



Figure 1: The ENSCO 5006 mobile offshore drilling unit (MODU), one of two MODUs that are drilling development wells for the first phase of the Ichthys LNG Project

INPEX, on behalf of the joint venture participants of the Ichthys Gas Field Development Project (Ichthys LNG Project), will conduct a number of offshore gas–condensate field development activities in 2016.

Background

This fact sheet has been prepared as part of the implementation strategy detailed in the accepted environment plans (EPs) for Ichthys LNG Project offshore activities. It is intended to provide stakeholders with a periodic update on those activities. It also contains information relevant to the gas export pipeline (GEP) operation phase that will be described in an EP to be submitted in 2016 to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The fact sheet includes a brief description and the approximate location, timing and duration of key activities and vessels used to provide support. Detailed information for each activity was included in fact sheets that were issued in 2013 and 2014 and in an update provided in 2015. Any of those fact sheets can be provided promptly upon request (refer to page 4).

Additional information sources for the Project's offshore activities and associated approvals are listed on page 4, along with channels for stakeholder feedback and enquiries.

Activity status and indicative schedule

Offshore construction and installation activities and first-phase development well drilling are well under way. Some activities have already been completed. The table below provides a basic schedule of these activities, with greater detail on pages 2–3.

Key offshore activities

Completed

GEP pipelay
Construction of the 882-kilometre-long subsea section of the gas export pipeline (GEP) from Darwin to the Ichthys Field.

GEP mechanical completion
Leak testing to ensure the integrity of the GEP infrastructure.

In progress

Drilling
Phased drilling of 20 development wells and installation of subsea Christmas trees (from 2015 for 40 months).

URF
Installation of umbilicals, risers and flowlines (URF) and related subsea infrastructure (from 2014 to post well completion).

Starting in 2016

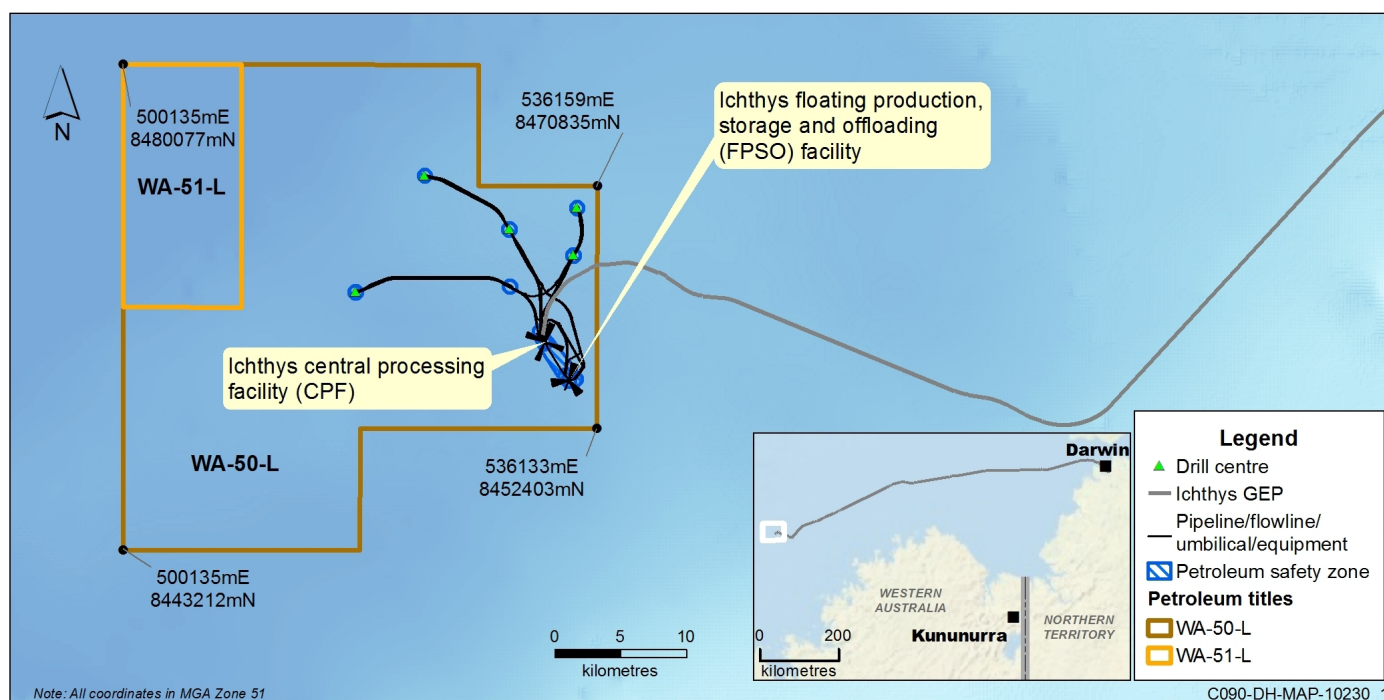
GEP preservation
Visual inspection of the GEP and potentially maintenance or repair activities.

GEP precommissioning
Dewatering of the GEP in WA-50-L in preparation for the introduction of hydrocarbon gas.

CPF and FPSO
Hook-up of a central processing facility (CPF) and floating production, storage and offloading (FPSO) facility.

Starting in 2017

Start-up
Start-up and operation (for 40 years).



Location of offshore installations and activities

Figure 2 shows the locations of Ichthys LNG Project offshore installations and activities in the Ichthys Field, situated in the Browse Basin within the area covered by production licences WA-50-L and WA-51-L. The inset picture shows the full route of the GEP. The petroleum safety zone (PSZ) is a 500-metre-radius exclusion zone surrounding safety-critical infrastructure, including around drill centres and around and between the CPF and FPSO. Refer to page 4 for sources of further PSZ information, including coordinates.

Key offshore activities

Development well drilling

Development of the Ichthys Field will require the phased drilling of approximately 50 wells over the Project's lifetime, with 20 wells to be drilled within the Brewster reservoir in the first phase. The wells will be drilled from drill centres in groups to optimise the efficiency of rig operations and to minimise the Project's footprint on the ocean floor. Well intervention activities, required during the drilling campaign to prepare wells for production, will be managed under relevant regulatory approvals.

Vessels

Drilling activities are being conducted by the *ENSCO 5006* (Figure 1) and *Jack Bates* semi-submersible mobile offshore drilling units (MODUs). Each MODU is supported by two anchor-handling supply vessels and one platform supply vessel (PSV) that will be present for the duration of drilling and rig-moving operations. Logistics support for all MODU operations is provided from Broome. Additional vessels may be required to carry out survey work for future development drilling activities.

Approvals

First-phase drilling activities received environmental approval to commence in 2014. This approval was inclusive of stakeholder engagement that commenced in 2013. For a summary of those approved activities, refer to page 4.

Schedule

The first phase of drilling started in early 2015 and will continue over approximately 40 months. The *ENSCO 5006* MODU will remain in field for the full duration while the *Jack Bates* MODU is expected to depart the Ichthys Field during 2016 on completion of its drilling activities. Remaining wells and drill centres will be added (subject to approval) to maintain gas production as reservoirs are depleted over time.

Umbilicals, risers and flowlines (URF) installation

This scope of work includes installation and precommissioning of subsea flowlines, support structures and control systems, and the connection of these systems to other offshore components. The URF program also includes installation of the moorings for the CPF and FPSO and connection of both structures to their mooring systems. Key subsea infrastructure can be seen in Figure 7 on page 4.

Vessels

URF installation activities involve several key offshore construction and installation vessels (one such vessel, the *Aegir*, is shown in Figure 3). These vessels are supported in the field by supply vessels, tugs and barges operated out of Broome and international ports.

Approvals

URF installation activities received environmental approval to commence in 2014. This approval was inclusive of stakeholder engagement that commenced in 2013. For a summary of those approved activities, refer to page 4.

Schedule

Flowlines, subsea equipment and mooring piles were installed in 2015. Mechanical completion of flowlines is occurring progressively. Precommissioning activities have also started. Attachment of mooring chains and riser hook up will occur in 2016. URF program work will continue until after completion of the final development well.



Figure 3: Ichthys URF installation work under way on board the Aegir

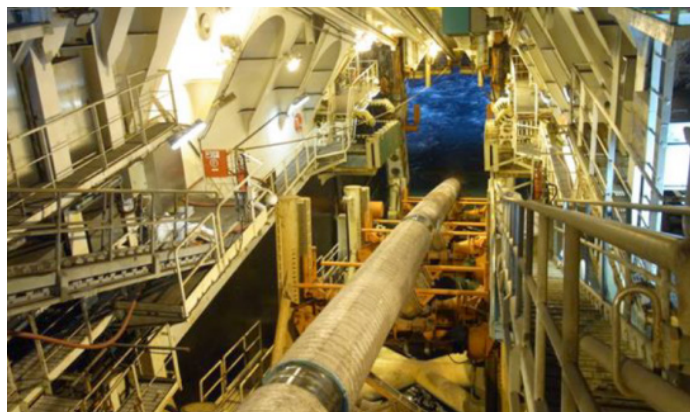


Figure 4: Ichthys GEP deep-water pipelay (completed 2015)

Gas export pipeline (GEP)

Construction of the 882-kilometre-long subsea section of the GEP commenced in Darwin Harbour in June 2014 and was completed in the Ichthys Field in November 2015 (see Figure 4). Mechanical completion of the GEP was finalised in February 2016. In 2016 the GEP will undergo precommissioning, which will involve a second leak test followed by dewatering, vacuum drying and the injection of nitrogen gas to render the GEP inert. The GEP will then remain preserved (filled with nitrogen gas and under a partial vacuum) until hydrocarbons are introduced during operations. Activities that may occur along the GEP route during the precommissioning, preservation and operations stages are limited to inspections (e.g. visual inspection using remotely operated vehicle (ROV) surveys), and maintenance or repair activities if required.

Vessels

Support vessels may be required along the entire length of the GEP during the preservation period and during operation if inspection, maintenance or repair activity is required.

Approvals

GEP preservation and precommissioning activities have received environmental approval to commence. These and other previous GEP approvals were included in stakeholder engagement conducted from 2013. For a summary of those approved activities, refer to page 4. In Q2 2016 INPEX will submit an EP to describe the risks and impacts of and proposed controls for operating the GEP once hydrocarbon gas is introduced.

Schedule

Pipeline preservation and precommissioning activities are scheduled to commence in Q1 2016. The discharge of GEP hydrotest/ preservation fluid in WA-50-L is scheduled to occur in late 2016. Introduction of hydrocarbon gas and operation of the GEP is scheduled to commence in late 2017.

Central processing facility (CPF) and floating production, storage and offloading (FPSO) facility

The CPF (shown under construction in Figure 5) will be used for gas-liquid separation, gas dehydration, gas compression and export and future inlet compression. It will also export a commingled liquid stream of condensate, monoethylene glycol (MEG) and produced water to the FPSO and accept flash gas back from the FPSO.

The FPSO (shown under construction in Figure 6) will be used for condensate dewatering, stabilisation, storage and export. It will also be used for MEG injection and regeneration, produced-water treatment and flash gas compression and export to the CPF.

Approvals

An offshore facility EP describing the hook-up, commissioning and operation of the CPF and FPSO, including support vessel activities, was submitted in February 2016. The EP was inclusive of stakeholder engagement activities conducted from 2014 onwards. Refer to page 4 for more information.

Schedule

The CPF is being constructed in Korea and is scheduled to be towed to the Ichthys Field in late 2016, where it will be moored by 28 anchor chains.

The FPSO is being constructed in Korea and is scheduled to be towed to the Ichthys Field in late 2016, where it will be moored by attaching 21 anchor chains to the weathervaning turret.

After mooring activities are completed the CPF and FPSO will be commissioned to be ready to operate, with production expected to commence in Q3 2017.



Figure 5: Ichthys CPF under construction in Korea



Figure 6: Ichthys FPSO under construction in Korea

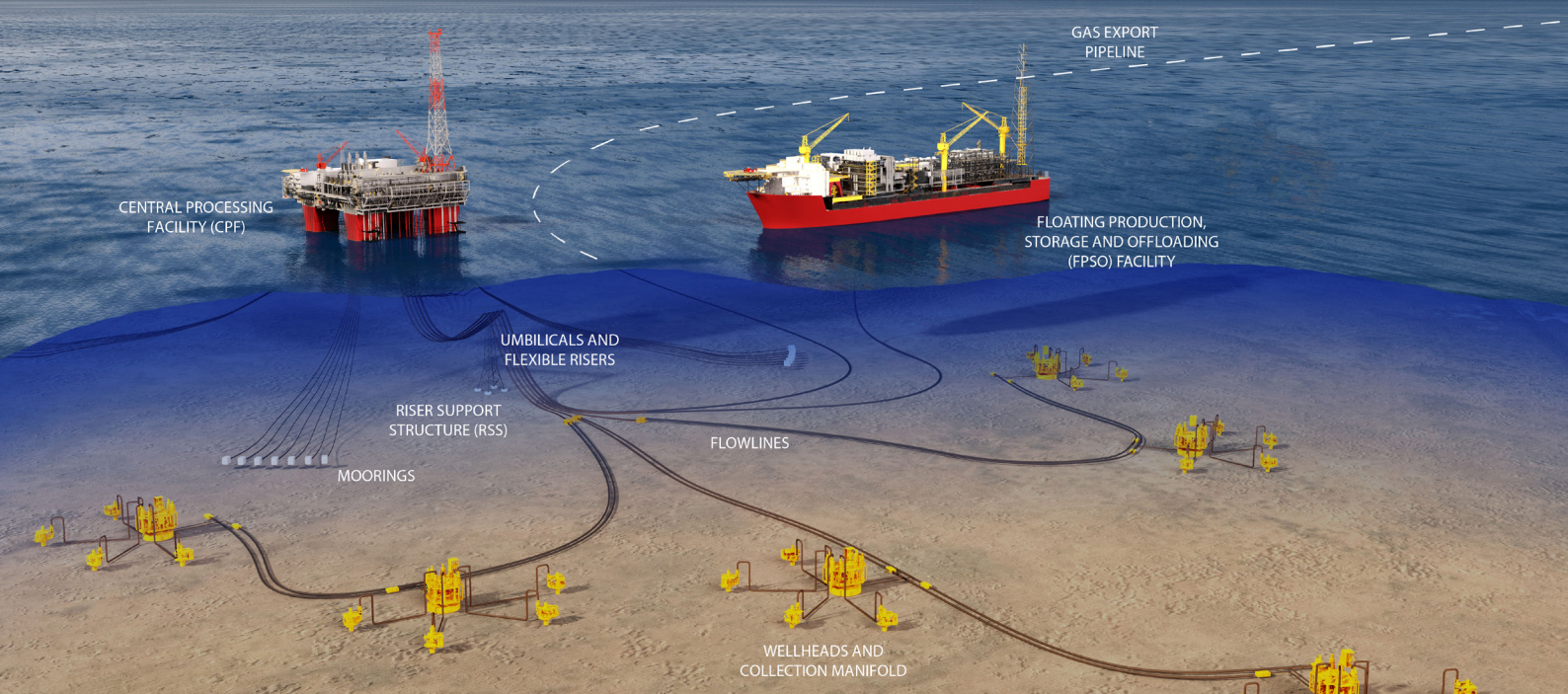


Figure 7: Representation of Ichthys LNG Project offshore floating facilities and subsea infrastructure installed in the Ichthys Field (relative distances have been abbreviated)

Further information and feedback

Further details on key offshore activities are contained in online information sources and activity-specific fact sheets that were issued in previous years. Please refer to **Additional information sources** below to learn how you can access those materials.

INPEX welcomes your feedback on the Ichthys LNG Project offshore activities. Please refer to **Comments and enquiries** below for various channels to provide feedback about the offshore activities or to request additional information.

How is your feedback used?

To ensure full transparency and in accordance with regulatory requirements, INPEX provides full copies of all feedback provided by stakeholders, together with INPEX's initial correspondence and responses to stakeholder feedback, to NOPSEMA within the relevant environment plan (EP) submission. This information is also summarised and included in the relevant EP Summary published on NOPSEMA's website (refer to **Offshore environment plans (EPs)** below).

Additional information and feedback

Environmental impact statement (EIS)

Further information on offshore activities can be found in the Ichthys LNG Project Draft Environmental Impact Statement (EIS) and its supplement, located on the INPEX website: www.inpex.com.au/our-projects/ichthys-lng-project/ichthys-commitments/environment/environmental-documents/

Offshore environment plans (EPs)

Environment Plan Summaries for Ichthys LNG Project offshore activities can be found at the NOPSEMA website: www.nopsema.gov.au/environmental-management/ep-submissions-and-summaries/search. Active Ichthys EPs are as follows:

- Ichthys Development Drilling Campaign WA-50-L
- Ichthys Project - Umbilicals Risers Flowlines Installation
- Gas Export Pipeline Precommissioning
- Ichthys Project Gas Export Pipeline (Preservation Stage)
- Ichthys Project Offshore Facility (Operation)
- Ichthys Project Gas Export Pipeline (Operation)*

Activity-specific fact sheets**

You may also request copies of the following fact sheets containing greater detail about specific offshore activities:

- Development well drilling
- Umbilicals, risers and flowlines (URF) installation and URF installation (supplementary information)
- Gas export pipeline (GEP) construction
- Offshore facilities (CPF and FPSO)

Petroleum safety zone (PSZ)

Ichthys PSZ details can be found at the NOPSEMA website: www.nopsema.gov.au/assets/Gazettal-notices/A381705.pdf

General information on PSZs can be found at: www.nopsema.gov.au/safety/petroleum-safety-zones

Comments and enquiries

If you would like to provide comment or seek further information (including fact sheets), or if you do not wish to receive future communications about Ichthys offshore activities, please contact us by any of the following means:

Contact: Bill Townsend

General Manager External Affairs and Joint Venture

Subject: Ichthys LNG Project offshore activities

Email: consultation@inpex.com.au

Phone: (08) 6213 6000

Fax: (08) 6213 6455

Post: Attention: Bill Townsend
General Manager External Affairs and Joint Venture
Level 22, 100 St Georges Terrace, Perth WA 6000

Website: www.inpex.com.au/our-projects/ichthys-lng-project

* To be submitted in Q2 2016

** It should be noted that some details provided in earlier documents may be superseded by information provided in this fact sheet.



The Ichthys LNG Project is a Joint Venture between INPEX group companies (the Operator), major partner Total, CPC Corporation Taiwan, and the Australian subsidiaries of Tokyo Gas, Osaka Gas, Kansai Electric Power, Chubu Electric Power and Toho Gas.