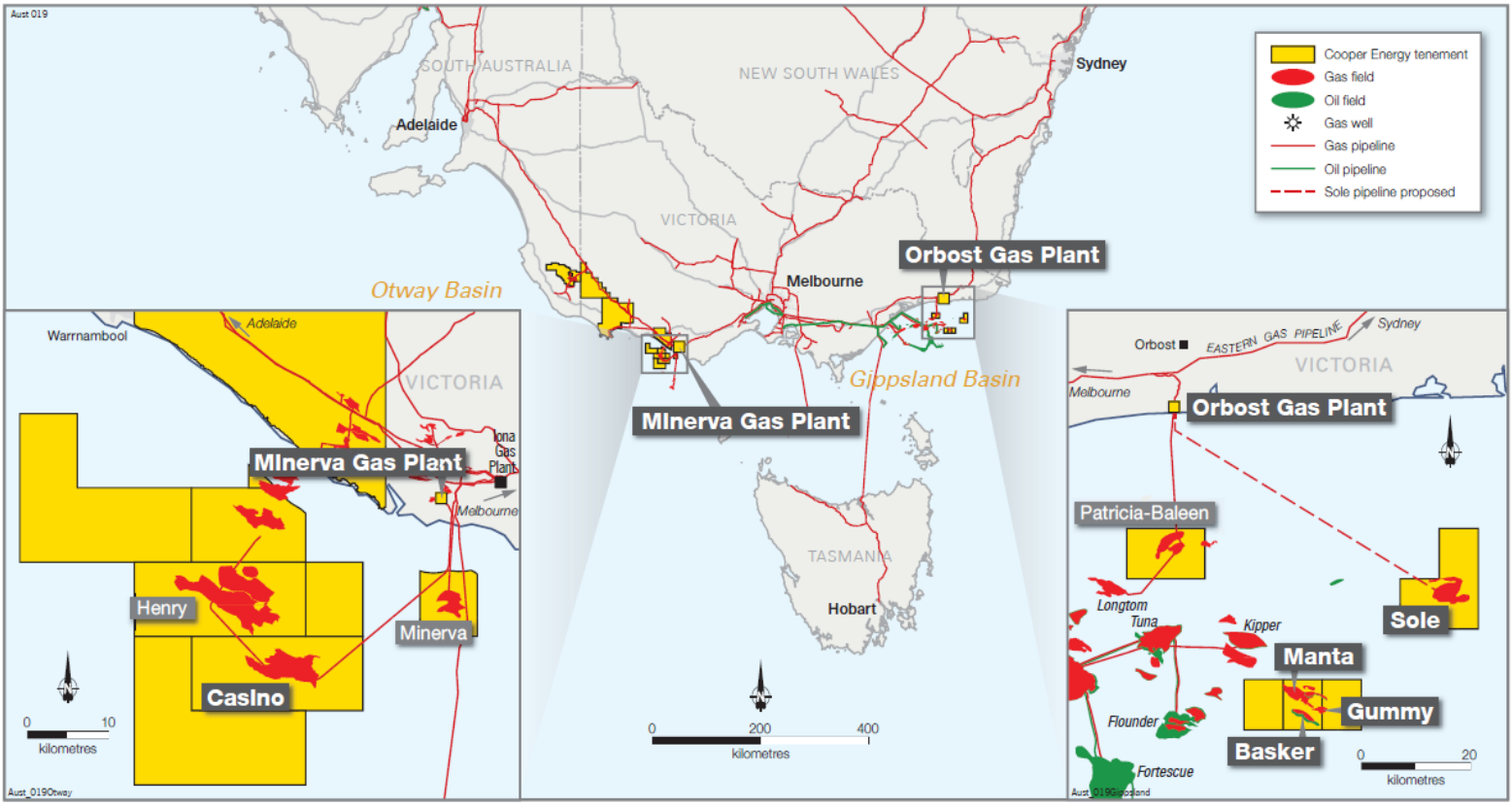
STAKEHOLDER UPDATE NOVEMBER 2018 / OFFSHORE VICTORIA



About Cooper Energy

Cooper Energy supplies natural gas to south-east Australia from the Casino Henry and Minerva gas projects, both of which are in the Otway Basin offshore south-west Victoria and are long standing gas producers. We are also developing the Sole gas field as a new source of gas supply for south-east Australia from 2019. Gas produced at Sole is to be processed at the existing Orbost Gas Plant owned and operated by APA Group.

Cooper Energy is committed to operating with care for the safety of the people, communities and environments where we conduct our activities. We will undertake all our activities with the highest of integrity by striving to be consistent, staying true to our values, and being accountable for our actions.

Consultation

Cooper Energy believes stakeholder consultation goes beyond simply informing individuals or groups. We want to provide an opportunity for open communication that promotes integration of stakeholder interests into the decision-making process. As such we invite feedback on your interests and welcome the opportunity for face-to-face meetings.

If you require further information or copies of the previous (February 2018 & August 2018) updates, please visit Cooper Energy's Community page on our website www.cooperenergy.com.au or contact us by email at stakeholder@cooperenergy.com.au or on (08) 6556 2101.

Cooper Energy will continue to keep interested stakeholders informed of the proposed activities throughout the planning phase and into the operational phase. This update will be followed by more targeted information closer to the time of each activity.

We appreciate your time in providing feedback, however, if you do not wish to provide feedback there is no need to do so. If you would prefer not to be included in further consultation, please advise us and we will remove your name from our database.

Activities in the Gippsland Basin 2018/2019

Sole Development Progress

Nearshore pipeline installation activities from the Orbost Gas Processing Facility commenced in 2017. Horizontal directional drilling was undertaken to avoid shoreline habitat and was completed in Q1 2018. In Q3 2018, installation of the offshore pipeline from the HDD tail to the wellheads commenced. Subsea infrastructure installation will continue into Q1 2019. During this time, marine users are asked to avoid the installation area. Once complete, the pipeline will be trawlable.

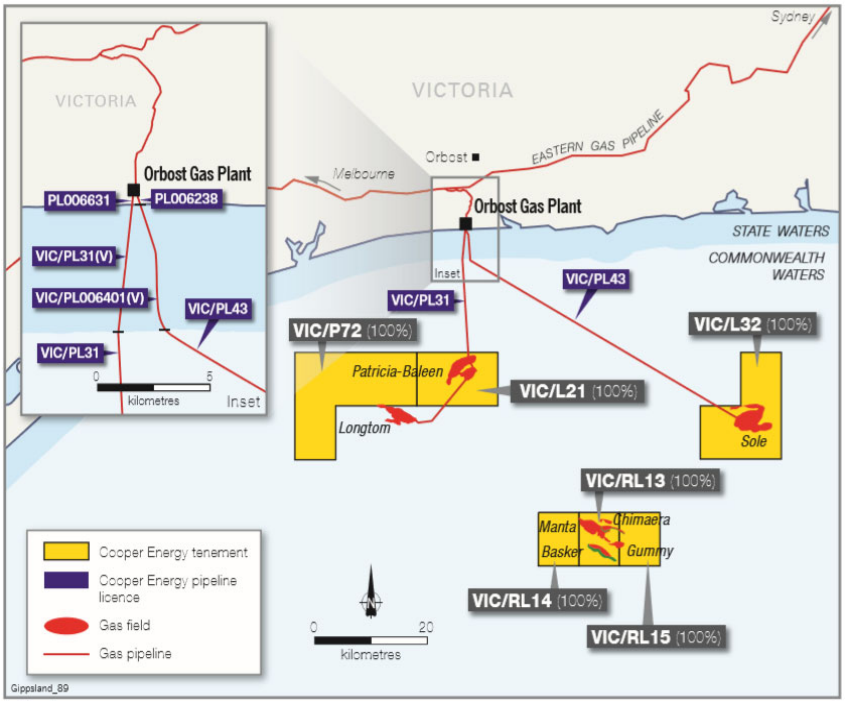
The Sole-3 and 4 wells were drilled and completed in VIC/L32 over four months to August 2018. These wells have been shut-in pending tie-in and commissioning of the Sole pipeline and subsea infrastructure.

Several vessels have been involved in the installation activities including the MV Silver Star, TEK-OCEAN Spirit and Seven Oceans pipelay vessel. The Skandi Acergy will arrive in Q4 2018/Q1 2019 to lay and trench the umbilical for the Sole development.

On 30 April 2018 a Petroleum Safety Zone (PSZ) was Gazetted within the Sole Field. This PSZ extends to a distance of 500 metres, measured from each point of the outer edge of the structure known as the Pipeline End Manifold (PLEM) for Sole 3 and Sole 4 wells (38°6'0.066" S, 149°0'31.368" E (GDA94). Please refer to Gazettal notice A601713 on the NOPSEMA website.

Sole Pipelay activity vessel call signs:

- Silver Star - VJD3650
- Seven Oceans - MQND3
- Skandi Acergy – 2BEJ5
- TEK-OCEAN Spirit – VJN4654



Basker-Manta-Gummy (BMG) Well Abandonments

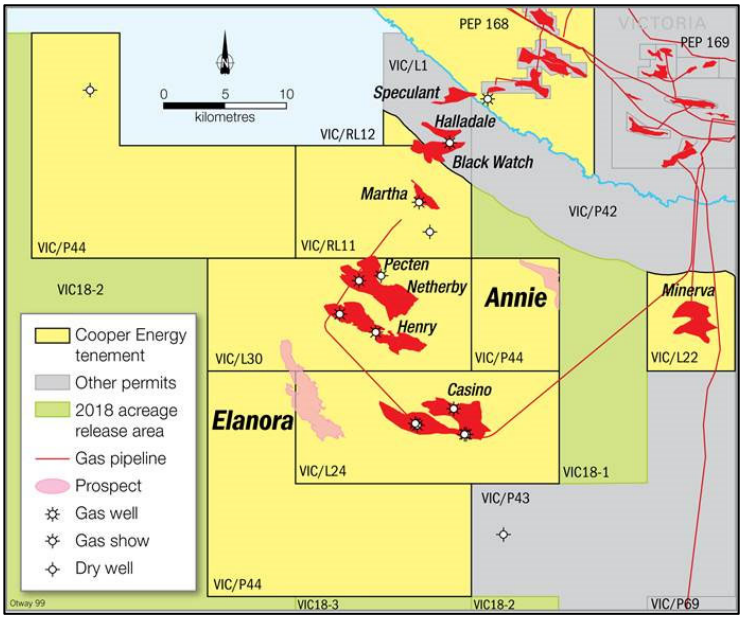
The BMG well abandonment activities have been postponed and will be rescheduled into a future offshore drilling campaign. Please note, the existing PSZ (Gazettal Notice: A443819) will remain around the BMG wells until all infrastructure has been decommissioned.

Patricia-Baleen

There has been no change in the status of the Patricia Baleen offshore infrastructure with the pipeline and wells shut in. Please note, the existing PSZ (Gazettal Notice: A528370) will remain around the Patricia Baleen wells until all infrastructure has been decommissioned.

Planned Activities in the Otway Basin 2019

Cooper Energy is planning to undertake drilling, inspection, maintenance and repair activities in the Otway Basin during 2019. Further details of individual activities, potential impact, risks and planned management measures are detailed below.



Well	Annie-1	Elanora-1
Target	Gas	Gas
Licence area	Vic/P44	Vic/L24
Location (GDA 94) *	38°40'52.45" S 142°49'33.46" E	38°47'01.36" S 142°36'21.90" E
Distance to Victorian coast*	9km	27km
Water depth	70-80m	70-80m

**Approximate*

Exploration Drilling

We are planning to drill two exploration wells in Commonwealth waters: Annie-1 and Elanora-1, subject to final JV approval and rig availability. Both wells are targeting gas prospects. Location details are provided in the table below.

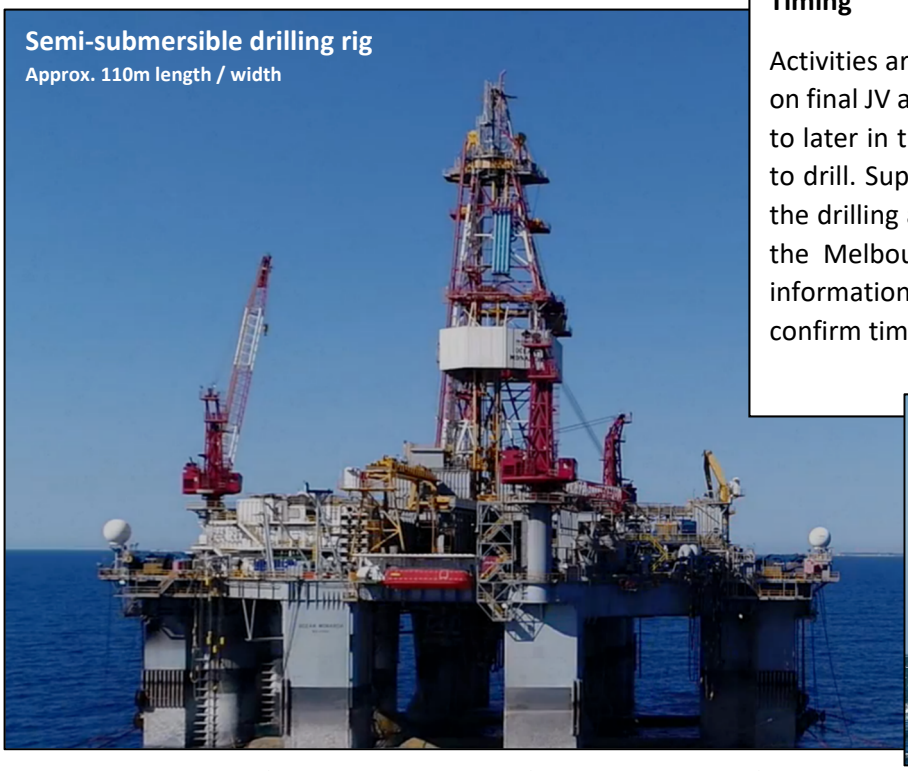
The wells are planned to be drilled by a semi-submersible drilling rig. The rig will be towed into position and supported during the campaign by up to three anchor handling, tow and support / supply vessels. There will be a temporary 500m exclusion zone around the rig while on location.

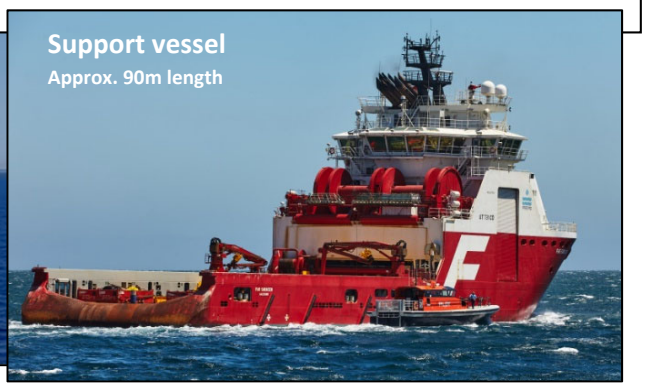
Before drilling activities commence, up to 8 anchors and chain may be pre-laid on the seabed ready for the rigs arrival at the well location. This would be undertaken by the support vessels. These pre-laid moorings would extend approximately 1.5km from the well location. The anchors are not trawlable and marine users are requested to avoid the area when the activities are in progress.

The drilling program will include logging activities to help confirm key information about the target prospect. At the end of the program it is planned to decommission the exploration wells and remove all equipment from the seabed. Remotely operated vehicles may be used during pre and post drilling site surveys as well as during drilling. A side-scan sonar or sub-bottom profiler may also be used prior to drilling to check for shallow hazards under the seabed.

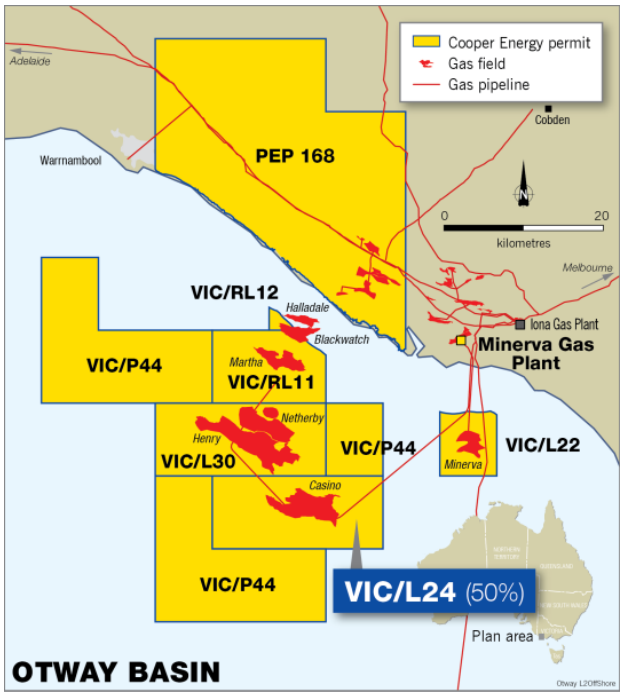
Timing

Activities are planned to commence in Q1/Q2 2019 depending on final JV approval and rig availability but may be rescheduled to later in the year. Each well will take approximately 30 days to drill. Support vessels will be in the field for the duration of the drilling activities and will transit to and from port (likely in the Melbourne area) providing supplies to the rig. Further information will be provided prior to activities commencing to confirm timing and locations.





Planned Activities in the Otway Basin 2019 (continued)



Inspection, maintenance and repair activities

We are planning to undertake inspection and repair activities at our existing Casino, Henry and Netherby (CHN) gas production facilities in Commonwealth and State waters. The repairs will involve modifications to the infield umbilical system around and between existing wells, including the replacement of some existing components. Well locations are provided in the table below.

The inspections and repairs will be undertaken by one or two offshore vessels, similar in size to the support vessels described for the exploration drilling in 2019. The vessels will be equipped with remotely operated vehicles which will also be used in the inspection and repair activities.

Timing

Repair activities are planned to commence in Q1/Q2 2019 and are expected to take approximately 30 days depending on weather. Additional visual inspection activities are also planned for later in 2019.

Existing well	Casino-4	Casino-5	Henry-2	Netherby-1
Licence Area	VIC/L24	VIC/L24	VIC/L30	VIC/L30
Location (GDA, UTM Zone 55) *	38°47'13.03" S 142°41'54.48" E	38°47'43.68" S 142°44'44.59" E	38°42'14.55" S 142°37'13.05" E	38°40'48.58" S 142°38'25.74" E
Distance Victorian coast*	Approximately 20km. The licence areas are 30km southwest of Port Campbell			
Water depth*	Water depths range between 60 m and 70 m			
**Approximate*				

Environment Plans

Environment Plans (EPs)

Prior to petroleum activities in Commonwealth waters commencing, an EP must be accepted by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). For petroleum activities in Victorian State waters, an EP must be accepted by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).

Otway EPs: An EP for the planned exploration drilling activities is under development and will be submitted to NOPSEMA for review and acceptance prior to commencing drilling activities. The inspection and repair activities planned at the existing CHN facilities are provided for under the existing accepted Casino, Henry, Netherby EP.

Gippsland EPs: EPs covering Patricia Baleen and BMG facilities are currently in force. These EPs are being revised into a Gippsland operations EP which will also include the operation of the Sole subsea facilities. The Sole Development activities currently underway are provided for within the Sole Development Pipeline and Subsea Infrastructure Installation EP.

Oil Pollution Emergency Plan (OPEP)

Cooper Energy's Offshore Victoria OPEP identifies spill response options which may be applied to a spill event. The selected spill response option(s) would depend upon the size and type of spill; environmental sensitivities within the spill path; prevailing weather conditions; access restrictions and available resources. The OPEP interfaces with national, state and industry response plans including the Australian Government via AMSA (NATPLAN), the Victorian Government (Maritime Emergencies (non-search and rescue) Plan), and the Australian Oil industry's Australian Marine Oil Spill Plan (AMOSPLAN).

Operational and Scientific Monitoring Plan (OSMP)

Cooper Energy's Offshore Victoria OSMP provides a framework for monitoring hydrocarbon spills to the marine environment and outlines the monitoring required to inform, plan and execute the spill response to reduce environmental harm. Additionally, the OSMP outlines the monitoring required to assess any short-term and long-term impacts to the marine and coastal environments, their subsequent recovery and inform any remediation activities required.

Potential Impacts, Risks and Control Measures

A preliminary list of the potential impacts relating to our offshore activities in the Otway and Gippsland basins in 2018 and 2019 are provided below to assist stakeholders in making an informed assessment on possible impacts to their activities, functions or interests in the area. In general, the activities are localised and of low risk.

Aspect of Activities	Potential Consequence	Impact/Risk Reduction & Mitigation Measures
Drill rig mooring, Umbilical repairs, facility installation.	Temporary and localised seabed disturbance, shallow bed depressions	• Drill rig mooring plan developed • Pre-positioning and testing of rig moorings • Small area affected by anchors and chain drag, natural backfill after anchor removal • Sensitive seabed features avoided • Support vessels expected to use dynamic positioning thrusters
Planned discharges to the marine environment.	Temporary and localised reduction in water quality	• Routine discharges and vessel waste treatment systems will meet legal / MARPOL requirements • Maintain biosecurity requirements such as anti-fouling certification, ballast water and biofouling controls
Exploration drilling fluids and cuttings discharge.	Localised and temporary: • Burial of seabed and benthic habitats in immediate seabed area; and • Reduction in water quality from suspended solids.	• Use of water-based mud (WBM) • Fluid additives assessed and must meet acceptability criteria prior to discharge • Solids control equipment minimises WBM on cuttings prior to discharge overboard
Cement and cement cuttings discharge during exploration drilling.	Localised and temporary: • Reduction in water quality; • Smothering of benthic habitat	• No bulk cement discharge overboard • Volume of cement required accurately calculated to reduce excess cement volumes mixed • Cement hose flushing and cuttings releases rapidly diluted and dispersed
Light emissions.	Localised light emissions Temporary increase in predation on fauna attracted to light	• Lighting kept to a minimum but meets navigational and workplace safety requirements
Underwater noise.	Localised sound emissions Temporary displacement of sound sensitive fauna around active vessels	• Incremental sound impacts from vessels and rig not expected to be significant given location background sound levels (i.e. commercial shipping in adjacent shipping channels) • Short-duration and highly targeted site survey centred over each of the two proposed well locations
Atmospheric emissions.	Temporary and localised reduction in air quality	• Air emissions from marine engines meet MARPOL requirements and are routinely maintained • Low sulphur MDO or MGO to be used • No well testing (which would include flaring) proposed during exploration drilling
Marine fauna interaction (vessel strike).	Injury to marine fauna	• Maintain caution and 'no approach' zones from cetaceans • Support vessel crew members trained in marine fauna observation and mitigation measures • Report any injury/mortality of EPBC-listed fauna to the Department of the Environment and Energy
Vessel collision.	Vessel damage, loss of hydrocarbons	• Maintain 500 m exclusion zone around the drill rig for the duration of the activities • Communicate commencement of activity and exclusion zone to relevant stakeholders via Notice to Mariners and via AMSA • Existing Petroleum Safety Zones are gazetted on the NOPSEMA website • Vessel crew and navigational equipment will meet legal requirements • No heavy fuels used – only MDO/MGO used on rig and vessels
Seabed obstruction.	Damage to third-party property	• Water depth greater than 60m • Well heads removed from seabed following exploration drilling • Existing Petroleum Safety Zones are gazetted on the NOPSEMA website
Accidental release of hydrocarbons to the marine environment.	Temporary reduction in water quality. Potential impacts to marine fauna exposed to the fluids.	• Store hydrocarbons and hazardous liquids in designated areas with spill protection in place • Comply with the rig/vessel SMPEP/SOPEP, including maintaining spill kits and conducting spill response exercises • Implementation of Cooper Energy OPEP
Loss of well control (i.e. blowout) during exploration drilling	Tainting of fisheries resources (e.g., shellfish). Injury and death of species such as seabirds, cetaceans. Toxic effects on fish larvae and plankton. Pollution of shoreline habitats such as sandy beaches and cliff faces	• Both exploration wells are targeting gas-condensate prospects (very light hydrocarbons with propensity to readily evaporate) • Blow out preventers (BOP) will be tested and utilised • Weighted drill fluids maintain hydrostatic pressure • Spill drills will be conducted for the activities • A Safety Case and Well Operations Management Plan will be approved prior to drilling • An accepted EP, OPEP and Emergency Response Plan will be in place and implemented in the event of a blowout • An accepted OSMP to inform response planning and remediation activities • Cooper Energy is a member of the Australian Marine Oil Spill Centre (AMOSC), giving it ready access to expert response personnel and equipment in Geelong, Victoria and other locations