

A black and white photograph of an offshore oil rig, identified by the name 'OCEAN MONARCH' on its side. The rig is a complex structure of steel beams, ladders, and platforms, with several cranes visible. Two workers in white protective suits are standing on a platform in the lower right. The background is a clear sky.

COOPER ENERGY ACTIVITIES 2021

NOVEMBER 2020



OUR ACTIVITIES IN 2021

- Return the Athena Gas Plant to be operational, processing gas from our Casino Henry Netherby gas fields.
- Offshore operations, inspections, survey, and maintenance in the Otway offshore basin.
- Planning for 2022 offshore projects, including closure of the Basker Manta Gummy subsea facilities in the Gippsland offshore basin

COOPER ENERGY

Cooper Energy is an ASX-listed Australian oil and gas company. Our principal activities are to explore and develop gas reserves, and to supply gas to industry and communities in southeast Australia.

We operate in the Otway and Gippsland regions of Victoria. Our headquarters are in Adelaide, South Australia. We also have teams in Victoria and Perth.

GET IN TOUCH

If you think our planned activities might impact you or if you would like to know more, then please contact us.

We are also keen to hear about local services and community initiatives where we operate. Please get in touch with us to share your ideas.

You can email us at:

stakeholder@cooperenergy.com.au
or call us on **(08) 8100 4900**.

You can also find more information on the Community page of our website:
www.cooperenergy.com.au



ONSHORE ACTIVITIES

ATHENA GAS PLANT

The Athena Gas Plant (previously named Minerva) was acquired by Cooper Energy in 2019 and we are now well underway with integrating Athena into our Otway operations. Returning the Athena plant to operations involves recruiting 20 permanent positions and ongoing engagement of local contractors.

We are undertaking minor modifications at the plant, constructing a pipeline tie-in onshore, and suspending components of the Casino to Iona gas pipeline and the Minerva gas pipeline.

We plan to develop additional gas reserves over the next few years. Athena will process and deliver this gas into the domestic market. Further modifications may be required at Athena in future to process the additional reserves. We will consult with stakeholders on modifications as planning progresses.

ORBOST GAS PLANT

In 2020 gas from our offshore Sole field started to be produced through the Orbost Gas Plant, supplying gas to our customers in southeast Australia.

We are working with APA, the operator of the Orbost Gas Plant, to optimise the production process and increase supply to customers over the coming months.



OFFSHORE ACTIVITIES

The gas we produce originates from offshore subsea wells. These wells tap into gas reserves that lie over 1 km beneath the seabed. The gas flows through our wells at a controlled rate into subsea pipelines that connect the wells to an onshore gas processing plant.

INSPECTIONS & MAINTENANCE

We will conduct routine survey, inspection, and maintenance in our offshore fields. This will include:

- Inspection of subsea infrastructure with remotely operated vehicles, video, and sonar equipment.
- Replacement of controls equipment inside existing petroleum safety zones.
- Installing grout bags and concrete mattresses to stabilise pipelines and umbilicals where required.

TYPICAL OFFSHORE CONSTRUCTION SUPPORT VESSEL

(typically 100 - 120m length)

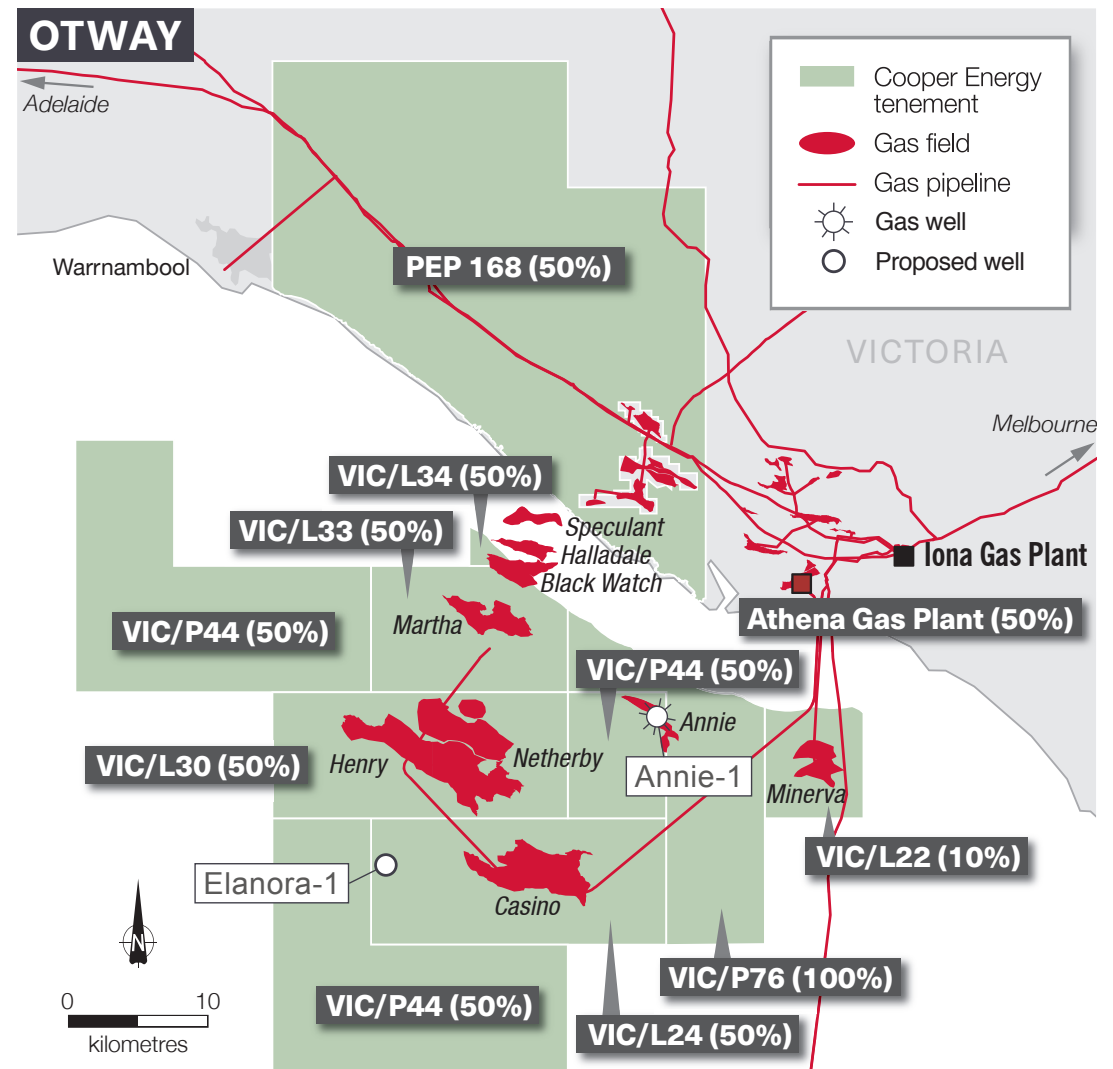
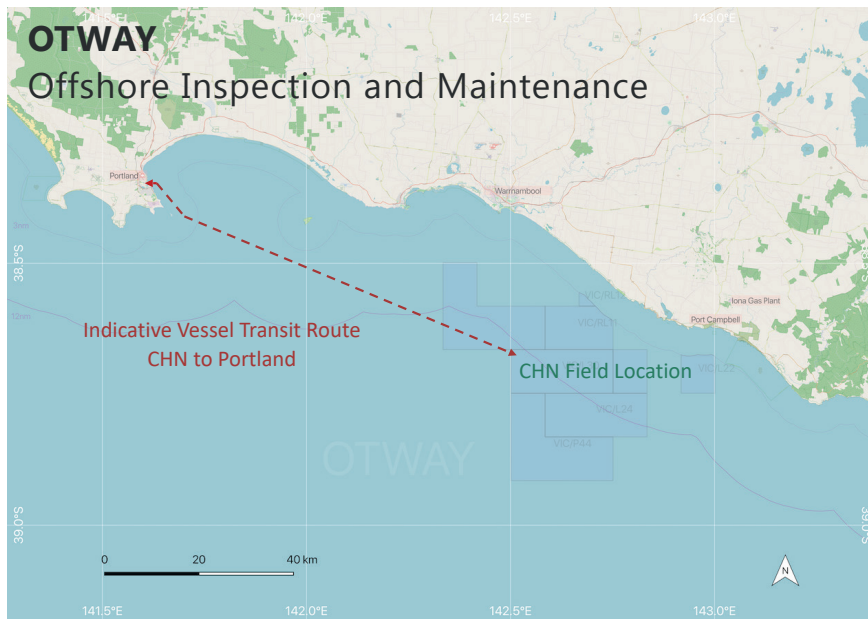


LOCATIONS

Offshore inspection and maintenance activities will take place in nearshore (Vic) waters and offshore (Commonwealth) waters at our Casino Henry and Netherby (CHN) gas fields in the Otway. Vessels will likely transit between Portland and the CHN gas fields.

TIMING

Offshore inspection and maintenance is planned to commence in March or April 2021. We expect around 15 days of work within the CHN fields. This timing may change depending on vessel availability and weather conditions. Cooper Energy will give at least four weeks' notice prior to the commencement of activities with the community and industry.



WHAT'S HAPPENING BEYOND 2021?

OFFSHORE EXPLORATION & DEVELOPMENT

Following our drilling exploration success at Annie-1 (offshore Otway) in 2019 we are working on the next stage of field development for our existing CHN facilities.

We are also looking at additional exploration and development prospects in the offshore Gippsland and Otway Basins. Depending on approvals and rig availability, exploration drilling and field development activities may commence from 2022.

Some early vessel-based geophysical and geotechnical investigations may be undertaken during 2021. These vessel-based surveys may utilise seabed scanning, sub-bottom profiling, and coring equipment to help us identify seabed properties and shallow drilling hazards.

Further information on our offshore exploration and new field integration activities will be provided as planning progresses. This will allow time for consultation with the community and other relevant stakeholders.

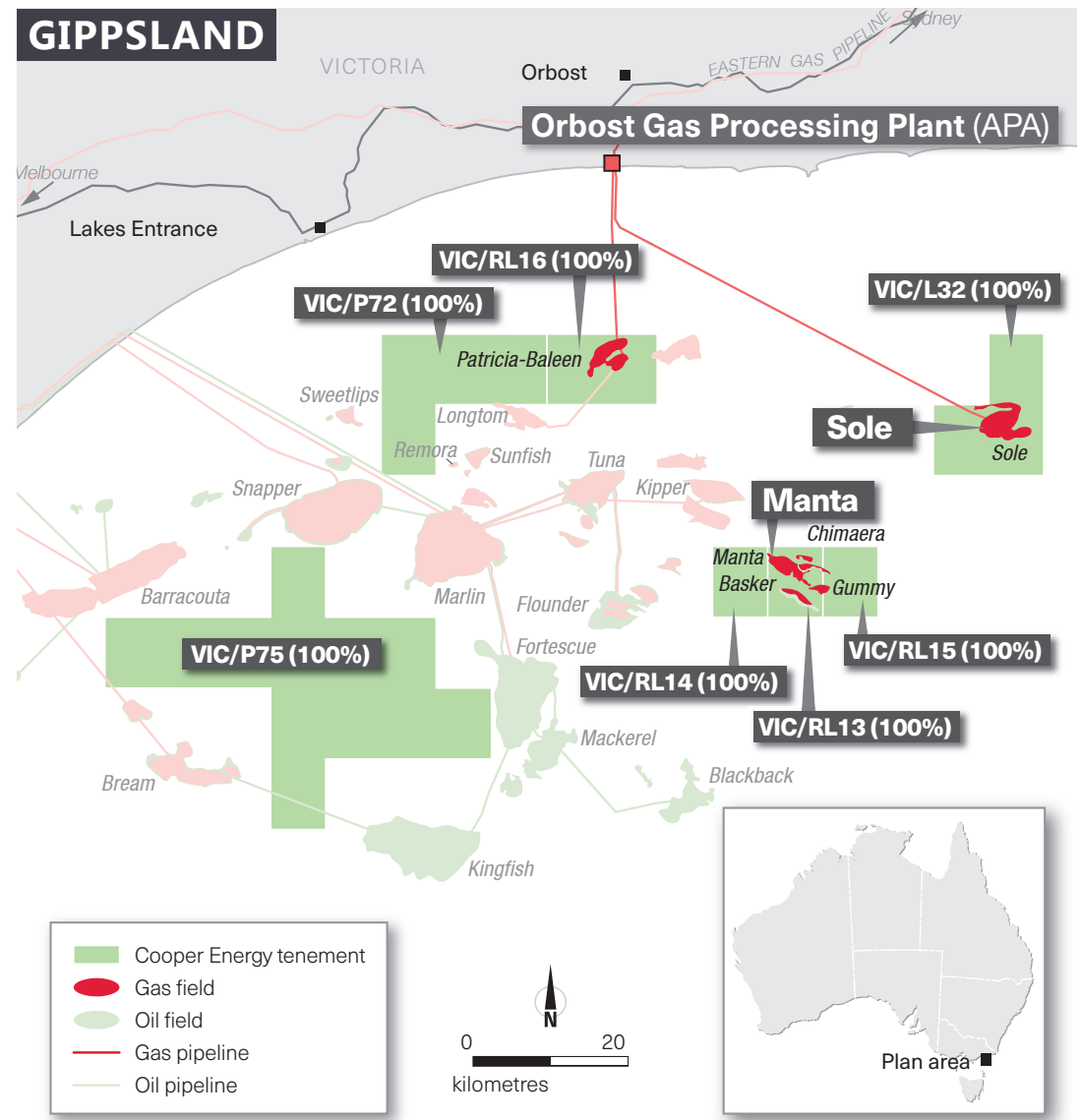
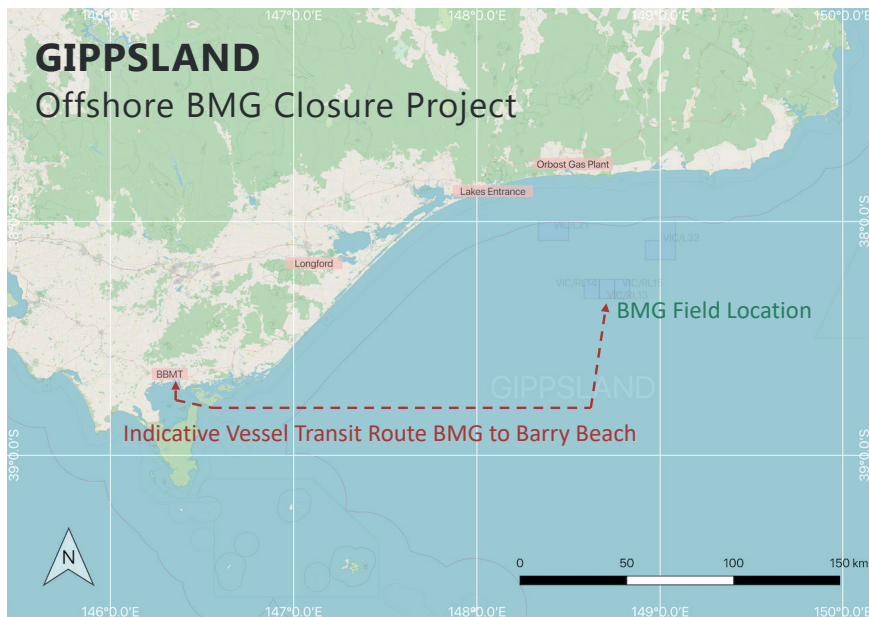


OFFSHORE BMG FIELD CLOSURE PROJECT

We plan to commence the offshore activities under the **Basker Manta Gummy (BMG) closure project** from 2022.

BMG is a legacy facility previously owned and operated by ROC Oil. The remaining facilities are all on the seabed; there are seven wells, auxiliary structures, and a network of around 22 km of flowlines and umbilicals.

These facilities are 50 km from shore in Commonwealth waters, 130 m to 270 m deep in the Gippsland region.



The first campaign in the BMG Closure Project aims to:

- Prepare the facilities via cleaning and flushing.
- Safely install cement plugs deep inside the offshore wells to permanently seal them.
- Remove subsea structures from the seabed.
- Complete seabed / debris surveys.

This campaign requires a Heavy Well Intervention Vessel and one or more support vessels. These will operate inside the BMG Field for approximately 130 days (24/7). Support vessels will also transit between BMG and Barry Beach or an alternate port in the region.

Subsequent campaigns will be arranged to remove any remaining structures, and either remove or leave in situ the BMG flowlines and umbilicals. Seabed and debris surveys will also be completed. One or more construction support vessels may be used.



HEAVY WELL INTERVENTION VESSEL HELIX Q7000

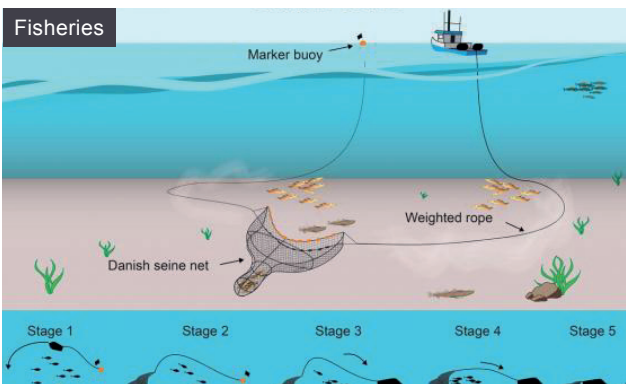
Approximately 80m length/width

(Photo courtesy of Helix Energy Solutions)



LEFT: 3D ILLUSTRATION – BASKER-A DRILL CENTRE AT BMG.
Water Depth: 155 m.

1. Well Intervention Pressure Control Equipment, deployed from the surface vessel.
2. Subsea well [dimensions h x w x l: 4m x 5m x 5m]
3. Subsea manifold [dimensions h x w x l: 5m x 11m x 13m]
4. Subsea flowlines and umbilicals (approx. 22km total)
5. Remotely Operated Vehicle (ROV) deployed from surface vessel



Danish-seine Fishing Method



Study video: <https://youtu.be/TksiOGxrUzg>



STUDIES UNDERWAY

We have kicked off of independent studies including with local fisheries consultants and Deakin University, using local expertise, knowledge, and ideas. We will also leverage expertise from international decommissioning hubs. This work will help guide our approach to closure, ensuring the final state optimises environmental protection and is compatible with stakeholder interests.

Fisheries: The study will look at the type of fishing in the region to inform how leaving equipment in place could be compatible with fishing.

Marine life: Deakin University will analyse years of data collected within the BMG field to study how marine life interact with the subsea facilities, informing the potential impacts of removal and benefits of leaving in place.

Burial and Degradation: We will investigate how and when any equipment left in place may bury and degrade over time, the possible effects on the environment and other users of this area.

These studies will supplement a growing field of offshore decommissioning science. To find out more about industry science initiatives visit:

National Decommissioning Research Initiative
<https://ndriaustralia.org/>

CSIRO
<https://ecos.csiro.au/decommissioning-offshore-oil-and-gas-infrastructure/>

BMG CLOSURE COMPARATIVE ASSESSMENT

We will use a comparative assessment process to determine the end state for BMG flowlines and umbilicals.

We invite relevant stakeholders to take part in this process.

If you want to know more or would like to be involved, please email us at stakeholder@cooperenergy.com.au

ENVIRONMENT PLANS

Cooper Energy has developed Environment Plans for our ongoing offshore operations in the Otway and Gippsland Basins. These plans describe how we manage the impacts and risks associated with our activities and can be viewed at: https://info.nopsema.gov.au/home/approved_projects_and_activities.

New Environment Plans will be developed for future activities such as the BMG Closure Project.

OFFSHORE ACTIVITY DETAILS

TIMING	March/ April 2021	From 2022	2022/23
REGION	Otway	Gippsland	Otway
Activity Plan overview	CHN Maintenance and Inspection: <ul style="list-style-type: none"> • Survey / Inspection in CHN Fields • Replace controls equipment • Install grout bags and concrete mattresses 	BMG Closure Project: <ul style="list-style-type: none"> • Campaign 1: Inspect and clean equipment, permanently seal existing wells, remove structures. • Subsequent campaigns: Remove remaining structures and either remove or leave in place flowlines and umbilicals. 	Otway Phase 3 Development and Exploration: <ul style="list-style-type: none"> • Drill 2 x development wells. • Tie-in development wells to existing CHN pipeline. • Drill 3+ exploration / appraisal wells
Location	CHN Field Permits: VIC/L30, VIC/L22, VIC/P44	BMG Field Permit: VIC/RL13	CHN Field Permits: VIC/L30, VIC/L22, VIC/P44, VIC/L33
Approx. Duration	15 days	100-130 days per campaign	Multiple campaigns upwards of 100 days in field.
Water Depth	50m-70m	130m-270m	50-70m
Petroleum Safety Zone (PSZ)	<ul style="list-style-type: none"> • PSZ already established around well sites only. <u>Casino, Henry, and Netherby PSZ Coordinates</u>	<ul style="list-style-type: none"> • PSZ already established around infrastructure: <u>BMG PSZ Coordinates</u> • PSZ may be modified (in consultation with fisheries and government) as the BMG closure project progresses. 	<ul style="list-style-type: none"> • PSZs would be established around new development wells.
Vessels	<ul style="list-style-type: none"> • 1 x Construction Support vessel (dynamically positioned). 	<ul style="list-style-type: none"> • 1 x Heavy Well Intervention vessel supported 1-3 supply/support vessels. • Note, an alternative to the Heavy Well Intervention Vessel is to use a Mobile Offshore Drilling Unit. A Drilling Unit would be likely be anchored within the BMG field. 	<ul style="list-style-type: none"> • Mobile Offshore Drilling Unit. • Heavy lift vessel. • Pipelay vessel. • Construction support vessel. • Some of the drilling and installation activities would involve anchoring in and around the CHN and tie-in fields.
Supply Base	Portland	Barry Beach, Melbourne, or Geelong	Portland, Melbourne

POTENTIAL OFFSHORE ACTIVITY IMPACTS AND RISKS

This table shows the typical impacts and risks considered for these types of activity, and indicative management measures.

IMPACTS AND RISKS	Relevant Activities	Indicative Management Measures
Temporary and localized seabed disturbance, and shallow seabed depressions.	<ul style="list-style-type: none"> • Exploration / Development drilling • MODU mooring (if MODU is used) • Equipment installation and removal • Seabed surveys 	<ul style="list-style-type: none"> • Site surveys. • Identify and avoid sensitive features. • Location specific mooring plans.
Long term changes to seabed and local environment	<ul style="list-style-type: none"> • Leaving equipment in place at the BMG field (this option is being considered) 	<ul style="list-style-type: none"> • Studies conducted to determine impacts of in-situ equipment degradation over time. • Habitat and fisheries studies. • Comparative assessment process involving stakeholders
Temporary and localised changes to water quality.	<ul style="list-style-type: none"> • Planned vessel discharges (surface) • Planned operational discharges (surface and subsea). 	<ul style="list-style-type: none"> • Routine discharges will meet legal / MARPOL requirements. • Australian Ballast Water and Biofouling Management requirements. • Invasive Marine Species Risk Management Procedure. • Discharges to marine environment meet approved discharge criteria. • Chemical additives selected to minimise ecotoxicity. • Solids control equipment to treat fluids allowing for its reuse. • Disposal of waste fluids into subsurface reservoir where practicable.
Localised light emissions, potential for disorientation of fauna.	<ul style="list-style-type: none"> • Project light (vessels, ROV) • Flaring (e.g. during development drilling) 	<ul style="list-style-type: none"> • Lighting kept to a minimum while maintaining navigational and workplace safety requirements.
Localised noise, potential impacts include fauna avoidance behavior.	<ul style="list-style-type: none"> • Seabed surveys and inspections • Engine noise (vessels, helicopter) • Drilling • Equipment preparation and removal (e.g. cutting, grinding, deburial, trenching) 	<ul style="list-style-type: none"> • Scalable measures including marine mammal observation and reporting. • Monitoring and shutdown procedures for certain geophysical activities.

IMPACTS AND RISKS	Relevant Activities	Indicative Management Measures
Temporary and localised reduction in air quality.	<ul style="list-style-type: none"> • Power generation • Flaring and venting 	<ul style="list-style-type: none"> • Air emissions managed in line with MARPOL requirements. • Well testing (flaring) avoided during exploration drilling where practicable.
Marine fauna injury.	<ul style="list-style-type: none"> • Vessel use (unplanned vessel strike) 	<ul style="list-style-type: none"> • Marine mammal caution and 'no approach' zones • Crew inductions include marine fauna observation, reporting requirements and mitigation measures.
Accidental release hydrocarbon/chemical	<ul style="list-style-type: none"> • Unplanned vessel collision • Unplanned bunkering spills • Unplanned deck spills • Unplanned dropped objects 	<ul style="list-style-type: none"> • Notice to Mariners, JRCC, ongoing stakeholder engagement. • Petroleum Safety Zones gazetted on NOPSEMA website. • Vessel crew and navigational equipment meet legal requirements. • Energy Emergency Management Plans. • Response Arrangements with oil spill and emergency specialists in place prior to commencement
Damage to third party property.	<ul style="list-style-type: none"> • Presence of subsea infrastructure • Support vessel movements 	<ul style="list-style-type: none"> • Petroleum Safety Zones gazetted on NOPSEMA website. • Structures removed during BMG Closure Project. • Studies conducted to determine long-term implications of leaving equipment in place at BMG. • Ongoing and routine consultation with relevant stakeholders.
Degradation of marine environments via toxic effect and / or smothering of marine life.	<ul style="list-style-type: none"> • Loss of well barriers during drilling or whilst reinstating permanent barriers. 	<ul style="list-style-type: none"> • Testing and verification of well barriers and drilling and intervention control systems. • Weighted fluids to control hydrostatic pressure. • Spill drills conducted before drilling or entry into wells. • Approved Safety Case(s) and Well Operations Management Plans. • Emergency Response Plans and monitoring plans in place. • Scalable Response Arrangements with oil spill and emergency specialists.



FOR ADDITIONAL INFORMATION

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