

Halladale, Black Watch and Speculant Project



Halladale, Speculant and Black Watch well site, Nirranda South, Victoria. September 2018

Project update | December 2018

Project overview

The Halladale, Black Watch and Speculant Project is a program to develop additional offshore natural gas reservoirs in the Victorian Otway Basin. The gas reservoirs are located offshore, up to 3 nautical miles (5.55 km) from the coast line, and are accessed using 'extended reach drilling' from the well site located onshore at Nirranda South, near Peterborough (see map overleaf).

The first successful extraction of gas from this Project was completed in August 2016, with no safety or environmental incidents on site. The Halladale 1 and Speculant 1 and 2 wells are now in the production phase with the raw gas flowing from the well heads, through 33km of buried pipeline, to the Otway Gas Plant for processing. Once processed, the gas is sold to retailers who use it for domestic or commercial consumption in the East Coast gas market.

Planning is now underway for the Black Watch well, with drilling due to begin in the first half of 2019. The Black Watch well will tie-in to the existing well site infrastructure and pipeline.

Key Project timings

The Black Watch well construction is expected to start around mid 2019, depending on several factors including regulatory approvals, weather windows and availability of contractors.

The Project will run over phases with different levels of activity, vehicle movements and people on site. The busiest phase will be during drilling.

Approximate timings for the different Project phases are estimated below:

Prepare drill site:	1-2 months
Mobilise drill rig:	1.5 months
Drill production well:	2-3 months
Demobilise rig:	1.5 months
Well clean-up and test:	1 month
Install well utilities:	1-2 months



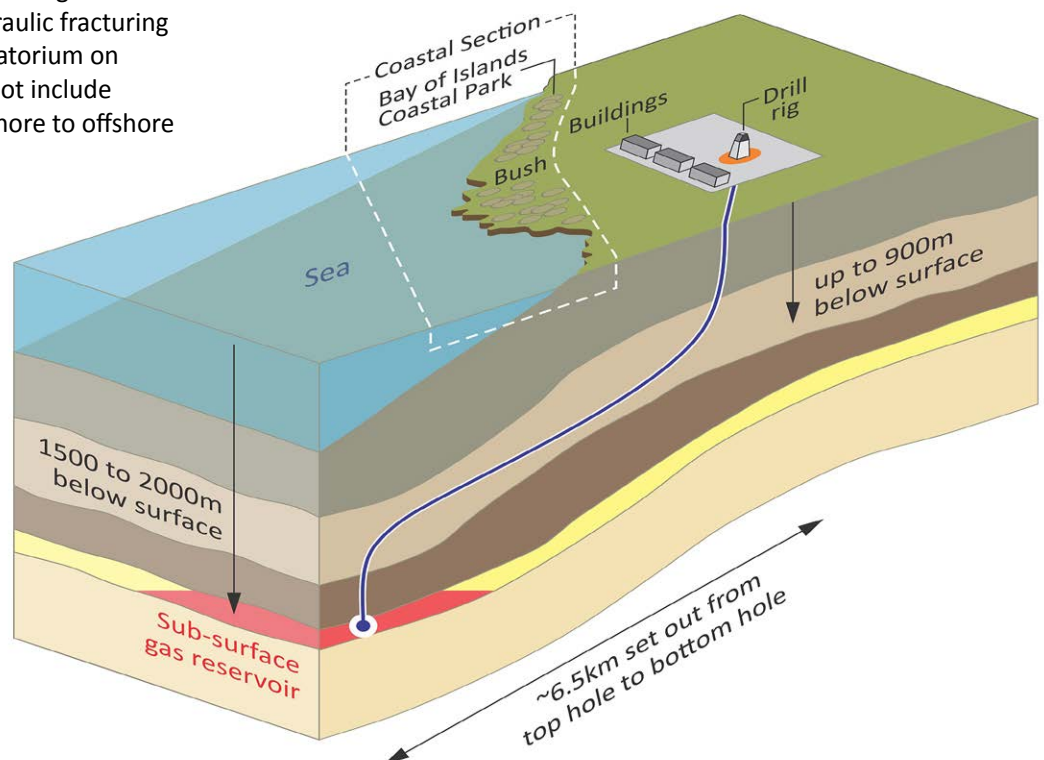
Map showing Halladale, Black Watch and Speculant well site.

Extended reach drilling

To access the offshore natural gas reservoir from an onshore well site, 'extended reach drilling' is used. This proven technology is safe, efficient and has minimal environment impact. It involves drilling up to 2000m below the surface, while using directional drilling techniques to steer the well offshore, reaching a total drilling distance of around 6.5km to the potential gas reservoirs under the seabed.

The Project uses conventional natural gas drilling and does not involve hydraulic fracturing (or 'fracking'). The Victorian moratorium on onshore gas development does not include extended reach drilling from onshore to offshore conventional gas reservoirs.

Diagram showing extended reach drilling method from onshore drill site to sub-surface gas reservoir.



Safety and the environment

For Beach Energy, the safety of our people and the local environment are the highest priorities on our operations and projects. Beach operates within a highly regulated industry and must meet stringent environmental and safety standards.

Approvals will be required under both onshore and offshore petroleum legislation for this type of development which involves the preparation and approval of an Operations Plan. This is an all-encompassing document which outlines environment, resource and safety management risks and mitigation. It must include an Environment Management Plan, a Well Operations Management Plan, and a Safety Management Plan.

Our Traditional Custodians

Beach would like to respectfully acknowledge the Eastern Maar Peoples, the Traditional Custodians of the land on which the Project is located. Beach respects their historical and ongoing connection to country through cultural and spiritual sites, language and ceremony, and would like to pay our respect to their Elders past, present and future.

“Eastern Maar” is a name adopted by the people who identify as Maar, Eastern Gunditjmara, Tjap Wurrung, Peek Whurrong, Kirrae Whurrung, Kuurn Kopan Noot and/or Yarro waetch (Tooram Tribe) amongst others.

Beach is consulting with Eastern Maar representatives in relation to this Project.

Community consultation

Beach is committed to working with the local community, ensuring people are informed of proposed operations and can ask questions or raise issues about its projects if required. Stakeholder consultation is an important part of preparing the Environment Management Plan as it helps identify local issues and concerns and ensures our planning manages potential impacts. Beach has commenced engagement with local land holders and community members. Beach is keen to hear from any community members who would like further information or have any questions about this Project.

The regulator will be provided a report on all consultations with stakeholders in the course of developing the environment plans.

Supporting the community

Beach is committed to supporting the communities in which we operate and where our people live too. We focus on partnerships and programs that build sustainable and resilient communities.

The Halladale, Black Watch and Speculant Project has supported several community initiatives including:

- Peterborough Community Hall
- Nirranda and Districts Recreational Centre
- Nullawarre Primary School
- Nullawarre CFA
- Nirranda South CFA
- Wayne Schwass talk on mental health at Nirranda Football Club

In 2018 and 2019 Beach will be proudly supporting:

- *BlazeAid* – purchase of new post hole digger and fencing materials for south west bush fire recovery
- *Heytesbury and District LandCare Network* – three-year program to fund the Community Coastal Wattle Blitz program in the Bay of Islands Coastal Park

Contact us

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About Beach

Beach Energy is an ASX listed oil and gas, exploration and production company headquartered in Adelaide. It has operated and non-operated, onshore and offshore, oil and gas production from five production basins across Australia and New Zealand and is a key supplier to the Australian east coast gas market.

 beachenergy.com.au

Questions and Answers

Why are you drilling onshore to offshore?

Drilling from onshore to offshore has a number of advantages over offshore drilling. Most significantly, onshore drilling will be less impacted by changing weather conditions and therefore has less risks and less potential environmental impacts.

Are you experienced in this type of drilling?

Yes, Beach has over 50 years' experience in drilling complex, high integrity wells including directional drilling. For the Black Watch well, Beach has engaged the same drilling contractor and the same drill rig that was used for the Halladale and Speculant wells. Beach has a team of highly skilled gas industry professionals with extensive industry experience to deliver this Project.

What approvals are required before you can drill?

A Petroleum Special Drilling Authority, which enables drilling from outside of the offshore permit area, has been granted for this Project by the Victorian Government Minister for Resources. In addition, the *Petroleum Act 1998* and the *Offshore Petroleum Greenhouse Gas Storage Act 2006* require the development of an Operations Plan which must be approved by Earth Resources Regulation within the Department of Economic Development, Jobs, Transport and Resources (DEDJTR). The Operations Plan must include: Environment Management Plan; Well Operations Management Plan; Safety Management Plan.

Other assessments, approvals and licences are required in relation to: environment protection and biodiversity conservation; operating under the Bay of Islands National Park; native title and cultural heritage; flora and fauna management; local planning permit; water management; bush fire safety; and traffic management, among others.

What's in the Environment Management Plan?

The Environment Management Plan will include an environmental impact assessment covering cultural heritage; flora and fauna; landscape; surface and groundwater; geotechnical; air quality; noise; community impacts and consultation. Its preparation will require a risk assessment to be undertaken to ensure that measures will be in place to minimise potential impacts to as low as reasonably practicable.

What about the Victorian Government's Moratorium on onshore gas development?

Drilling from onshore to develop an offshore conventional gas reservoir is not part of the Victorian moratorium.

Will you be hydraulic fracturing ('fracking')?

No. The previous Halladale and Speculant wells and the new Black Watch well target conventional natural gas reservoirs and do not use hydraulic fracturing. Once the well reaches its target destination in the reservoir, the gas will freely flow from the porous Waarre sandstone formations where it has accumulated naturally over millions of years.

Why did you have to apply to the Victorian Government to drill in a National Park?

Previous and new drilling activity will go under the surface of the Bay of Islands National Park at depths up to 900 meters. By law the Park extends to the centre of the earth, therefore Ministerial consent is required. However, it is not expected to have any impact on the surface flora and fauna, nor on geological stability within the park.

Will drilling under the coast line damage the cliffs?

No. Drilling will occur at a great distance below the coast line. Initially the well will be drilled vertically, then gradually decline up to 2km below the seabed toward the offshore down-hole target. The advanced technology used for guiding the drill direction will ensure a great accuracy in reaching the target. Three wells have been successfully completed from the same well site, without any impacts.

Will the drilling impact aquifers?

No. Proven drilling technologies will be used to ensure sensitive zones, such as aquifers, are protected. The staged installation of casing and cement in the well bore and the selection and effective use of drilling fluids will ensure that aquifers are isolated before the remainder of the well is drilled. The cemented casings will ensure separation of the drilling activity from water tables and will maintain the separation of aquifers. The cement will be scientifically tested to ensure rigid specifications are met and reported to the regulatory authorities. This is the same approach for the previous three wells constructed on this site.

What happens when the gas has been depleted?

The Waarre geological formation in the Otway basin is made up of porous sand stone sediments which contain gas created from organic matter over millions of years. The gas is contained in the reservoir by a dense cap rock structure. When a well is created, the gas flows freely. When the gas is depleted, those structures remain in place. A useful analogy is seawater draining through the sands on a beach front. The beach stays in place when the water recedes.

How long will the Project take?

We expect the Black Watch well construction to take around 9 to 12 months to complete. Time lines can change due regulatory approvals, weather conditions, contractor availability and technical challenges that will arise through the Project.

Will it run day and night?

Site preparation works will be done during daylight hours only. The drilling and testing phases of the Project will be 24/7, as the method involves continuous drilling once it has started. Lighting will be minimised to the extent that is possible, given safety requirements on site.

Will the site impact livestock?

The drill site is fenced off to ensure livestock cannot wander onto the site. A livestock impact study was completed for the previous Halladale and Speculant well construction and found that the cattle quickly habituated to the drilling activities and there were no quantifiable impacts identified. Consultation will continue with land holders to minimise possible impacts on farm activities.

Is there a fire or spill risk on the site?

All drilling projects have risks, however these risks are closely managed. The regulatory approvals process requires all possible risks to be identified, quantified, and for each one to have a mitigation and management plan to ensure they are reduced to an acceptable level. The local CFA brigades will be consulted and updated on safety plans.

Will locals and tourists see the drill rig?

Yes. The drill rig will be around 55 metres high so it will be visible for drilling phases. However, the site is around 3.5km away from the Great Ocean Road so any visual impact will be low. We will communicate with land holders, the broader community and tourism operators. In addition, we will place public notices in local newspapers before the drill rig is mobilised and explain that the drilling is a temporary activity.

Will the Project be noisy?

Yes, but only in the immediate area, and only during the site preparation, drilling and testing phases. In addition to the distance from the gas reservoir and other technical constraints, the site has been selected to minimise unavoidable construction and drilling noise during the initial Project phases. A noise study has been carried out at the Halladale and Speculant production well site and confirmed that operational noise does not exceed guideline noise levels near the well site.

Will there be a visible flare?

Yes. Over a one week period, there will be several flaring events of between 4 to 9 hours. Flaring is an ordinary part of the drilling process and is required to remove final drilling fluids and importantly, to measure production and pressure information to assess the well. There will be community consultation to give advanced notice.

Will there be any road closures?

No, the drill site will be on private land accessed from public roads. Curfews for heavy haulage loads will be observed whilst school busses are operating. A traffic management plan will be approved by VicRoads and the local shire council as there will be a large number of escorted heavy haulage loads required to bring the drill rig and equipment to site. During this time, there may be traffic delays. But timings will be planned to minimise impacts and there will be community consultation to give advanced notice.

How many people will be working at the site?

This will vary over the different Project phases. The busiest time is during drilling when there will be between 70 and 120 people on site at different stages. All staff and contractors entering the site must undergo mandatory training which will include safety, environment, and community considerations.

Where will those people stay?

A temporary accommodation camp will be established at a separate site nearby. This will allow the drilling crew to work in shifts. Other workers and contractors will travel to site on a work needs basis and will arrange local accommodation as required.

What will be evident once the drilling is complete?

The well site has established infrastructure including: well heads; pipes and valves; monitoring and safety equipment; and small buildings including a communications room about the size of a standard shipping container, and a small equipment room. The additional Black Watch well will be connected to the existing well site infrastructure. The well site is operated and monitored from the Otway Gas Plant Control Room which operates 24/7. A formal maintenance program is in operation, requiring visits to the site from time to time by staff from the Otway Gas Plant.

Will you be constructing a new pipeline?

No. The Black Watch well will tie-in to the existing well site infrastructure and pipeline.

How will you rehabilitate the site?

Once all drilling has been completed, all gas from the reservoir has been depleted and the wells decommissioned, the site will be rehabilitated in line with the agreement with the land holder.

How will you consult with the community?

We meet face to face with land holders, nearby neighbours and representatives of the Eastern Maar People (the Traditional Custodians), to explain the Project and work with them to identify the best way to manage any impacts. We also consult directly with regulators, relevant government departments and agencies, and local government.

For our local communities, we consult with community representatives, provide briefings at community group meetings, run community drop-in information sessions, email and post out information. All questions, feedback or concerns are considered and responded to.

Before, during and after key Project phases, we provide updates, including advanced notice of heavy vehicle movements and flaring.

Did you know?

The gas industry has operated in the Otway Basin since the early 1960s. It has been a long tradition of naming gas exploration and production projects after historic shipwrecks on the Victorian Shipwreck Coast. Continuing this tradition, Halladale, Black Watch and Speculant are three offshore gas reservoirs named after shipwrecks. The summaries below are extracts from the Australian National Shipwreck Data Base.

The Falls of Halladale ran ashore at Peterborough in 1908. A mist over the land created an optical illusion of a distant horizon. The crew thought the ship was 10 miles off the coast when it was less than one mile away, heading for the rocks and too late to avert disaster. Fortunately, the crew safely disembarked.

In 1867, whilst on a voyage from Adelaide to New Zealand carrying a cargo of potatoes, the schooner *Black Watch* sprung a leak off Cape Otway. The crew abandoned ship after discovering the hold was filling rapidly with water and were rescued the next morning by a steamer on its way to Melbourne.

On a black night with no moon and heavy seas, the *Speculant* was wrecked in 1911 at Cape Patton, east of Apollo Bay. When the vessel struck rocks, the crew attempted to launch the lifeboat, but it was smashed by heavy seas. A crew member took a line to shore, enabling his mates to drag themselves to safety.

