORATION has been involved in the development of oil and gas resources for more than four decades and has been steadily increasing its exploration and development activities in many countries around the world. The corporation is currently involved in a number of projects in Australian waters and in the Timor Sea Joint Petroleum Development Area (JPDA). These include the Griffin oil and gas project north of Exmouth in Western Australia and the Bayu-Undan oil & gas project in the JPDA.

In early 1998, INPEX CORPORATION (as Indonesia Petroleum, Ltd.) bid for a petroleum exploration permit for permit area WA-285-P in the northern Browse Basin on the North West Shelf approximately 440 km north of Broome and 800 km south-west of Darwin. This was awarded to INPEX on 19 August 1998. The subsidiary company INPEX Browse, Ltd. was established immediately after the granting of the exploration permit and became the permit holder, 100% equity holder and Operator.

INPEX's drilling program from March 2000 to February 2001 in the north-western portion of the permit area resulted in a significant gas and condensate discovery in what is now known as the Ichthys Field. Shortly afterwards the company commenced the Ichthys Gas Field Development Project. The Ichthys Field encompasses an area of approximately 800 km² (out of the 3041 km² of the permit area), with water depths ranging from 90 to 340 m. The Browse Basin is a proven hydrocarbon province, with major undeveloped gas-condensate fields in the outer and central zones of the basin and minor oil discoveries on its eastern margin.


In 2006 INPEX transferred a 24% participating interest in the Project to Total E&P Australia (Total). Total has had a long-standing partnership with INPEX elsewhere in the world and also has in-depth experience and expertise with LNG and LPG projects in many countries.

Since INPEX started its gas-exploration drilling operations at the Ichthys Field, eight appraisal wells have been drilled and two years of boat-based field studies have been undertaken without any reportable environmental incidents. INPEX has also been acknowledged by the Australian Petroleum Production & Exploration Association (APPEA) which awarded its 2008 Environmental Award (exploration company category) to INPEX for its approach to low-environmental-impact geotechnical drilling activities on the Maret Islands.

2.1 CONTACT DETAILS

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3 PROPOSAL DESCRIPTION

3.1 PROJECT CONCEPT AND LOCATION

The Ichthys Field is located within the WA-285-P exploration permit area in the Browse Basin, 440 km north of Broome and 800 km south-west of Darwin. As described in Section 2 *Proponent*, it encompasses an area of approximately 800 km² (out of the 3041 km² of the exploration permit area) with water depths ranging from 90 m to 340 m.

As Operator of the permit area, INPEX proposes to develop the field to produce LNG, LPG and condensate which would be transported to markets by sea. The hydrocarbon gas and liquids will be extracted to a floating platform, referred to as a central processing facility (CPF).

Condensate and produced formation water will be transferred from the CPF to a floating production, storage and offtake (FPSO) facility. Condensate will be stabilised and stored within the FPSO for periodic offloading to export tankers. Produced formation water will be treated to meet regulatory requirements and disposed of offshore.

A fixed-platform concept is also being considered as an alternative to having floating facilities. This alternative includes the construction of one or more fixed platforms in shallower waters (depths of 100–120 m) 40 km south-west of the Ichthys Field that may vary in size and functionality.

Gas, together with a relatively small volume of condensate, will be transferred from the CPF or fixed platforms through a subsea pipeline to the onshore gas-processing facility at Blaydin Point located on Middle Arm in Darwin Harbour. The onshore Project site at Blaydin Point is currently unallocated Crown land zoned for development, but is presently undeveloped.

The Project falls under Commonwealth legislation for offshore infrastructure and the offshore component of the subsea gas export pipeline, and falls under Northern Territory legislation for nearshore facilities and onshore facilities.

3.1.1 Production capacity

The initial development of the gas field, onshore gas-processing plant and associated infrastructure is currently proposed to provide the following capacity:

- LNG: approximately 8 Mt/a from two trains, increasing to approximately 10 Mt/a through debottlenecking
- LPG: approximately 1.6 Mt/a
- Condensate: approximately 100 000 bpd (85 000 bpd to be processed and exported from the offshore facility, 15 000 bpd to be processed onshore).

3.1.2 Future expansion

Provision will be made within the design of the onshore gas-processing plant to allow for an expansion of the facilities, subject to feasibility and the development of sufficient gas reserves. A time frame for this expansion has not been determined at this stage and it is intended that this will be the subject of a separate environmental assessment process in the future. The expected expansion capacity will be up to four additional trains.

3.1.3 Project schedule

A conceptual Project schedule is presented in Table 3-1. This includes key milestones associated with Project design, construction and operation.

As shown, the concept selection is to be completed during the first half of 2008, to allow for consultation with the Northern Territory and Commonwealth governments and other stakeholders, as required.


Upon completion of front-end engineering design (FEED), INPEX expects to make the final investment decision (FID) in 2009, and to commence production by the end of 2013 or early 2014 depending upon the duration of the construction phase.

Table 3-1: Conceptual Project schedule

Development stage	Start	End
Concept selection	2nd half 2007	1st half 2008
FEED	2nd half 2008	Mid-2009
FID	2nd half 2009	–
Construction and commissioning	2nd half 2009	2nd half 2013 / 1st half 2014
Production	2nd half 2013 / 1st half 2014	After 2054

3.1.4 Life of the Project

The infrastructure described in this NOI will be in place for the operational life of the Project which is expected to extend beyond 40 years.

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3.2 SITE SELECTION

Following the appraisal of the Ichthys Field's gas and condensate reserves based on exploration conducted in 1999, INPEX investigated the options to bring the hydrocarbon products to market. This included site selection studies conducted from 2002 to 2004 to assess possible locations for the onshore gas-processing component of the Project.


At the time, the studies indicated that the Maret Islands in the Kimberley region of Western Australia were the most appropriate location for the onshore facility based on what was understood at the time of the environmental, political, engineering and commercial constraints. INPEX initiated an approvals process with the Western Australian and Commonwealth governments in 2006 in order to pursue the Maret Islands option. Although this approvals process is ongoing, companies wishing to locate an onshore facility in the Kimberley region continue to face a complex series of constraints that make project development and site approvals a challenging and increasingly uncertain process.

This uncertainty has prompted INPEX to revisit sites considered in earlier stages of the development process and in mid-2007 it was determined that it would be technologically feasible to export Ichthys gas to an onshore gas-processing facility in the Darwin region.

In consultation with the Northern Territory Government, the Blaydin Point site was selected as the preferred option for the onshore component of the Project. It is the government's preferred site for an LNG facility and is zoned as an industrial area under the Northern Territory Planning Scheme specifically for LNG (DPI 2008).

In addition, INPEX has previously undertaken a sensitivity study assessing a number of potential northern Australian sites against a range of environmental, social and economic criteria. This study was aimed at the identification of an onshore site for the development of another project (separate from the Ichthys Field development) and drew on previous experience in other major site selection studies for industrial facilities in northern Western Australia, and experience in the Northern Territory coastal and marine environment. This study found major advantages to development within the Darwin Harbour area, and specifically at Blaydin Point, compared with other sites in Northern Australia (URS 2006).

This NOI will initiate the Northern Territory environmental approvals process for the Ichthys Gas Field Development Project at the Blaydin Point site in Darwin. This will run in parallel with the approvals process for the alternative Maret Islands site in the Kimberley region of Western Australia until a decision is made by INPEX and its joint venture participant, Total, to pursue only one of these options.

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3.3 PROJECT COMPONENTS


The infrastructure required for the Project, with onshore facilities based at Blaydin Point, will include the following major components:

- approximately 50 subsea wells spread over a number of drilling centres and fed back to the offshore processing facilities via subsea flowlines
- a CPF or fixed platform for offshore gas and liquid extraction and processing
- FPSO facilities for offshore storage and export of condensate
- an offshore pipeline from the offshore facilities to a shore-crossing location on the western side of Middle Arm, Darwin Harbour
- an onshore pipeline from the shore-crossing location to the gas-processing plant
- onshore gas-processing plant at Blaydin Point.

A range of supporting infrastructure will also be required, including:

- a product offloading jetty (whose final layout will be determined through stakeholder consultation)
- a materials offloading facility (MOF)
- sealed weatherproof roads
- common utilities and a control room
- associated on-site infrastructure (e.g. offices, workshops and warehouse)
- power generation facilities
- a wastewater treatment plant.

A description of the major Project components and their supporting infrastructure is provided in the following subsections.

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3.3.1 Offshore extraction, processing and condensate offtake

The offshore infrastructure will consist of a number of drilling centres, including approximately 50 subsea wells which will be tied back to manifolds. Drilling centres will have infield flowlines and flexible risers for submarine transfer of the reservoir gas and fluids to the CPF, an offshore semi-submersible platform. The CPF will contain the initial gas-processing and compression facilities as well as various utilities and living quarters for up to 200 personnel.

Condensate will be transferred from the CPF to a moored FPSO for stabilisation and export. Condensate will be exported from the FPSO via a floating loading hose to offtake tankers. The FPSO will also treat and dispose of produced water. It will be located approximately 2 km from the CPF and will contain liquid (condensate and water) treatment facilities, living quarters and associated utilities.

Figure 3-1 and Figure 3-2 illustrate the offshore development concept from, first, an underwater and, secondly, an above-water perspective.

A fixed-platform concept is also being considered as an alternative to having floating facilities. This alternative includes the construction of one or more fixed platforms in shallower waters (depths of 100–120 m) 40 km south-west of the Ichthys Field that may vary in size and functionality. The fixed facilities will include gas and condensate separation, condensate stabilisation, liquid treatment, MEG (monoethylene glycol) regeneration, gas dehydration and compression, support facilities and accommodation.

If the fixed-platform option is adopted, the condensate would be stored on a floating storage and offtake (FSO) unit moored about 2 km from the fixed platform or, alternatively, stored in one of the platform bases and exported through a floating loading buoy.



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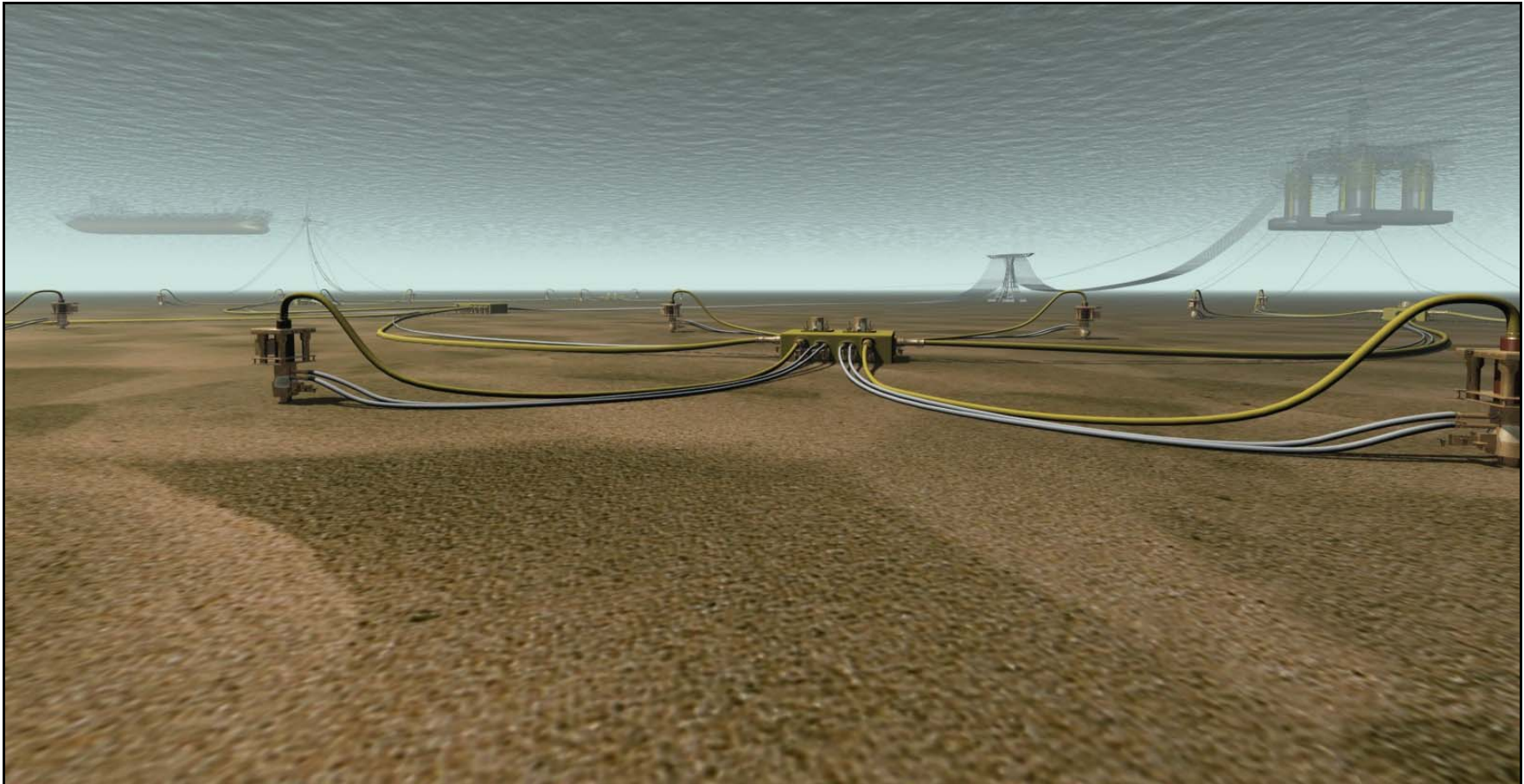
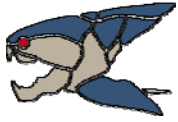


Figure 3-1: Indicative underwater schematic of the drilling centres, CPF and FPSO



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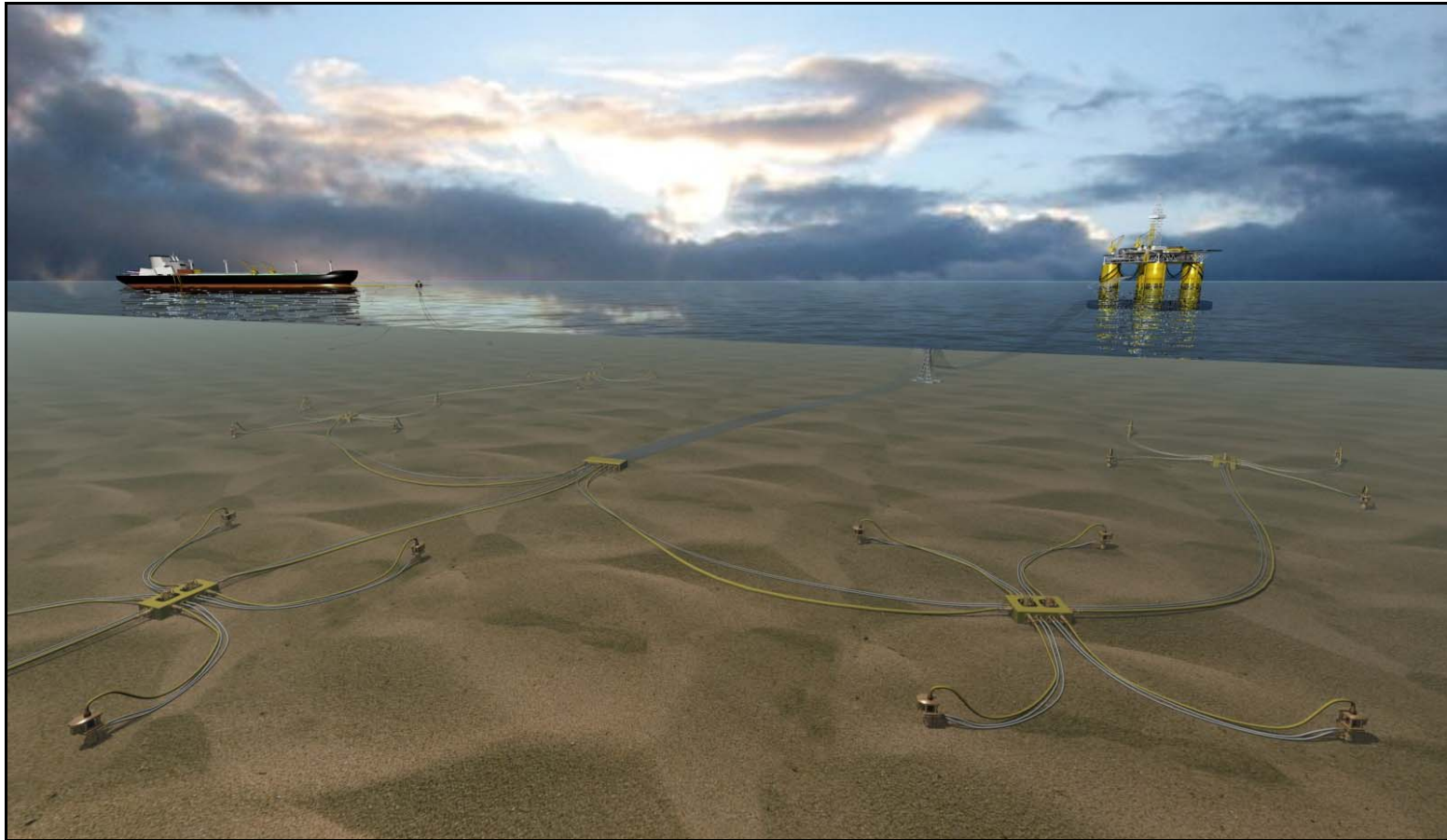



Figure 3-2: Indicative above-water schematic of the drilling centres, CPF and FPSO

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3.3.2 Subsea pipeline

It is proposed that dehydrated liquids-rich gas will be transported from the Ichthys Field to the Blaydin Point onshore gas-processing facilities via a subsea pipeline. The pipeline will be approximately 850–935 km long with an expected minimum diameter of 42 inches (c.1.07 m).

The subsea pipeline route is yet to be finalised, with the following two options currently being considered (Figure 3-3):

- Option 1: A direct line from the offshore facility to the mouth of Darwin Harbour, and then through the centre of the Harbour to Blaydin Point.
- Option 2: A route extending north-east around the existing Northern Australia Exercise Area (if crossing this military zone is not permitted), then south-east to Darwin Harbour, entering as per Option 1.

The pipeline route will accommodate any subsea obstructions found during the route survey.

Within Darwin Harbour, it is proposed that the subsea pipeline should follow a similar route to the existing ConocoPhillips Bayu-Undan pipeline to Wickham Point (Figure 3-4).

3.3.3 Shore crossing and onshore pipeline

The subsea pipeline will be linked to the Blaydin Point onshore gas-processing facility by a section of onshore pipeline. The onshore pipeline route and shore-crossing location have not yet been finalised and their selection depends on a range of geotechnical, economic and environmental factors to be studied as part of the environmental impact assessment process.

At this stage, the preferred option includes continuing the subsea pipeline down the centre of Darwin Harbour, with a shore crossing between Wickham Point and Channel Island.

The onshore pipeline would follow the existing road alignment of Wickham Point Road for approximately 2.5 km, then proceed in a northerly direction to the onshore processing facility site at Blaydin Point, a total distance of approximately 8 km.

Shore-crossing and overland routes west of Darwin could be investigated as alternative options to the route through Darwin Harbour shown in Figure 3-4.



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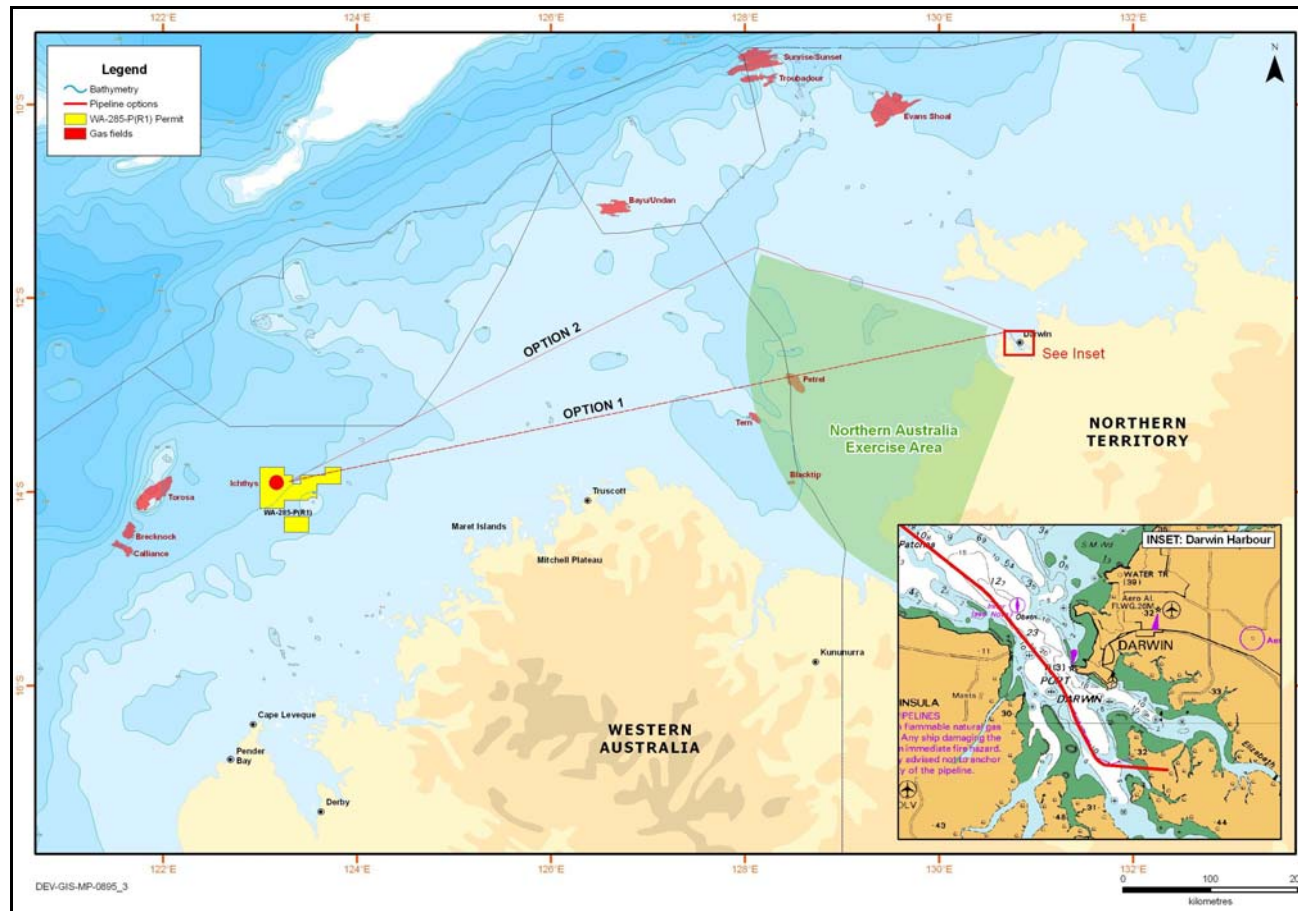


Figure 3-3: Indicative subsea pipeline route options from the Ichthys Field to Blaydin Point