Puffin Field Decommissioning Environment Plan Summary

December 2015

(PGA125-02-06-02-03-01)

This Environment Plan summary has been prepared to comply with Regulations 11(3) and 11(4) of the Offshore Petroleum & Greenhouse Gas (Environment) Regulations 2009.

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Revision History

Rev.	Date	Description	By	Checked	Approved
1	18/12/15	Re-issued to NOPSEMA	Giulio Pinzone	Phil Harrick	Ian Cashion
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1. Introduction

Sinopec Oil and Gas Australia (Puffin) Pty Ltd (SOGA), a wholly-owned subsidiary of China Petrochemical Corporation (Sinopec), as Titleholder of Petroleum Retention Lease 11 (AC/RL11) in the Ashmore and Cartier Area of the Bonaparte Basin, operates the Puffin Development (Figure 1). Note that AC/RL11 was converted from a production licence (AC/L6) to a retention lease in March 2015.

Oil from the Puffin Field was produced through the *Front Puffin* Floating Production, Storage and Offloading (FPSO) vessel between October 2007 and May 2009 from the Puffin-7 and -8 subsea wells. The *Front Puffin* departed the field in July 2009 after having produced 2.2 MMbbls of crude oil.

Since July 2009, the Puffin Field subsea infrastructure has been managed under a care and maintenance regime by Upstream Production Solutions Pty Ltd (Upstream P.S.) (previously by Oceaneering Services Australia Pty Ltd). Upstream P.S. is the registered Facility Operator of the Puffin Field under the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009. SOGA is the registered Titleholder under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (OPGGS(E)).

Prior to disconnection from the FPSO in 2009, all subsea production infrastructure (production and gas-lift flowlines) was purged of hydrocarbons, flushed with five times volume of freshwater, tested and left in-situ attached to the submerged turret production (STP) Buoy and preserved with inhibited water. In late 2010, modification works were carried out by the *GeoSea* Marine Support Vehicle (MSV*)* to remove the Puffin Field STP buoy and mooring system, and lay down the dynamic flowlines and umbilicals on the seabed secured with clump weights. From August to November 2014, the Puffin-7 and -8 wells were permanently plugged and abandoned (P&A), and the Puffin-7 and -8 subsea trees were recovered. This effectively removed any connection to any hydrocarbon reservoirs or any surface storage facility.

The remaining equipment in the field consists of a production manifold, static and dynamic flowlines, pipeline end manifolds (PLEMs), concrete mattresses, anchors and chains, dynamic riser clump weights and a field marker buoy and its clump weight.

The purpose of the Puffin Field Decommissioning Project is to remove all remaining equipment from the seabed, water column and sea surface.

2. Proponent

China Petrochemical Corporation (Sinopec Group) is a large petroleum and petrochemical enterprise group established in July 1998 on the basis of the former China Petrochemical Corporation. Headquartered in Beijing, Sinopec Group has a registered capital of RMB 231 billion (~$AUD49 billion) and ranked third in the Fortune Global 500 in 2014.

Sinopec Group's key business activities include industrial investment and investment management, the exploration, production, storage and transportation, and marketing of oil and natural gas, oil refining, the wholesale of gasoline, kerosene and diesel, the production, marketing, storage, transportation of petrochemicals and other chemical products, the design, construction and installation of petroleum and petrochemical engineering projects and other associated activities.

Additional information about the Sinopec Group can be obtained from its website at: http//english.sinopec.com.

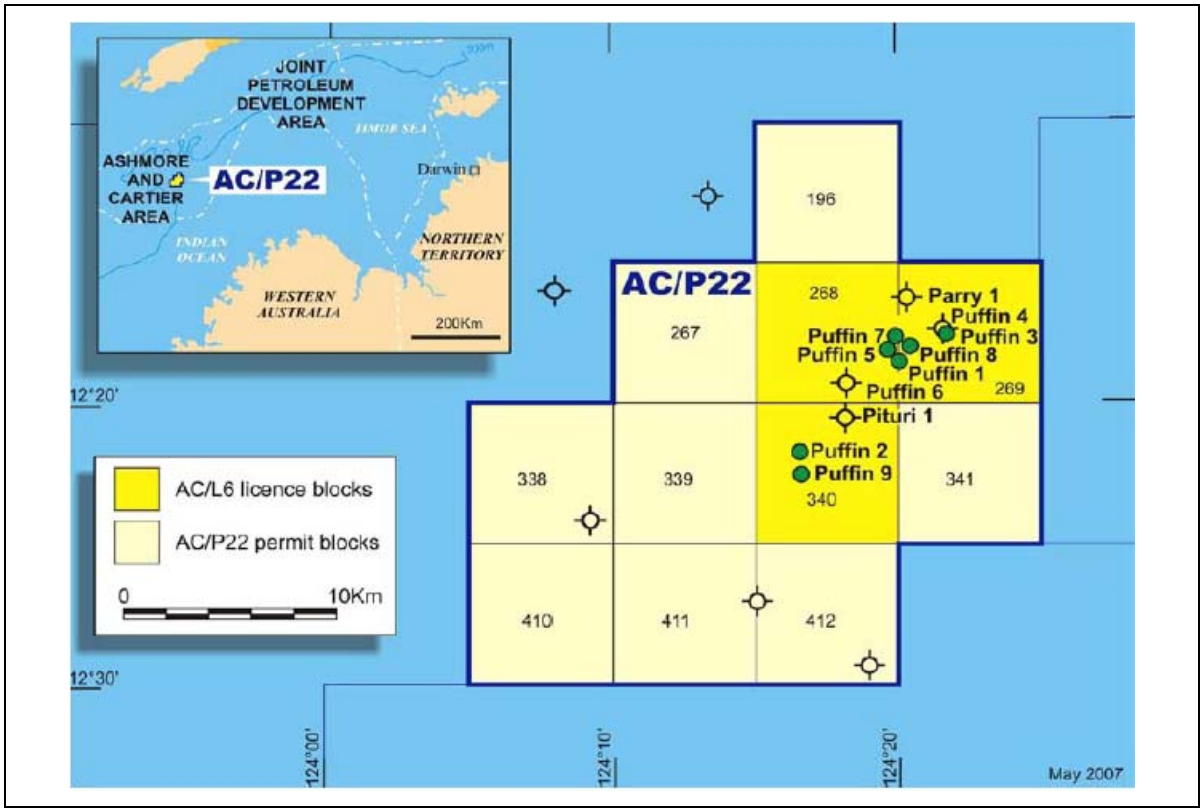

Figure 1. Location of the Puffin Field

3. Location

The Puffin Field covers an area of approximately 900 km^2 in the Vulcan Sub-basin in water depths ranging from 75 to 104 m. The geographic coordinates of the remaining project infrastructure are provided in Table 1.

Table 1. Project infrastructure (surface coordinates)

Infrastructure	Latitude	Longitude
Surface infrastructure		
Surface marker buoy	12° 17' 19.12" S	124° 19' 40.00" E
Subsea infrastructure		
Subsea manifold	12° 17' 28.04" S	124° 19' 52.96" E
PLEM - production	12° 17' 28.71" S	124° 19' 37.81" E
PLEM - umbilical	12° 17' 30.10" S	124° 19' 38.32" E
PLEM – gas lift	12° 17' 31.38" S	124° 19' 37.68" E
Clump weight – gas lift	12° 17' 30.04" S	124° 19' 34.14" E
Clump weight – production riser	12° 17' 29.38" S	124° 19' 33.58" E
Clump weight – umbilical riser	12° 17' 29.95" S	124° 19' 35.17" E
Clump weight – marker buoy	12° 17' 19.15" S	124° 19' 40.70" E
Anchor 1	12° 17' 13.58" S	124° 19' 20.15" E
Anchor 2	12° 17' 10.24" S	124° 19' 35.75" E
Anchor 3	12° 17' 16.05" S	124° 19' 50.58" E
Anchor 4	12° 17' 45.98" S	124° 19' 48.07" E
Anchor 5	12° 17' 49.32" S	124° 19' 32.47" E
Anchor 6	12° 17' 43.51" S	124° 19' 17.64" E

MGA Zone 51, GDA 94

The Puffin Field is remote from environmental sensitivities and coastal populations, as listed in Table 2.

Table 2. Distances to key features in the region

Locality	Distance from Puffin Field*
Environmental features	
Barracouta Shoal (submerged feature)	42 km (23 nm) to the southwest
Vulcan Shoal (submerged feature)	57 km (31 nm) to the south
Goeree Shoal (submerged feature)	65 km (35 nm) to the south
Cartier Island	88 km (47 nm) to the west
Eugene McDermott Shoal (submerged feature)	90 km (49 nm) to the southeast
Hibernia Reef	110 km (59 nm) to the northwest
Ashmore islands and reef	129 km (69 nm) to the west
Heywood Shoal (submerged feature)	134 km (72 nm) to the south
Echuca Shoal (submerged feature)	185 km (100 nm) to the southwest
Gale Bank (submerged feature)	194 km (104 nm) to the east
Baldwin Bank (submerged feature)	208 km (112 nm) to the east-southeast
Bassett-Smith Shoal (submerged feature)	190 km (102 nm) to the east-southeast
Penguin Shoal (submerged feature)	199 km (107 nm) to the east-southeast

Locality	Distance from Puffin Field*
Browse Island	220 km (119 nm) to the east
Nearest Australian mainland	255 km (137 nm) to the southeast
Commonwealth Marine Reserves	
Cartier Island	81 km (44 nm) to the southwest
Ashmore Reef	116 km (63 nm) to the west
Kimberley	~212 km (115 nm) to the south
Coastal settlements	
Darwin	706 km (380 nm) to the east
Broome	670 km (361 nm) to the southeast
Other oil and gas infrastructure	
Montara unmanned wellhead platform	48 km (26 nm) to the south
Crux FPSO (proposed only)	74 km (40 nm) to the south-southeast
Prelude Floating LNG (under construction)	197 km (96 nm) to the south-southeast
Ichthys wellhead platform (under construction)	217 km (117 nm) to the south- southeast

* Using Puffin-7 as the point of measurement.

4. Activity Description

Production from the Puffin Field ceased when the Front Puffin FPSO departed the field in July 2009. Since that time, the field has been in a non-production care and maintenance mode.

Prior to disconnection, all subsea production infrastructure (production and gas-lift flowlines) was purged of hydrocarbons, flushed five times system volume with freshwater, tested and left in-situ (attached to STP Buoy) and preserved with inhibited water.

Subsequent modification works were carried out in late 2010 to remove the STP Buoy and mooring system and lay down the dynamic flowlines and umbilicals on the seabed secured with clump weights

The equipment remaining in the field after the P&A Program is illustrated in Figure 2 and outlined below:

Sea surface

- Field marker buoy with a functional navigational light, anchored with a chain and clump weight, weighing approximately 6.5 tonnes in total.

Water column

- Dynamic risers (x3) - from laydown clump weights (at the previous submerged turret production (STP) buoy termination) to the pipeline end manifolds (PLEMs), consisting of production, controls umbilical and gas lift lines, each 195 m in length; and.
- Buoyancy modules (x52) fitted to the three dynamic risers to build the mid-water arches.

Seabed

- Manifold (23 tonnes) and associated gravity structure (11 tonnes), with one concrete mattress on each side for seabed stabilisation (four in total);
- PLEMs (x3) - connected to the production, controls umbilical and gas lift risers on one side and the respective jumpers on the other, with a concrete mattress on each side for seabed stabilisation (12 in total). The PLEMs weigh 65, 61 and 56 tonnes respectively. The concrete mattresses comprise three different sizes - 5 x 2 x 0.2 m, 6 x 2 x 0.2 m and 7 x 2 x 0.2 m, weighing 2.6, 3.2 and 3.7 tonnes respectively;
- Flowline and umbilical jumpers (x9) - from the manifold to the PLEMs, and from the manifold to the previous Puffin-7 and Puffin-8 well locations; production, controls umbilical and gas lift, with a total length of 2,585 m;
- Anchors (x6) and associated mooring chain and wire rope. Each Stevshark anchor weighs 43 tonnes; and
- Riser end clump weights (x3) - connected via rigging to the end of the dynamic risers, securing them to the seabed.

The PLEM, flowlines and jumpers were filled and capped with inhibited water, which comprises fresh water and 'Multitreat 650' dosed at 1,000 ppm. This is a corrosion inhibitor that acts to maintain the structural integrity of the infrastructure by preventing corrosion. Multitreat 650 is a 'Silver' rated CHARM product. The hydraulic umbilical lines are filled and capped with Transaqua HT hydraulic fluid. Transaqua HT is a 'D' rated non-CHARM product. During the P&A campaign the well site ends at Puffin-7 and -8 were cut off and left open to sea.

Marine growth on the subsea infrastructure is of medium density.

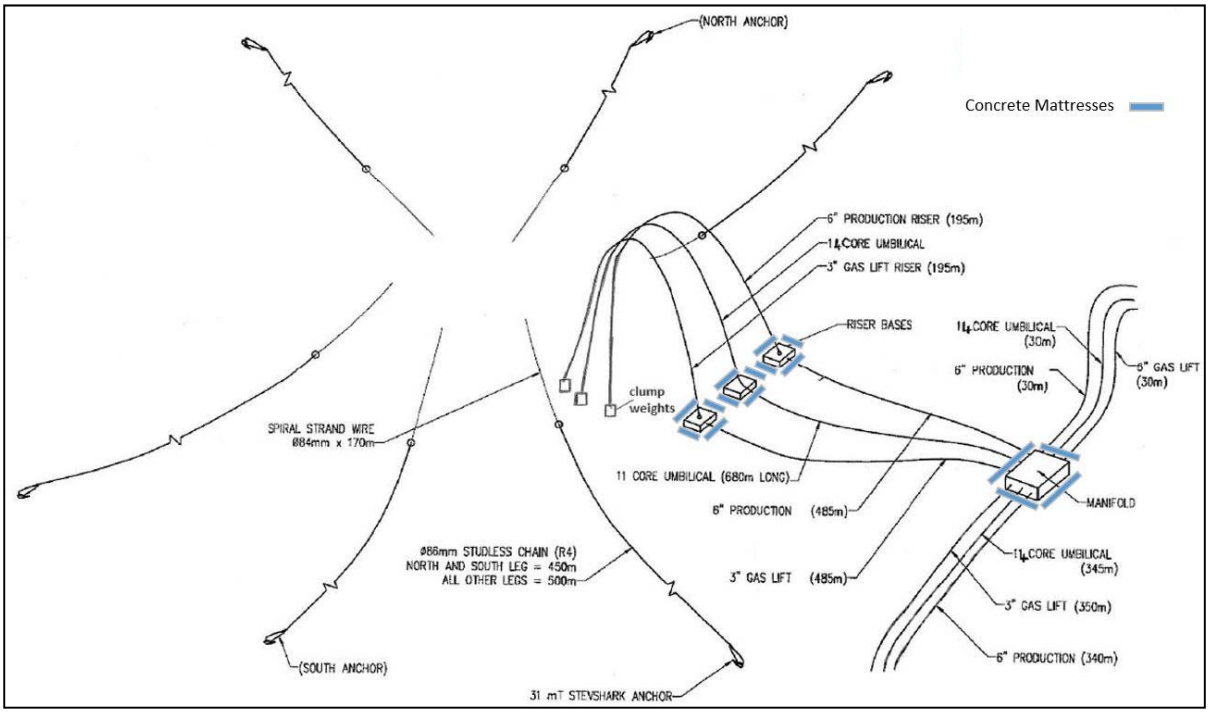

Figure 2. Schematic of the Puffin Field subsea equipment

4.1 Equipment Description

Table 3. Summary of Puffin Field equipment

Item of equipment	Quantity	Dimensions (L x W x H), in metres	Footprint (m^2)
Manifold	1	5 x 5 x 3.3	25
Manifold foundation structure	1	5.3 x 5.3 x 1.2	28
6” production lines (riser, flowline, jumpers)	1	1,050 x 0.225 diameter	N/A
3” gas lift lines (riser, flowline, jumpers)	1	1,060 x 0.14 diameter	N/A
Controls umbilical lines (riser, flowline, jumpers)	1	1,055 x 0.1 diameter	N/A
Buoyancy module production line	20	1.405 x ~1.11 diameter	N/A
Buoyancy module gas lift line	20	1.05 x ~0.85 diameter	N/A
Buoyancy module umbilical line	12	1.05 x ~0.85 diameter	N/A
Marker buoy	1	Unknown	N/A
Marker buoy clump weight	1	4 x 2.5 x 2	10
PLEM - Production	1	5 x 4 x 3.2	20
PLEM - Gas lift	1	5 x 4 x 3.2	20
PLEM - Umbilical	1	5 x 4 x 3.3	20
Clump weight - production riser	1	1.5 x 1.5 x 1.5	2.3
Clump weight - gas lift riser	1	1.2 x 1.2 x 1.2	1.4
Clump weight – umbilical riser	1	1.1 x 1.1 x 1.1	1.2
Clump weight – marker buoy	1	4 x 2.5 x 2	10
Anchors (height dependent on orientation of anchor and degree of burial in the seabed)	6	8.5 x 9.5 x 5	84 each
Mooring chain	6	500 x 0.086 diameter	17 each
Wire rope	6	170 x 0.084 diameter	14 each
Concrete mattress	4	5 x 2 x 0.2	10 each
Concrete mattress	6	6 x 2 x 0.2	12 each
Concrete mattress	6	7 x 2 x 0.2	14 each

Table 3 provides a summary list of the equipment remaining in the Puffin Field. A detailed description of the equipment follows.

Of the equipment listed in Table 3, there is the potential for the following equipment to remain *in situ* if safety or other site operational factors do not allow recovery:

- Manifold foundation structure;
- PLEM gravity bases;
- Clump weights;
- Anchors and associated mooring chains and wires; and
- Concrete mattresses.

The *Environment Protection (Sea Dumping) Act 1981* (Cth) aims to prevent the deliberate disposal of wastes (loading, dumping and incineration) at sea from vessels, aircraft and platforms. The Puffin Field subsea equipment is considered a 'platform' with respect to this Act.

The Commonwealth Department of the Environment (DoE), as administrator of the Act, has advised that a Sea Dumping Permit application is required for any items left *in situ* on the seabed. SOGA has submitted an 'Application for a Permit under the *Environment Protection (Sea Dumping) Act 1981* to Dispose of Vessels at Sea' as a contingency measure in the event that some items of equipment cannot be safely retrieved to the surface.

Brief descriptions of all equipment to be recovered are provided herein.

Manifold and Foundation Structure

The manifold consists of a manifold piping structure and a foundation structure with a total weight of 34 t. The manifold has 11 tie-in points for the flowlines and the controls umbilical from the FPSO, Puffin-7 and -8 and future Puffin wells. The manifold has 4 x 31.8 t SWL padeyes on top for lifting of the manifold utilising a four leg sling set.

The manifold and foundation structure can be separated and will recovered to surface in two separate crane lifts.

The manifold foundation structure has the potential to remain on the seabed if for any reason it is unsafe to recover to the surface. The foundation structure comprises concrete and painted steel, weighs 11 t and does not have any components that were exposed to hydrocarbons during its production life.

Photos 1 and 2 illustrate the entire manifold structure.

Pipeline End Manifold (PLEMs) and Gravity Bases

The three PLEM structures are connected to the production, controls umbilical and gas lift risers on one side and the respective jumpers on the other. They each comprise a 5 x 4 x ~3 m (L x W x H) steel frame gravity structure filled with concrete, which provides the platform for the skid structure that supports the clamp modules.

The production and gas lift PLEMs (Photos 3, 4 and 5) show that the gravity bases are partially buried into the seabed. The umbilical PLEM appears to be lying on the surface of the seabed with minimal burial. If the entire PLEM is to be recovered, some seabed disturbance is expected to occur when raising the production and gas lift PLEMs, with minimal disturbance to the seabed around the umbilical PLEM.

Photo 1. Puffin manifold and foundation structure

Photo 2. North face of the manifold (foundation structure not visible) from the 2013 ROV survey

If the PLEMs are to be left *in situ*, the piping connection between the flowlines and the risers (L-shaped pipe clamped to base), frames and guide funnels would be severed leaving the gravity bases in place on the seabed. This is to create a low seabed profile to minimise the risk of snagging of fishing nets in the event that fishing in this area is resumed following permit surrender. The severed piping, frames, and guide funnels would be recovered to the surface for recycling on shore. The approximate height of the PLEM after the L-shaped piping and support towers have been removed is between 1 and 1.2m.

During the Puffin production phase, the only portion of the production PLEM exposed to hydrocarbons was the L-shaped hard piping connection, which will be cut and recovered to the surface. The gravity bases do not have any components that were exposed to hydrocarbons during their production life. Similarly the gas lift PLEM and the umbilical PLEM piping were exposed to hydrocarbon gas lift gas and water based hydraulic fluid respectively.

The November 2013 ROV survey of the Puffin Field equipment indicated that each PLEM had its padeyes intact, and each had marine growth. The gravity structures are covered in a fine layer of sediment.

Concrete Clump Weights

To aid the lowering of and stabilisation of the three risers to the seabed that were disconnected from the STP buoy in 2010, one concrete clump weight was connected to the end of each riser (Photo 6).

A surface buoy with a functional navigational light (Photo 7) is currently situated above the subsea infrastructure to mark its presence to marine users. The buoy is anchored in position with a chain and synthetic mooring line attached to a clump weight.

The November 2013 ROV survey observed all the clump weights to be in reasonable condition and free of marine growth, with small shallow craters observed to have formed around them. The clump weights have not been exposed to hydrocarbons.

Concrete Mattresses

A total of 16 concrete mattresses are installed in the Puffin Field. They are all of the SEAMAT 200 series. They comprise high-density polypropylene (HDPP) moulds, into which the concrete was pumped. The individual moulds are joined together by HDPP clips and comprise lateral and lift polypropylene rope as shown in Figure 3 and Photo 7.

The mattresses were installed to limit scouring around the manifold and each of the PLEM gravity-based structures.

The November 2013 ROV survey indicated that the concrete mattresses are intact and free of marine growth. This may be attributable to their low surface area (compared with significant marine growth on the manifold and PLEMs), as well as the hydrophobic surface characteristics of the HDPP moulds, which inhibit biomass formation.

Anchors and associated Chains and Ropes

The original STP buoy (removed in 2010) was held in position with 6 mooring legs. Each mooring leg consists of a 43 t Stevshark anchor (Photo 8) connected to approximately 500 m of 86 mm grade R4 studless chain. The STP buoy was connected to the mooring chain via 170 m of 84 mm spiral strand wire and a Baltec mooring connector on the three southern anchors. During the riser disconnect campaign, the 84 mm spiral strand wire was cut at the STP buoy and allowed to fall to the seabed.

Photo 3. Production PLEM; pre-installation and 2013 ROV survey

Photo 4. Gas lift PLEM; pre-installation and 2013 ROV survey

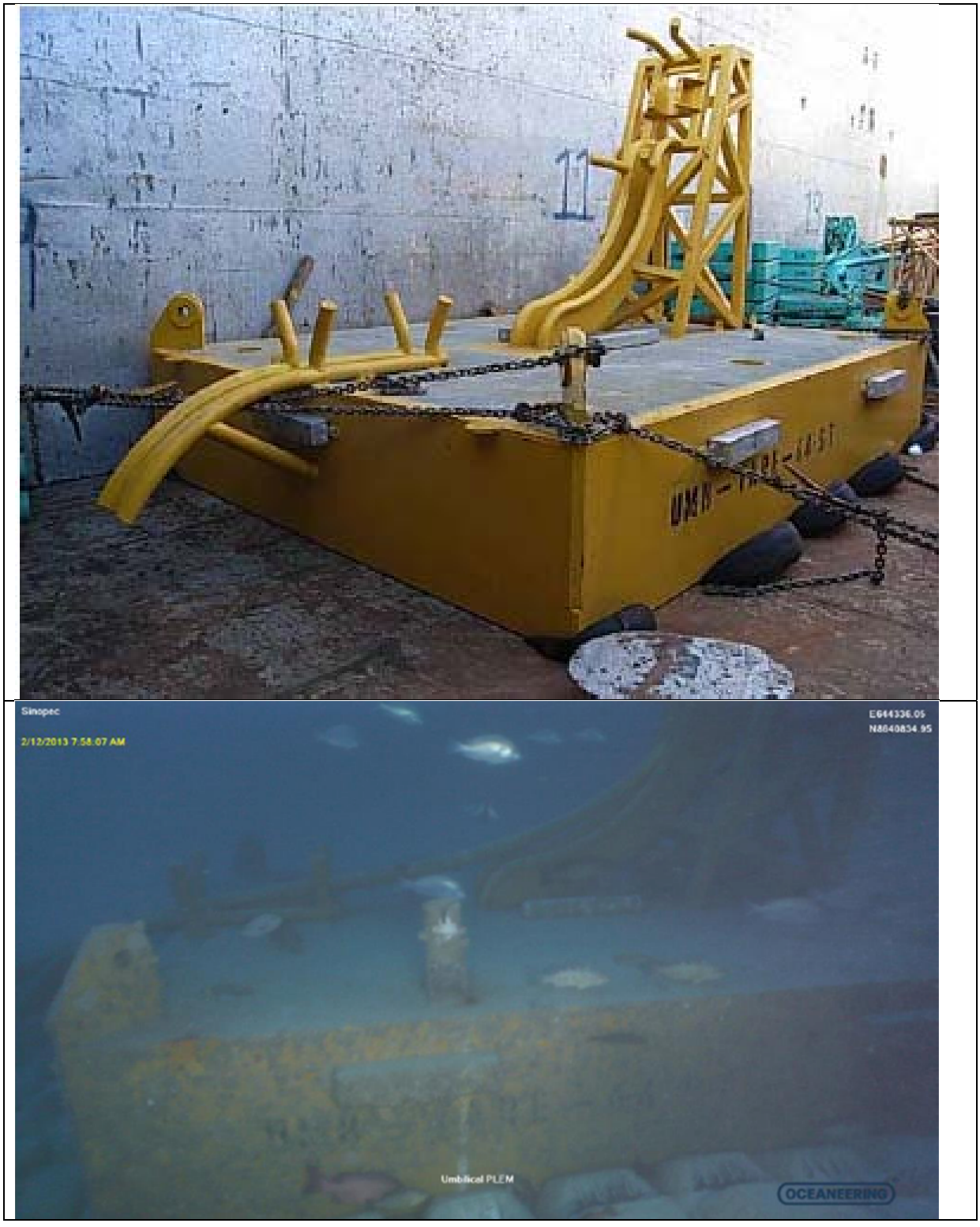

Photo 5. Umbilical PLEM; pre-installation and 2013 ROV survey

Photo 6. Typical riser clump weight (this one is connected to the production riser)

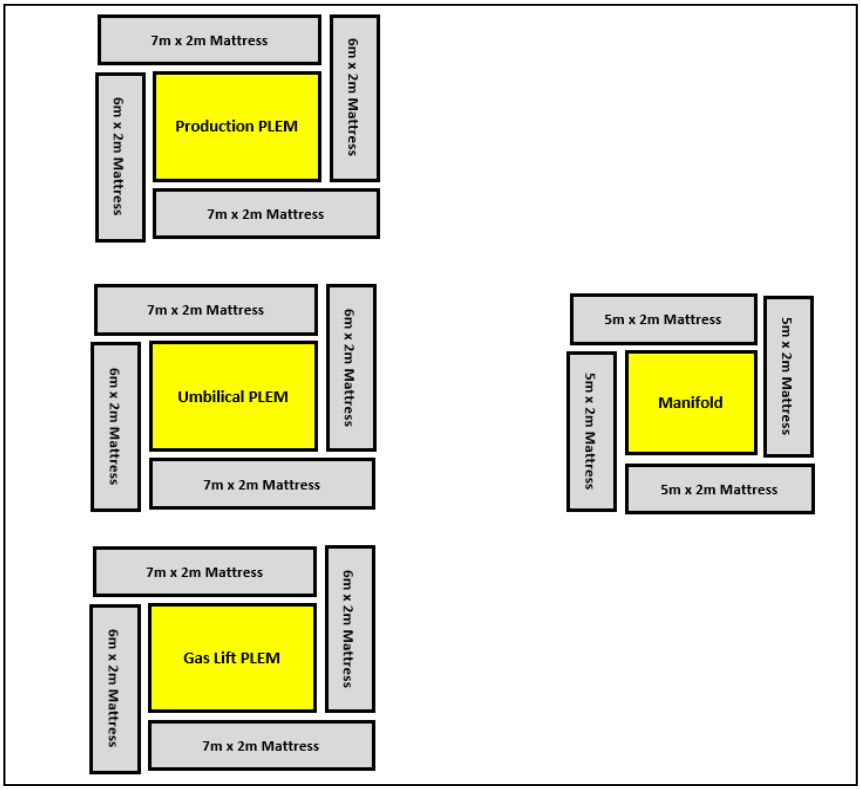

Figure 3. Concrete mattress configuration

Photo 7. Concrete mattress; during installation (typical) and 2013 ROV survey (visible at base of manifold)

Photo 8. Typical Stevshark anchor

There is no ROV footage of the anchors, chains or ropes, which may be partially or completely buried in the seabed sediments. The condition of the anchor, mooring chains and wires is unknown although as the time in field is currently less than the intended design life (15-20 years) they are expected to be in a functional condition. Some level of corrosion is to be expected.

Risers, Flowlines and Jumpers

The Puffin Field has both static and dynamic flowlines installed. The dynamic riser flowlines that connect the STP Buoy to the production and gas lift PLEMs have been installed with a steep wave configuration. The PLEMs to the manifold and the manifold to the subsea trees (now removed) are connected by static flowlines. All flowlines are made up of the same materials, containing polyester and carbon steel.

There are three controls umbilicals in the Puffin Field. The dynamic/static umbilical transitions from dynamic to static at the umbilical PLEM with the aid of an in-built umbilical clamping mechanism installed on the PLEM. This umbilical consists of 11 x 3/8" Nylon 11 hydraulic lines. The outer sheet is high-density polyethylene (HDPE).

The subsea tree umbilical jumpers consist of 14 cores (6 x ¼" and 8 x 3/8") of Nylon 11 hydraulic line. The outer sheet is HDPE.

During the riser disconnection campaign in 2010, the static/dynamic umbilical was cut below the bend restrictor at the STP Buoy, fitted with a blanking cap and laid on the seabed with the aid of a clump weight. During the P&A campaign in 2014, the umbilical jumpers were cut outboard of the bend restrictors at the subsea tree end and laid on the seabed.

A total of 24.43 m^3 of inhibited water and 1.05 m^3 of Transaqua HT is contained within the flowlines.

Buoyancy Modules

The dynamic risers are held in a steep wave configuration by a series of buoyancy modules that are clamped to the risers.

Surface Marker Buoy

A surface marker buoy with a functional navigational light (Photo 9) is situated above the subsea infrastructure to mark the subsea equipment presence. The buoy is anchored in position with a chain and synthetic mooring line attached to a clump weight.

Photo 9. The Puffin Field marker buoy

4.2 Decommissioning Scope of Work

The intent of the decommissioning project is to recover all Puffin Field infrastructure to the surface. Where site or equipment conditions prevent the safe recovery of certain items of equipment, the scope of activities includes potential work required to modify equipment to leave it in a suitable condition to remain *in situ*.

The equipment that has the potential to remain *in situ* includes equipment that is currently buried beneath the seafloor (e.g., anchors, chains and wires) where recovery may cause additional unnecessary environmental impacts, or equipment that is unable to be recovered without posing unacceptable safety impacts to marine personnel on the CSV (concrete clump weights, PLEM gravity bases, manifold foundation structure and concrete mattresses).

4.3 Vessel

It is proposed that a Construction Support Vessel (CSV) will be used to undertake the decommissioning activities. This type of vessel is suited to deep water operations, using dynamic positioning (DP) capability to avoid the need for anchoring, and possessing a large

deck area for the storage of retrieved equipment, a heavy lift crane, and work-class remotely operated vehicles (ROVs). This vessel is yet to be contracted.

The vessel will operate out of the Port of Darwin and refuelling on location will not be required. There is the potential for helicopter crew change flights to be conducted between Truscott airbase and the CSV.

4.4 Timing and Schedule

The decommissioning of the Puffin Field is scheduled to commence in late 2015 or early 2016, with timing subject to vessel availability and weather conditions.

Decommissioning activities are expected to take up to 30 days on location, with the vessel operating 24 hours per day.

4.5 Method of Decommissioning

The CSV will be deployed to the Puffin Field, fitted with a crane and work-class ROV and appropriate cutting tools (such as diamond wire-saw, subsea chop saw and/or hydraulic snips). A high level scope of work for the CSV is outlined below:

- Vessel mobilisation;
- Transit to Darwin port for mobilisation;
- Mobilisation of equipment and personnel to vessel;
- Transit to Puffin Field location;
- Receive Field Entry Permit from Upstream P.S.;
- Undertake DP trials;
- Accept as permit holder a Permit to Work (PTW) for each of chains and anchors, risers and clump weight and manifold and PLEM jumpers, a Field PTW issued by Upstream P.S.;
- Under both the Field PTW and with the CSV's own PTW, recover chains and anchors;
- Recover risers and clump weights;
- Recover manifold to PLEM jumpers;
- Recover manifold (including foundation structure);
- Recover PLEMs;
- Recover concrete mattresses to deck and secure;
- Recover marker buoy, including the clump weight;
- Undertake the final field survey using the ROV;
- Hand back Field Entry Permit to Upstream P.S.;
- Transit to Darwin Port; and
- Offload recovered equipment for onshore disposal.

If there are any unforeseen problems retrieving any of the anchors, a contingency plan will be in place to cut the chain from the anchors at the point of which they emerge from the seabed and recover the chains and wire only.

If there is a problem in recovering the manifold foundation structure, it will left *in situ* as is. The height of the foundation structure is 1.1 m in height.

If there is a problem in recovering the PLEMs, the upper part of these structures will be removed using an ROV cutting tooling, leaving the gravity base *in situ* with a maximum seabed profile of approximately 1.2 m in height.

If there is a problem in recovering the concrete mattresses, they will be left *in situ*. The maximum height of the mattresses is 20 cm.

If there is a problem in recovering the concrete clump weights, the connecting wire will be cut at the pad eye and the clump weight left *in situ*. The maximum height of the clump weights is 2.0 m or less.

The selected CSV will have an accepted NOPSEMA Safety Case capable of carrying out the full scope of the Puffin Field decommissioning work. Diving will not be undertaken for this project.

An ROV visual and sonar sweep seabed survey will be conducted at the completion of the field decommissioning to ensure all equipment has been retrieved or appropriately left *in situ*.

4.6 Fate of Recovered Equipment

With recycling facilities available in Darwin, all recovered equipment materials (concrete, steel, HDPP) have the potential to be recycled wherever practicable (e.g., concrete can be crushed and re-used as aggregate, steel will be melted down for re-use). There is potential for the HDPP components of the concrete mattresses to be separated from the concrete mattresses for recycling. Other plastic components of the flowlines, buoyancy modules and connectors include HDPE, Polyester and Nylon 11 also have potential for recycling.

An onshore waste management strategy is currently in development.

5. Stakeholder Consultation

Consultation between SOGA and relevant persons has been ongoing since initial field production planning, including the following phases:

- Puffin Development planning - June to September 2005;
- Puffin Development pre-installation – February to March 2007;
- Additional drilling and geotechnical work – March 2008;
- Additional drilling – 2009;
- Cessation of production – 2010; and
- Non-production phase operations – 2013-14; and
- Proposed P&A program – 2013-14.

Consultation for the decommissioning project commenced in July 2015, with over 60 government, commercial and recreational fishing, environment and industry organisations. This consultation yielded no material concerns, with relevant feedback (where provided) incorporated into the EP or project commitments. The stakeholders consulted for the project, together with a summary of their responses and SOGA's assessment of the merit of this feedback, are listed in Table 4.

Stakeholder consultation will be on-going in the lead up to and during the project. This is particularly important for key Commonwealth maritime agencies that need to be aware of the CSV's movements. These agencies will be kept up to date with the timing of the project. Key milestones that will trigger further consultation include:

- EP acceptance and the availability of the EP Summary on the NOPSEMA website;

- The arrival of the CSV in the project area; and
- Upon completion of the decommissioning activities.

Issues of concern raised by stakeholders in the lead up to or during the course of the project will be addressed directly with them, and where required, modifications to the EP (and on-site activities) will be made in response to this stakeholder feedback.

The stakeholder consultation database remains a live document and will be regularly updated.

Marine users will be kept informed of on-water activities through routine maritime communications.

Table 4. Puffin Field decommissioning stakeholders

Organisation	Feedback and SOGA assessment of merit of feedback
Commonwealth government regulatory agencies	
Department of the Environment (DoE)	Consulted with regard to the Sea Dumping permit and whether the project triggered the relevant legislation. The DoE confirmed it did trigger the legislation, and SOGA subsequently prepared and submitted Sea Dumping Permit applications in the unlikely case that some equipment must remain in situ for safety or environmental reasons.
NOPSEMA	NOPSEMA were consulted early in the planning stages of the Puffin Decommissioning project to advise the scope, intended timing and relevant regulatory framework. No feedback required as they assessed the EP.
NOPTA	NOPTA were consulted early in the planning stages Puffin Decommissioning project to advise the scope, intended timing and relevant regulatory framework.
Commonwealth government referral agencies	
Australian Maritime Safety Authority (AMSA)	Vessel traffic plot was supplied, which was incorporated into the EP. AMSA asked that the AHS be advised of activities prior to them commencing, which has been included as a reporting commitment in the EP. AMSA also consulted on the proposed response strategy in the event of a CSV marine diesel spill and their comments were taken into account with the preparation of the OPEP.
Border Protection Control (BPC)	No response. No follow up required. Based on recent communications with BPC for the Puffin Field P&A campaign, SOGA will ensure that the MODU remains in contact with BPC's vessels through the emergency Channel 16. This channel is routinely monitored by MODUs and will continue to be the case when SOGA mobilises to the project area.
Australian Fisheries Management Authority (AFMA)	The proposed Puffin Field Decommissioning scope of work was discussed including the potential for certain items of equipment to remain permanently *in situ* if unable to be retrieved due to safety or offshore operational reasons and their potential snagging risk with fishing activities. AFMA advised that due to the Puffin Field location being sufficiently distant from the 200m trawling fishing boundary, snagging of nets was a very low risk.
Department of Industry (DoI)	No response. No follow up required as all known industries operating in

Organisation	Feedback and SOGA assessment of merit of feedback
	the region have been consulted.
Department of Communications	No response. No follow up required as it is known that there are no subsea communications cables in the area.
Department of Defence (DoD)	Responded that they have no objections to the project. They asked that the AHS be advised of activities prior to them commencing, which has been included as a reporting commitment in the EP.
Australian Hydrographic Service (AHS)	No response. No follow up required based on AMSA and DoD advice.
Parks Australia	No feedback.
Department of Agriculture, Fisheries and Forestry (DAFF) – Seaports Program	No response. No follow up required as SOGA will ensure that the CSV follow routine vessel quarantine protocols.
State government referral agencies	
WA Department of Mines and Petroleum (DMP)	Responded with a request to provide project commencement and completion notifications, which has been included in the EP.
WA Department of Fisheries (DoF)	Extensive consultation undertaken to confirm WA fisheries occurring in the area and what risks they may be subject to. The DoF requested that infrastructure currently buried remain in place however they did not support subsea infrastructure remaining *in situ* that lay above the seabed due to the potential for erosion and turbidity impacts as well as snagging risks. DoF asked that biosecurity be considered in the EP, which it was. The DoF asked for baseline marine data to be collected in the region. SOGA replied that this was unreasonable given the short-term nature of the project, its insignificant known impacts and inconsequential risks (such as diesel spill). SOGA also replied that if anchors were buried, they would be left in place. Sea Dumping Permits were only being applied for as contingency in the event that safety or operational considerations prevented recovery.
Museum of WA (Maritime Heritage)	No response. No feedback necessary as relevant information from online database was accessed.
NT Department of Primary Industries and Fisheries (DPIF)	No response. No feedback necessary as relevant information from annual fisheries reports provides necessary information.
NT Department of Mines and Energy (DME)	No response. No feedback necessary as the Puffin Field is outside their area of jurisdiction.
Government fisheries managers	
Australian Fisheries Management Authority (AFMA) – North West Slope Trawl Fishery and Northern Prawn Fishery	AFMA confirmed that no commercial fishing is undertaken around the Puffin Field (fishing is undertaken in water depths >200 m), and as such, any equipment remaining in situ poses no fishing snagging risk.
Fisheries representatives	
Commonwealth Fisheries Association	No response. No feedback necessary as relevant information from

Organisation	Feedback and SOGA assessment of merit of feedback
	Commonwealth annual fisheries reports provides necessary information.
WA Fishing Industry Council (WAFIC)	As above.
JAMACLAN (for Commonwealth Trawl operations and Westmore Seafoods)	As above.
RecFish West	As above.
Game Fishing Association Australia (WA)	As above.
Northern Prawn Fishery Industry Pty Ltd	As above.
Australian Council of Prawn Fisheries	As above.
Northern Prawn Fishery (Qld) Trawl Assoc. Inc.	As above.
NT Trawler Owners Association (NTTOA)	As above.
Kimberley Professional Fishermen's Assoc.	As above.
Northern Fishing Companies Association	As above.
NT Seafood Council (NTSC)	As above.
WA Seafoods	As above.
Pearl Producers Association (PPA)	Recent consultation undertaken on projects in nearby waters indicated that wild pearl oyster harvesting takes place in shallow waters south of the Lacapede Islands.
Fisheries licensees	
A. Raptis & Sons Pty Ltd	No response. No feedback necessary as relevant information from Commonwealth and WA annual fisheries reports provides necessary information.
Tasmanian Seafoods Pty Ltd	As above.
R B Lowden Pty Ltd	As above.
Shine Year Fisheries (Aust) Pty Ltd	As above.
Letiva Fisheries Pty Ltd	As above.
J & T Fishing Co Pty Ltd	As above.
Zamia Bay Pty Ltd	As above.
Ian Lew & Pamela Canney	As above.
Coyrecup Lake Pty Ltd	As above.
Northern Wildcatch Seafood Australia Pty Ltd	As above.
Stephen Hinge & Richard Swanson	As above.
Goldband Nominees Pty Ltd	As above.
Kimberley Clear Water Fisheries	As above.

Organisation	Feedback and SOGA assessment of merit of feedback
Pty Ltd	
Simpson Seafoods Pty Ltd	As above.
Lenden Nominees Pty Ltd	As above.
Emgekay Investments Pty Ltd	As above.
Oil spill preparedness and response agencies	
WA Department of Transport (DoT) – Oil spill response coordination	The WA DoT stated that the project area is distant from State waters (the DoT's jurisdiction), and referenced their consultation guidelines with regard to notifications required in the event of a hydrocarbon spill. These details were incorporated into the EP.
NT DoT – Marine Safety Branch	No response. No follow up required as spill modelling indicates no impact on areas of NT jurisdiction.
WA Department of Parks and Wildlife (DPW)	Responded that they had no comments. This is considered valid given that spill modelling indicates no impact on areas of their jurisdiction.
AMSA – Marine Environment Pollution	AMSA confirmed the availability of their oil spill response resources available, which was noted in the OPEP.
Oil and gas interests	
Australian Petroleum Production and Exploration Association (APPEA)	Consulted with regard to the currency of Australian offshore petroleum decommissioning guidelines. APPEA responded that these are currently in development, but not available for circulation.
PTTEP Australia	No response. PTTEP operates the nearby Montara field. As such, they need to be aware of vessel activity. SOGA will contact PTTEP closer to the time of project commencement.
Shell	No response. As Shell has no current operations in or around the Puffin Field, follow up is not required.
Woodside	No response. As Woodside has no current operations in or around the Puffin field, follow up is not required.
Marine conservation interests	
Centre for Whale Research (CWR)	No response. Follow up is not required as information obtained from the CWR for past activities in the region indicates that the Jenner et al (2001) information regarding humpback whale movements in the region is the most applicable.
Australian Institute of Marine Science (AIMS)	No response. Follow up is not required as the results of oil spill modelling indicate very little risk to areas of sensitivity, such as coral reefs. The AIMS publications database was searched for information on coral reefs.
WA Marine Science Institution (WAMSI)	No response. No follow up is required, as the EP indicates very low environmental impacts and risks from this project.
Australian Marine Conservation Society (AMCS)	No response. No follow up is required, as the EP indicates very low environmental impacts and risks from this project.

Organisation	Feedback and SOGA assessment of merit of feedback
Other interests	
National Native Title Tribunal (NNTT)	The NNTT stated that the Puffin Field does not intersect a Native Title application.

6. Receiving Environment

6.1 Physical Environment

Climate. The region has a tropical climate with hot and humid summers and warm winters. There are two distinct seasons: the 'wet' usually from October to March and the 'dry' for the remainder of the year. The median annual rainfall is 1,209 mm. Over 75% of the average annual rainfall events from January to March are associated with thunderstorms and tropical lows or cyclones. From October to April maximum ambient air temperatures average over 35°C while overnight minima are typically 24°C. Winters are milder, with July average maximum and minimum temperatures being 32°C and 14.0°C respectively. Mean sea temperature ranges are reported to range between 22-27°C in winter and 26-30°C during summer.

Winds. The two main broad scale influences are the band of high pressure known as the sub-tropical ridge well to the south, and the monsoon that delivers moist air from the warm tropical waters to the north. During the warmer months, a heat-trough forms over the inland Kimberley. These combine to produce a general south-easterly wind regime for much of the year. Tropical cyclones capable of strong winds, high seas and heavy rain can be experienced during the months from November to April, but are most common in January and February.

Ocean currents. Ocean currents in the Timor Province bioregion are dominated by the southward-flowing warm surface Indonesian Throughflow that flows from the tropics to the waters of southwest Western Australia and dominates most of the water column. The Indonesian Flowthrough generally flows westwards and its strength varies seasonally in conjunction with the Northwest Monsoon. During the wet season (December–March), monsoon winds push some of the waters of the current eastwards, extending as far as the Gulf of Carpentaria. At the end of the Northwest monsoon (March–April), the pressure gradient is released, which releases a south-westerly flow of water across the shelf during autumn and winter, known as the Holloway Current.

Bathymetry. The Puffin Field is located on the outer slope of the Australian continental shelf in water depths of 74-105 m. Scattered along the outer shelf are sea mounds, shoals and occasional islands. Bathymetric data for the licence area indicates that the topography is predominantly flat and featureless.

Seabed. There is no distinct shelf break within the Timor Province. Instead, there is a smooth transition from the outer shelf to the upper continental slope. The seabed sediments of the region comprise bio-clastic, calcareous and organogenic sediments that were deposited by relatively slow and uniform sedimentation rates. Within the Timor Province, carbonate sands dominate the sediments of the outer shelf and slope of this bioregion and mud content typically increases with water depth. The seabed of the permit area is characterised by fine to coarse sand with small zones of gravel/coral fragments.

6.2 Biological Environment

A search of the EPBC Act Protected Matters Search Tool (PMST) lists 63 species that may occur within a 10-km radius of the Puffin-8 well, eight of which are listed as threatened. These and other species and communities are described here.

Benthic Invertebrates. Most of the benthic systems of the Timor Province are detritus-based and reliant upon deposit feeding infauna and epifauna (animals that live on the seafloor or burrow into its sediments, such as nematodes, polychaete worms, shelled molluscs and a variety of crustaceans).

Site surveys performed along the subsea flowline route and at the STP anchoring sites indicate that the seabed is a soft-substratum habitat, characterised by fine-coarse sand with numerous zones of coarse sediment interpreted as gravel and coral fragments. At these water depths, light is limiting near the seafloor and inhibits plant growth.

While no benthic surveys have been performed at the Puffin Field, benthic survey data available from the Challis site (located 80 km northeast of Puffin in similar soft-sediment types) is considered to be indicative of the benthic habitat at the Puffin development site (i.e., clayey silts to sand-sized marine carbonate sediments). At Challis, while abundances of most taxa were low, there was high variability in species. Polychaetes and crustaceans were the most abundant taxa. Empty trochid shells and ostracod carapaces were abundant in the samples. Polychaetes in this deep water, soft sediment habitat are likely to have planktonic larvae and wide geographic ranges.

Plankton. Big Bank Shoals plankton surveys have found that zooplankton assemblages in the top 20 m of water column to be diverse and abundant at most sites in the region. Planktonic crustaceans that feed on phytoplankton were the most common taxa found. Previous studies undertaken found that zooplankton abundance increased during July-August and was related to the coastal upwellings caused by the southeast monsoonal winds. These studies indicate that zooplankton biomass was in the range 65-155 mg/m^3 which, although high for Australian continental shelf waters, is still relatively low in a world context.

Fish. The Timor Province bioregion has 408 fish species, 64 (15%) of which are endemic, and 198 of which occur in water depths greater than 200 m. Most fish have tropical distributions and are well distributed throughout the Indo-West Pacific region. Key fish species targeted in the region by commercial fisheries include goldband snapper (*Pristipomoides multidens*), Spanish mackerel (*Scomberomorus commerson*), rankin cod (*Epinephelus multinotatus*), red emperor (*Lutjanus sebae*), pink snapper (*Pagrus auratus*), blacktip shark (*Carcharhinus melanopterus*) and sandbar shark (*C. plumbeus*).

The whale shark (*Rhincodon typus*), shortfin mako shark (*Isurus oxyrinchus*) and longfin mako shark (*I. paucus*) are EPBC Act-listed 'migratory' species that are likely to pass through the waters of the development area. The whale shark is listed as 'threatened' under the EPBC Act and only visits Australian waters seasonally between March and July, aggregating on the Ningaloo Reef. Ningaloo Reef is located approximately 1,500 km to the southwest of the project location, however whale sharks may pass through the project location on their annual migration.

Reptiles. Six species of marine turtles are listed as 'threatened' and 'migratory' under the EPBC Act and may traverse through the waters of the Puffin Field. Four of these species, the green, flatback, loggerhead, and hawksbill turtles, nest on sandy shore sites south of the region around the Dampier Archipelago, Montebello Islands, Lowendal Islands, Murion Islands, Barrow Island, Airlie Island, Thevenard Island, other nearby coastal islands and the Exmouth region. All species except the green turtle have mid-shelf or deep water habitats, with the green turtle (*Chelonia mydas*) generally found in water depths less than 20 m. Green turtles are known to nest at Ashmore, Cartier and Browse islands.

The main turtle nesting and hatching period occurs from November to March with a peak in December. Hatchlings emerge 6 to 8 weeks after females have nested. There are no biologically important areas in or around the Puffin Field for any of these turtle species.

Twenty-five species of sea snakes are recorded in WA waters, 12 of which are recorded as 'listed marine species' under the EPBC Act that may occur within 10 km of the Puffin Field.

Little is known of the distribution of individual species, population sizes or aspects of their ecology, though they are widespread through tropical waters in offshore and near-shore habitats.

Marine Mammals. Dolphins are relatively common in the region. The EPBC Act lists five species that may occur within a 10 km radius of the Puffin-8 well, these being the common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), spotted dolphin (*Stenella attenuata*), spotted bottlenose dolphin (*Tursiops aduncus*) and bottlenose dolphin (*T. truncatus*).

The EPBC Act lists five species that may occur within a 10 km radius of the Puffin-8 well, these being Bryde's whale (*Balaenoptera edeni*), blue whale (B. musculus), humpback whale (*Megaptera novaeangliae*) and killer whale (*Orcinus orca*). As the two threatened species, the blue whale and humpback whale are briefly described below.

The humpback whale (listed as 'vulnerable' under the EPBC Act) migrates between the Antarctic waters (feeding) and the Kimberly region of Western Australia (breeding and calving). The peak of their northerly migration to the Camden Sound region occurs around mid- to late July to early August, while the southerly return migration peaks from late August to early September. Humpback whales use the Kimberley coast (Camden Sound and King Sound in particular) as calving grounds between June and mid-November (200 km southwest of the proposed drill site). The highest numbers of cows/calf pairs are present from mid-August to mid-September.

Blue whales (listed as 'endangered' under the EPBC Act) have widespread migration patterns that are not known to follow particular coastlines or oceanographic features. They are an oceanic species that migrate between warm water breeding grounds and cold water feeding ground (between 20 and 70°S latitude in the southern hemisphere). There is no literature indicating sightings of blue whales around the Puffin Field, with the closest known aggregation areas in Australia being the Perth Canyon.

Coral. Coral reef habitat occurs to the southwest (Scott, Seringapatam, Cartier), west (Ashmore Reef) and the southeast and east (various shoals) of the Puffin Field, but not within the development's footprint. These reef systems are regionally important for their high biodiversity, and support a high biomass of fish species, including tropical reef fish, small pelagic fish such parrotfish and groupers, and larger species such as trevally, coral trout, emperors, snappers, dolphinfish, marlin and sailfish, as well as crustaceans.

Avifauna. Seabirds may transit the area on occasion, but the deep waters and distance to emergent land make it unlikely that the area comprises important habitat to birds.

Birds that occur year round or as seasonal visitors in the region, such as petrels and shearwaters, are likely to be common in and around the project area. Surveys of pelagic seabird populations in the northeast Indian Ocean reveal that foraging seabirds were typically clumped in areas adjacent to islands. This may be because islands provide shelter, while anomalies in surface water concentrate food seasonally. Foraging groups typically comprise sooty terns (*Sterna fuscata*), wedge-tailed shearwaters (*Puffinus pacificus*) and the occasional frigatebird (*Fregata* spp.). The most commonly encountered seabirds that were not foraging were wedge-tailed shearwaters and Bulwer's petrels (*Bulweria bulweria*); however, these two species were only recorded in low densities.

Ashmore Reef and Cartier Island are important breeding areas for the brown booby (*Sula leucogaster*), which breeds from February to October, and the red-footed booby (*S. sula*), which breeds year round with most egg laying between April and June. The great frigatebird (*Fregatea minor*) is reported to be a widespread pelagic seabird, with breeding take place on numerous tropical islands, including in small numbers on Ashmore Reef. The lesser frigatebird (*F. ariel*) is also known to breed on Ashmore Reef and Cartier Island (from March to September).

EPBC Act-listed avifauna that may occur in and around the Puffin Field includes the streaked shearwater (*Puffinus leucomelas*), which occurs all along the Australian northwest, northern and eastern coasts, though is scarcer in northern and eastern waters. The Australian lesser noddy (*Anous tenuirostris melanops*) usually occupies coral-limestone islands densely fringed with white mangrove (*Avicennia marina*) in which it roosts at night.

6.3 Socio-economic Environment

Settlements. The Puffin Field is located approximately 550 km north of the township of Derby. Derby has a population of 4,500 people, about 50% of which area Aboriginal. A high proportion of the population is employed in State and Commonwealth departments (e.g., Main Roads, health eservices and the water authority). Derby is also the main base for the Royal Flying Doctor Services (RFDS) in the Kimberley.

Shipping. The ports of northwest Australia (Onslow, Dampier, Cape Lambert, Port Hedland and Broome) handle large tonnages of iron ore and petroleum exports, resulting in very busy shipping routes through the area. The closest port to the Puffin Field is Broome, which is the largest deep-water port in the Kimberley region. It supports livestock export, offshore oil and gas exploration supply vessels, pearling, cruise liners, fishing charters and general cargo. Consultation with AMSA indicates that there will be local vessel traffic encountered south of the Puffin Field, with most traffic travelling in an east-west direction along the Osborn Passage located 50 km to the south.

Petroleum Exploration and Production. The Timor Sea is a highly prospective petroleum region and includes world-scale project such as the Bayu-Undan Gas Project and the Evans Shoals and Sunrise gas fields.

Within the Bonaparte Basin, 68 petroleum accumulations have been identified and commercial production has occurred from 11 of these discoveries. The estimated gas reserves measure in excess of 566 billion cubic meters (bcm^3) in the Bonaparte Basin and 538 bcm^3 in the Browse Basin off Western Australia.

Estimated oil reserves remaining within the Timor Sea are at least 167.73 million cubic metres of oil, condensate and liquid petroleum gas (LPG). While there is currently no petroleum production from the offshore Browse Basin, several projects are in development (Ichthys, Prelude and Browse LNG).

Commercial Fisheries. Several Commonwealth- and WA-managed fisheries have jurisdiction to fish in waters around the Puffin Field.

Commonwealth-managed fisheries with jurisdiction to fish the area include the Western Tuna and Billfish fishery and Northwest Slope Trawl fisheries, though as these fisheries operate in waters greater than 200 m deep, they do not operate around the Puffin Field infrastructure.

Western Australian-managed fisheries with jurisdiction to fish the area include the Mackeral (Area 1, Kimberley), Pearl Oyster (Zone 3), Northern Demersal Scalefish Fishery (Kimberley Fishing Area 2, Zone B), Northern Prawn (Broome and Kimberley sectors) and the *Beche-de-Mer* (sea cucumber). Four of these six fisheries are known to not operate in the area, while two are highly unlikely to operate. The Joint Authority (WA/NT) Northern Shark Fishery has not operated for over five years, and is therefore unlikely to operate around the Puffin Field.

Traditional Fisheries. The Puffin Field lies to the east of the 'MoU Box' (the Memorandum of Understanding between Australia and the Republic of Indonesia in 1974), which allows traditional Indonesian fishing within Australian waters. This access was granted in recognition of the long history of traditional Indonesian fishing in the area. The MoU allows fishing within the reefs of Cartier Island, Scott Reef, Seringapatam Reef and Browse Island. The MoU defines traditional fisherman as fishers who have traditionally taken fish and

sedentary organisms in Australian waters using traditional fishing methods and non-motorised sailing vessels. Target species include trochus, sea cucumber, abalone, green snail, sponges, molluscs and finfish, including sharks. While the amount of fish taken is unknown, it is thought to be substantial.

Conservation Values and Sensitivities. Areas of conservation value in the vicinity of the Puffin Field are listed in Table 5 and briefly described in this section (except for the Ningaloo Coast, which is too far south of the Puffin Field to be of relevance).

Table 5. Conservation areas in the vicinity of the Puffin Field

Category	Conservation classification	Closest feature to Puffin Field
EPBC Act Matters of National Environmental Significance (MNES)	Commonwealth Marine Reserves (CMR)	81 km – Cartier Island 115 km – Ashmore Reef
	World Heritage Properties	1,500 km – Ningaloo Coast
	National Heritage Properties	240 km – West Kimberley
	Commonwealth Heritage list	115 km – Ashmore Reef
	Wetlands of international importance	115 km – Ashmore Reef
	Nationally threatened species and ecological communities	All Commonwealth waters around the Puffin Field (as described in Section 6.2)
	Migratory species	
	Commonwealth marine areas	
	Great Barrier Reef Marine Park	Not applicable
	Nuclear actions	Not applicable
	A water resource, in relation to coal seam gas development and large coal mining development	Not applicable
State marine protected areas	Marine Parks	320 km – Camden Sound
Non-protected areas	Reefs	110 km – Hibernia
	Shoals	42 km – Barracouta
Key ecological features (KEFs)		74 km – Carbonate Bank and Terrace System of the Sahul Shelf

The Cartier Island CMR covers an area of 172 km². The CMR covers an area within a 4 nm radius of the centre of the island. The island is an un-vegetated sand cay surrounded by mature reef flats; it sits at the centre of a reef platform that rises steeply from the seabed. The island supports large populations of nesting turtles. The conservation values of the CMR include its international significance for its abundance and diversity of sea snakes, a large and significant feeding population of green, hawksbill and loggerhead turtles, and it supports some of the most important seabird rookeries on the North West Shelf.

The Ashmore Reef CMR is located approximately 115 km west of the Puffin Field at its nearest boundary and includes two extensive lagoons, shifting sand flats and cays, seagrass meadows and a large reef flat covering 239 km^2. Ashmore Reef consists of an atoll-like structure with three low, vegetated islands, numerous banks of shifting sand and two large lagoon areas. The three islands located within the lagoon — West Island (32 ha), East Island (16 ha), and Middle Island (13 ha) — are mostly flat, being composed of coarse sand with a few areas of exposed beach rock and limestone outcrops. All of the islands are vegetated with shrubs and herbs. Ashmore Reef is as an important breeding site for

seabirds such as the common noddy (*Anous stolidus*), sooty tern (*Sterna fuscata*), bridled tern (*S. anaethetus*) and crested tern (*S. bergii*). In all, 20 species are known to breed on the islands. The reef also provides habitat to a diverse marine fauna that includes dugong (*Dugong dugon*), loggerhead turtle (*Caretta caretta*), green turtle (*Chelonia mydas*), and an important and unique population of sea snake species — three of which are endemic to the area. Ashmore Reef is also listed as a Commonwealth Heritage site and a Wetland of International Importance.

The West Kimberley National Heritage Place is located about 240 km south of the Puffin Field. This protects mostly onshore features of the Kimberley region, and some near-shore waters (incorporating the Baccaneer and Bonaparte archipelagos) important to the history of pearling.

Although part of the same group as Ashmore Reef and Cartier Island, Hibernia Reef (covering an area of 11.5 km²) does not form part of the Ashmore Reef & Cartier Island External Territory of Australia. Situated 42 km northeast of Ashmore Reef and 62 km northwest of Cartier Island, Hibernia Reef consists of an approximately oval-shaped reef that tapers to a point on the western side. The reef has no permanent land, but large areas of the reef can become exposed at low tide.

Ecologically rich shoals are found around the Puffin Field, mostly within a 250 km radius to the south and east. These are mostly poorly described but are known to support light-dependent species such as macroalgae and coral, in turn supporting diverse fish populations.

The Camden Sound Marine Park is located 320 km south of the Puffin Field and covers 7,062 km^2. The park encompasses a large marine embayment surrounded by the Kimberley mainland to the east and an array of islands and reefs. One of the key reasons for creating the park is for the conservation of humpback whales, and specifically their breeding and calving habitat. The marine park is the principal nursery area for newborn humpback whales

The key value of the Carbonate Bank and Terrace System of the Sahul Shelf KEF is its unique seafloor feature. Little is known about the bank and terrace system of the Sahul Shelf but it is regionally important because of its likely ecological role in enhancing biodiversity and local productivity relative to its surrounds. The banks are thought to support a high diversity of organisms including reef fish, sponges, soft and hard corals, gorgonians, bryozoans, ascidians and other sessile filter feeders. The banks are known to be foraging areas for loggerhead, olive ridley and flatback turtles. Cetaceans and green and freshwater sawfish are likely to occur in the area.

Maritime Archaeological Heritage. The Australian National Shipwreck Database indicates there are no shipwrecks in the vicinity of the Puffin Field. Numerous shipwrecks are located around near-shore areas such as Broome, the Bonaparte Archipelago, King Sound and Lacepede Islands.

The WA Shipwrecks Database indicates that one shipwreck, the *Anne Millicent* (wrecked in 1888), is located on the southern inner edge of the Cartier Island reef. As a shipwreck within State waters, this site is protected under the *Maritime Archaeology Act 1973* (WA) (those in Commonwealth waters are protected under the *Historic Shipwrecks Act 1976* (Cth)).

There are no historic shipwreck protection zones in or near the Puffin Field.

7. Environmental Impact Assessment

The known and potential environmental impacts resulting from the Puffin Field Decommissioning Project are outlined in detail in the EP.

For this EP, the environmental impact assessment (EIA) has been applied to *planned* events – events that will occur and will impact the environment and are therefore not subject to an assessment of likelihood of occurrence.

Environmental risk assessment (ERA) has been applied to *unplanned* events – events that may or may not occur and may or may not impact the environment, and are therefore subject to an assessment of likelihood of occurrence. ERA refers to a process where hazards associated with an activity are assessed for their likelihood of occurrence and their consequence in terms of their potential impact on the environment (physical, biological, and socio-economic) at a defined location and specified period of time.

SOGA's risk assessment matrix used to assign impact and risk rankings is provided in Table 6. Table 7 provides a summary of the impact assessment and mitigation measures that are in place, which have been assessed to be As Low As Reasonably Practicable (ALARP) and acceptable.

Table 6. SOGA Risk Assessment Matrix

Inconsequential → manage by routine procedures / no major concern / part of daily activities → management responsibility must be specified with regular monitoring and reporting at staff meetings
Tolerable → management attention needed with regular ongoing monitoring and pre-planning should the risk level increase
Significant → senior management attention needed / regular monitoring and reporting at executive meetings
Critical → executive action required with regular reporting at board level

CONSEQUENCE ↓		LIKELIHOOD → ☐ 1 Rare - could happen again, but probably never will - <3 years	☐ 2 Unlikely - could happen, but only rarely - every 1 to 3 years	☐ 3 Moderate - could occur at some time - once every 6 months to 1 year	☐ 4 Likely - will probably occur - once every 1 month to 6 months	☐ 5 Almost Certain - could easily happen again – daily to 1 monthly
☐ Level A Catastrophic	Safety ☐ Results in death or permanent disability to staff and/or public Reputation ☐ Substantial loss of reputation, loss of confidence in management by stakeholders, major media attention Financial ☐ Results in loss of >$10M (>3% of total revenue) Stakeholders ☐ Results in a regulator/parliamentary inquiry and loss of shareholder and public confidence Projects ☐ Complete failure to deliver one or more key aspects of a project (e.g. quality, timing, cost) Infrastructure ☐ Permanent long term effect or rectification not possible Environment ☐ Very serious environmental effects with impairment of ecosystem function. Large cleanup costs	Significant	Critical	Critical	Critical	Critical
☐ Level B Major	Safety ☐ Results in serious injury to staff and/or public, requiring significant medical or surgical intervention Reputation ☐ Threatened continued effective function or survival of a division or divisions, media attention Financial ☐ Results in loss of $5M - $10M (>2% of total revenue) Stakeholders ☐ Significant loss of reputation and loss of stakeholder confidence Projects ☐ Material failure of a key project outcome (e.g. quality, timing, cost with significant operational implications) Infrastructure ☐ Significant effect, difficult rectification Environment ☐ Serious environmental effects with some impairment of ecosystem function	Tolerable	Significant	Critical	Critical	Critical
☐ Level C Moderate	Safety ☐ Unexpected/unplanned injury to staff and/or public Reputation ☐ Legitimate customer complaint of any category but which causes no lasting detriment or adverse media Financial ☐ Financial loss $500,000 - $5M (0.5 – 1% of total revenue) Stakeholders ☐ Be serious for EPPL or its divisions either financially or politically Projects ☐ Key output not delivered as planned but within tolerance limits and operations not materially affected Infrastructure ☐ Measurable effect, easy rectification Environment ☐ Moderate effects on biological or physical environment but not affecting ecosystem function	Inconsequential	Tolerable	Significant	Critical	Critical
☐ Level D Minor	Safety ☐ Localised first aid treatment only, resulting in no disability Reputation ☐ Complaints requiring a written response from management Financial ☐ Financial loss of less than$500, 000 Stakeholders ☐ Regulator or government inquiries resolved by routine management procedures Projects ☐ One or more minor deliverables not met but overall project outcomes achieved within tolerable limits Infrastructure ☐ Measurable effect, no rectification required Environment ☐ Minor effects on biological or physical environment. Minor short-medium term damage	Inconsequential	Inconsequential	Tolerable	Significant	Critical
☐ Level E Insignificant	Safety ☐ No injuries Reputation ☐ Unfounded, vexatious complaints that can be dealt with routinely Financial ☐ Financial loss that comes within the relevant financial delegation level (or <$100K) Stakeholders ☐ No government/regulator/political inquiry Projects ☐ Negligible or no impact on cost, timing or quality of deliverable(s) Infrastructure ☐ No measurable effect Environment ☐ No lasting effect. Low-level impacts on biological or physical environment	Inconsequential	Inconsequential	Inconsequential	Tolerable	Significant

Table 7. Summary environmental impact assessment for the Puffin Field Decommissioning Project

Potential risk	Potential consequences	Key control measures	Residual risk ranking
Planned activities			
Seabed habitat alteration	Temporary and localised seabed disturbance. Removal of hard substrate for marine growth.	• Dredging limited to that required to release equipment from seabed. • Lifting procedures will be implemented.	Insignificant
Underwater sound	Temporary physiological impacts on sensitive fauna, such as cetaceans.	• CSV engines and thrusters and power tools used for underwater activities are well maintained.	Insignificant
Light emissions	Localised light glow acts as an attractant to fauna, with a temporary increase in predation rates on fauna attracted to lights.	• CSV lighting is managed in accordance with maritime safety standards.	Insignificant
Atmospheric emissions	Temporary and localised reduction in air quality.	• Only low-sulphur marine-grade diesel is used to power the vessel and other combustion equipment. • CSV engines and machinery maintained in accordance with its planned maintenance systems. • Fuel use is measured, recorded and reported.	Insignificant
Discharge of cooling and brine water	Temporary and localised elevation in surface water temperature and salinity.	• The CSV cooling water and reverse osmosis systems are maintained in accordance with its planned maintenance system.	Insignificant
Discharge of sewage, grey water and putrescible waste	Temporary and localised reduction in water quality. Modification of fauna feeding patterns.	• The CSV is fitted with a MARPOL-approved sewage treatment plant. • The sewage treatment plant is maintained in accordance with the planned maintenance system. • The CSV is fitted with a MARPOL-compliant macerator, which is used to macerate putrescible waste to < 25 mm in size prior to overboard discharge. • Non-food galley wastes will be transported back to shore for disposal.	Insignificant
Discharge of	Temporary and	• Hydrocarbon and chemical storage	Insignificant

Potential risk	Potential consequences	Key control measures	Residual risk ranking
deck and bilge water	localised reduction in water quality.	areas are bunded and drain to the bilge water tank. • Bilge water is treated via an oil-in-water (OIW) treatment system to ensure no discharges over 15 ppm oil-in-water. • Oil captured from the OIW treatment system will be transferred to shore for disposal. • The OIW system is maintained in accordance with the planned maintenance system. • Chemicals are stored in chemical storage lockers. • Spills to decks are rapidly cleaned immediately. • Shipboard Marine Pollution Equipment Plan (SMPEP) kits available on board for rapid clean-up response.	
Chemical release from recovered subsea infrastructure	Temporary and localised reduction in water quality.	• Low toxicity inhibitor was used in 2009 to flush the flowlines prior to the FPSO departure. • Low toxicity hydraulic fluid was used to fill the hydraulic umbilical lines.	Insignificant
Unplanned activities			
Release of hazardous and non-hazardous waste	Marine pollution. Fauna injury or death.	• The CSV waste is managed in accordance with its Garbage Management Plan, which is likely to involve: o Crew inducted into procedures. o Availability of Safety Data Sheet (SDS) registers. o Solid wastes bagged and sent ashore for disposal. o All bins secured to deck and covered with lids. o Waste streams will be segregated and stored on board according to shore-based recycling capabilities. o Garbage Record Book will be maintained. • Large, bulky items are secured to main deck in accordance with the CSV's Sea Fastening Procedure. • The ROV is deployed to search for (and retrieve, where possible) any	Inconsequential

Potential risk	Potential consequences	Key control measures	Residual risk ranking
		large non-buoyant dropped objects. • Licensed shore-based waste contractors will be used. • Hydraulic fluid loss from the ROV umbilical cable will be prevented through proper maintenance and qualified pilotage.	
Introduction of invasive marine species	Establishment of foreign species to open ocean and/or seabed, competing with and displacing native species.	• The CSV will have anti-fouling paint applied to its hulls and internal niches. • The CSV will be cleared to enter Australian waters (if previously mobilised from outside Australian waters) in accordance with the Australian Ballast Water Management Requirements.	Inconsequential
Collisions with cetaceans	Injury or death due to vessel strike	• The CSV will implement the Australian Guidelines for Whale and Dolphin Watching (DEWHA, 2005) for sea-faring activities while in the PSZ. • Collisions with cetaceans are reported to the DoE.	Inconsequential
Interactions with other marine users	Exclusion from fishing grounds. Minor detours for merchant vessels. Damage/loss of fishing equipment post-decommissioning.	<u>During decommissioning activities</u> • The location of the CSV is communicated to other marine users by: o SOGA advice provided to AMSA prior to the activities commencing. o SOGA issuing a notification to stakeholders known to operate in the area prior to the activities commencing. o The use of standard anti-collision monitoring equipment on the CSV. o The use of qualified and experienced Vessel Master and deck officers of the CSV. <u>For equipment that may remain *in situ*</u> • The location of retained equipment will be communicated to marine users. • Components that may present a snagging risk are removed.	Inconsequential
Diesel spill (vessel-to-vessel collision)	Injury or death to marine fauna through ingestion or contact. Temporary	• As per row above. • Oil Pollution Emergency Plan (OPEP) and Emergency Response Plan (ERP) in place and ready for implementation. • Diesel spill will be promptly reported	Inconsequential

Potential risk	Potential consequences	Key control measures	Residual risk ranking
	decrease in water quality.	internally and externally. • Operational monitoring will take place in accordance with the OPEP to support the spill response and characterise environmental impacts.	
Diesel spill response			
Surveillance and tracking	Planned impacts and unplanned risks as previously outlined.	• For the duration of the activity, SOGA retains access to surveillance and tracking resources (such as satellite-tracking buoy). • Operational monitoring (i.e., real-time oil spill trajectory modelling) is undertaken. • Arrangements are in place with AMOSC to conduct wildlife monitoring and deploy wildlife response equipment.	Inconsequential

8. Hydrocarbon Spill Preparedness and Response

The Puffin Field Decommissioning OPEP is the primary reference document to be used in the event of a diesel spill. The OPEP contains information on the proposed response strategies, using the scenario of a diesel spill caused by a vessel-to-vessel collision resulting in damage to one or more fuel tanks (using a credible, albeit conservative estimate of a loss of 300 m^3 of marine diesel oil spilled over 6 hours [a Level 2 spill]).

The hierarchy of protection priorities for the project reflect NatPlan criteria, which are as follows:

- Human health and safety;
- Habitat and cultural resources;
- Threatened flora and fauna;
- Commercial resources; and
- Amenity.

The first priorities in the event of a diesel spill from the CSV are to:

- Ensure the safety of all personnel; and
- Contain and where possible stop the source of the spill.

The response structure for hydrocarbon spill depends on the size of the spill, as outlined below.

- A Level 1 spill (typically <10 tonnes) will be managed solely by the personnel on board the vessel. These are small spills that will not impact shorelines or other sensitive resources based on project-specific oil spill modelling.
- A Level 2 spill (typically 10–1,000 tonnes) will involve the onshore vessel contractor and SOGA personnel and contractors, and possibly AMSA personnel.

- Level 3 spills (typically >1,000 tonnes) are not a credible scenario for the project.

On release, marine diesel is expected to undergo a rapid spreading and evaporative loss with the remainder becoming dispersed in the water column. Although classed as 'persistent oil', a diesel slick tends to break up quickly. During evaporative weathering, low molecular weight aliphatic and aromatic hydrocarbons and phenols are lost from the oil, leaving higher concentrations of less volatile, higher molecular weight hydrocarbons. The heavier components have a strong tendency to entrain in the upper water column as oil droplets in the presence of wind/waves but can re-float to the surface if these energies abate.

8.1 Response Strategies

In the case of a diesel spill, SOGA has determined that the most appropriate strategy for responding to the spill is to allow it to naturally disperse and biodegrade, while undertaking surveillance and tracking. This is primarily because there are no shorelines, reefs or other environmental sensitivities that are predicted to be contacted (as determined by project-specific oil spill modelling). This is supported by a strategic Net Environmental Benefit Analysis (NEBA) that assesses the strengths and weaknesses or each response strategy.

SOGA has prepared a strategic Net Environmental Benefits Analysis (NEBA) for the options available to respond to a spill of diesel at the project location, and determined that the most appropriate strategy for responding to the spill is to allow it to naturally disperse and biodegrade, while undertaking surveillance and tracking:

- Monitoring – to be undertaken from vessels, rotary-wing and/or fixed-wing aircraft. This will involve activating AMSA for personnel, vessels and fixed-wing aircraft, and the helicopter contractor for helicopters. SOGA will commission real-time oil spill trajectory modelling (either through AMSA or directly through RPS-APASA) to assist with the monitoring effort.

The impacts of a diesel spill on fauna at the project location are assessed as negligible to low, and consequently wildlife capture and treatment is unlikely to be required. In the rare case that oiled wildlife response is necessary, SOGA will prepare an Oiled Wildlife Incident Action Plan will be developed in liaison with AMSA, the WA DPW and DoT.

Response strategies discounted based on the weathering characteristics of diesel and the spill modelling results include on-water recovery (booming and skimming), dispersant use, shoreline protection and deflection, and shoreline clean-up. The latter responses take into account that oil spill modelling indicates that shorelines are not predicted to be contacted by a 6-hour release of 300 m^3 of diesel.

A real-time ('operational') NEBA will be prepared at the time of a spill to test whether the assumptions in the strategic NEBA hold true for the circumstances of the day.

In accordance with the National Plan, SOGA (in consultation with AMSA and the vessel contractor) will continually assess the on-going requirement for marine response as new data is received, through the ongoing revision of the NEBA, until it is determined that the response will not provide any further environmental benefit or is no longer feasible (i.e., surface diesel is no longer visible).

Termination of the response will occur when the following termination criteria are met:

- There is no visible sheen from hydrocarbons on the water surface; and
- When hydrocarbons in water samples are below ANZECC Water Quality Guideline limits (i.e., 0.003 mg/L for diesel as trigger value, determined in accordance with Table 8.3.24 of the ANZECC Water Quality Guidelines).

Termination of the response will be communicated to all parties by the Incident Controller.

8.2 Emergency Response Preparedness

At a minimum, the OPEP will be tested:

- Prior to the commencement of on-water activities;
- When a significant modification to the plan has occurred.

Exercises will be undertaken in accordance with the Puffin Field Decommissioning Emergency Response Plan (ERP) and the SOGA Emergency Management Plan (EMP). These plans detail the responsibilities, accountabilities, types of exercises, scenarios and reporting required.

Scenario exercises shall be run to test and verify the adequacy of staff training and the emergency response systems and procedures in place. Planning for the scenarios will include defining clear objectives to be achieved in order for the exercise to accomplish a specified outcome (e.g., what systems are tested, inclusion (or not) of third party emergency services, and timing of responses expected).

8.3 Operational Monitoring

Operational monitoring following a Level 2 spill is the responsibility of SOGA, with details for such monitoring included in the OPEP. This monitoring includes aerial surveillance (to be undertaken by SOGA and/or AMSA, the latter using Search and Rescue aircraft as per NatPlan procedures), with aerial observers undertaking slick trajectory estimation and feeding this information into the real time spill trajectory modelling.

To accurately position oil slick locations and trajectory, SOGA has arranged for a satellite tracking buoy to be stored on the CSV. In the event of a spill, it can be deployed at the leading edge of the slick. This will provide continuing information on the slick trajectory at night when aerial surveillance is unavailable, and the satellite data can be incorporated into the real time spill trajectory modelling.

9. Implementation Strategy

SOGA retains full and ultimate responsibility as the operator of AC/RL11 and is responsible for ensuring that the activities associated with the decommissioning project are implemented in accordance with the performance objectives outlined in the EP.

As the operator of the licence, SOGA has entered into an agreement with AGR Australia Pty Ltd (AGR) (who is managing the day-to-day requirements of the project) to provide environmental management services throughout the project.

9.1 Environmental Management System

SOGA has endorsed AGR's HSE Management System (HSEMS) to ensure compatibility with its activities. SOGA recognises that AGR's HSEMS meets the requirements for the Puffin Field Decommissioning Project.

AGR recognises that consideration of environmental issues is good business practice and is committed to minimising its environmental risks and effects to as low as practicable. AGR's HSEMS is ISO 14001-certified and provides a framework for the management of quality, health, safety and environment (QHSE) throughout AGR's all aspects of AGR's activities

Upstream P.S. uses an Integrated Management System (IMS), certified to ISO 14001, to implement environmental management across its business. The IMS is supported by a set of Management System Standards (MSS) that provide a framework for the management of QHSE throughout Upstream P.S.'s operations and associated activities.

9.2 Key Roles and Responsibilities

The CSV Vessel Master will have the day-to-day control and management of the CSV and reports via the AGR Subsea Supervisor to the AGR Project Manager and ultimately to the SOGA Puffin Project Manager on the execution of the Puffin Field Decommissioning activities. The Vessel Master has over-riding authority and responsibility to make decisions with respect to environment protection and pollution prevention and to request assistance in an emergency as required. The Upstream P.S. On-board Representative reports to the Upstream P.S. Operations Manager and is responsible for ensuring compliance with Upstream P.S. HSE Policy and IMS. He also acts as On-Scene Commander for the OSRT in the event of a spill incident

A detailed list of the environmental roles and responsibilities of personnel is outlined in the EP.

9.3 Training and Awareness

In order to ensure that operations meet all business and statutory requirements, the correct selection, placement, training and ongoing assessment of employees is managed, and sufficient resources are provided.

The AGR competency and training system requires that all project positions have defined competence requirements, including on-board positions. On commencement of employment, each individual participates in inductions to introduce them to the personnel, facilities and HSE provisions associated with their role. The induction is commensurate with their role, however as a minimum it includes:

- HSE Policy;
- Fire and evacuation;
- Security;
- Incident reporting;
- Introduction to the HSEMS and GO (non-conformance system).

The induction policy is described in the AGR Procedures (AGRP-HR-P02).

All Upstream P.S. employees receive an Upstream P.S. corporate induction and personnel working on the project are required to have a SOGA (Puffin)/Upstream P.S. Facility Induction.

All vessel-based personnel will attend a project-specific induction prior to the commencement of duties (either shore-based or on board the vessel). The induction will include EP awareness and compliance aspects, including:

- Environmental regulatory requirements;
- Environmental sensitivities and key risks;
- Key environmental management actions, including but not limited to:
    - Waste segregation, containment and disposal.
    - Housekeeping and spill prevention.
    - Spill preparedness and response.
    - Environmental incident reporting.

The AGR Subsea Supervisor is responsible for ensuring personnel receive this induction prior to the commencement of activities.

9.4 Emergency Response and Preparedness

The CSV emergency organisation and contingency plans are established in accordance with recognised industry practice and a NOPSEMA-accepted Safety Case. Emergency plans will be in place for the CSV and for the CSV contractor organisations onshore.

In addition, AGR requires that a project-specific ERP is developed for each project. The purpose of the project-specific ERP is to ensure that AGR, the CSV Contractor, Upstream P.S., SOGA and all associated personnel respond to all emergencies (unplanned events) in a controlled and comprehensive manner, prioritising actions to ensure human safety, and communicating with internal and external stakeholders as appropriate. AGR has developed a Puffin Field Decommissioning Bridging ERP that interfaces with the CSV contractor emergency procedures, Upstream P.S. and the SOGA Emergency Management Plan (EMP).

The Puffin Field Decommissioning ERP details the roles and responsibilities for the AGR Incident Management Team (IMT) and the interfaces with the SOGA EMT, Upstream P.S. ERG and the CSV contractor's onshore Emergency Response Team (ERT). The ERP acts as a bridging plan from the CSV contractor emergency procedures, which details the roles and responsibilities for the CSV contractor (onshore and offshore), the SOGA EMP (EP-0101-FP-001), and the Upstream P.S. Puffin Subsea Equipment Facility ERP (08/HSEQ/GEN/PL02).

Both the CSV contractor emergency procedures and the Puffin Field Decommissioning Project ERP will be subject to a desktop review and exercise as a part of planning for the project.

The SOGA EMP details the SOGA response to assist and ensure effective and timely management of all emergencies on or affecting SOGA interests, to cover the location-specific reporting requirements and specific emergency response plans.

An Upstream P.S. ERP is in place (08/HSEQ/GEN/PL02) for the Puffin Field Subsea Equipment facilities. The ERP shows a clear line of responsibility in responding to emergency situations and how the Upstream P.S. onshore Emergency Response Group (ERG) and the SOGA (Puffin) EMT support the field ERTs

In the event of a hydrocarbon spill from the CSV, the SMPEP will be implemented to ensure timely response and effective management. The SMPEP is routinely tested and exercise drills are conducted regularly.

Upstream P.S personnel that have responsibility for responding to hydrocarbon spills have undertaken training by AMOSC to IMO Level 1 or 2.

9.5 Incident Recording and Reporting

SOGA, AGR and Upstream P.S. have internal requirements for the recording and reporting of incidents. There are legal obligations under the OPGGS(E) to report incidents to NOPSEMA within a specified time period. These requirements are outlined in detail in the EP.

All breaches of the EP are considered non-compliances. Non-compliances may be identified during an audit, inspection, crew observation or as a consequence of an incident. These will be investigated in accordance with the AGR incident reporting system. Following an investigation, remedial actions will be developed to prevent recurrence and tracked to completion.

9.6 Environmental Monitoring

SOGA will maintain a quantitative record of emissions and discharges as required under Regulation 14(7) of the OPGGS(E). This includes emissions and discharges to the air and water that can be tracked against the relevant environmental performance standards (fuel use, oily-water volumes from deck and bilge water, waste disposed and hydrocarbon and

chemical spills). Results will be reported in the EP performance report submitted to NOPSEMA at the completion of the project.

9.7 Audit and Review

The AGR Subsea Supervisor and Upstream P.S. On-board Representative will conduct regular inspections of EP compliance on board the CSV throughout the project. Findings from the inspections will be recorded and communicated to affected parties, and corrective actions will be tracked to closure. The EP's environmental performance outcomes, standards and measurement criteria will form the basis for these inspections.

A Puffin Decommissioning EP Audit will be conducted prior to the mobilisation date of the CSV to ensure all the proposed controls outlined in the EP are in place or are planned to be in place. Where required, further on-board audits will be conducted to confirm compliance. A summary of the environment inspection and audit results will be included with the EP performance report submitted to NOPSEMA at the completion of the project.

In the event that any new or increased environmental impacts are known or suspected to occur (e.g., due to a change in project scope), SOGA will undertake a risk assessment to determine whether the EP requires revision. Any impacts deemed to be insignificant or minor or risks deemed to be inconsequential or tolerable will involve an internal revision to the EP, with no re-submission to NOPSEMA. Any impacts assessed to be moderate, major or catastrophic or risks assessed as significant or critical will require the submission of a revised EP to NOPSEMA to address these impacts or risks.

10. Further Information

For further information about the Puffin Field Decommissioning Project, please contact:

Mr Ian Cashion
Decommissioning Project Manager
Sinopec Oil and Gas Australia
Phone: 08-9235 4909
Email: i.cashion@sipcau.com