



Decommissioning Ireland's first indigenous gas field

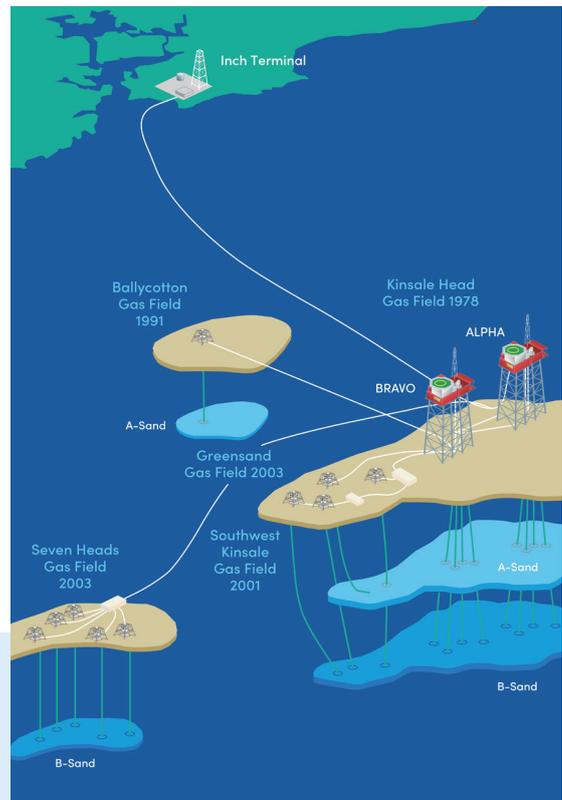
As part of the multi-field decommissioning campaign, AGR completes the platform phase of Kinsale offshore well decommissioning project and is shortlisted for prestigious industry award.

In the first ever well decommissioning project undertaken offshore Ireland, AGR's Aberdeen-based team completed this challenging and major campaign - involving 14 wells across two platforms - safely, on time and under budget.

The skills, breadth of services and experience required to deliver a project of this size and importance, saw our work shortlisted for the OGUK Awards 2021 in category "Excellence in Decommissioning".



Kinsale Alpha



LOCATION

The Kinsale Head gas field, developed by Marathon in 1978, lies offshore Cork in the Celtic Sea in around 400ft of water.

It comprises 14 gas wells, 13 of which were still in production prior to operations.

These were split evenly between the Kinsale Head Alpha (KHA) and the Kinsale Head Bravo (KHB) platforms, the latter being a normally unmanned installation (NUI).



THE CHALLENGE

A rare set of abandonment difficulties to overcome

This was a large-scale platform decommissioning project that presented an unusual set of serious challenges.

Limited infrastructure

The platform drilling rig and all legacy drilling equipment had been long since removed from the 40 year old Kinsale Alpha and Bravo platforms, and additional storage and process related equipment subsequently installed onto the top deck. As a result the units had very little usable deck space.

Another complication was the lack of any accommodation on the Bravo platform. The combination of platform design, water depth and the seabed conditions meant a jack-up wasn't suitable and so a rigless abandonment strategy was needed.

An ageing wellstock that demanded a rigorous integrity review

AGR was initially contracted by PETRONAS subsidiary, PSE Kinsale Energy Limited (KEL) to carry out an independent well integrity review and to then provide the conceptual abandonment strategy for the field. Due to the age of the platform wells, a series of detailed reviews of design criteria, well pressures and well integrity were also required, in addition to numerous site evaluation visits.

Pandemic causes delays

The Covid-19 pandemic meant the project start date was delayed by several months. Initially, the plan was to complete platform operations in time to allow the team to transfer to the subsea well abandonment phase of the field decommissioning.

However, the delay to the start date meant a large part of the operation had to be completed during winter. This meant it overlapped with the start of the subsea campaign.

Complex scheduling of operations

The team had to plan out the most efficient schedule to abandon the 14 wells with differing abandonment requirements across both platforms, interfacing with platform utilities and restricted bed space requirements, and ongoing topside operations.

Further complexity to the schedule came with the requirement for parallel operations – necessitating two full operations teams for a considerable period, and the contracting of an additional workover unit.

The project was also executed as part of a field-wide decommissioning scope that included a subsequent subsea campaign with subsea well abandonment planning also performed concurrently by the AGR Wells Team.



Kinsale Bravo

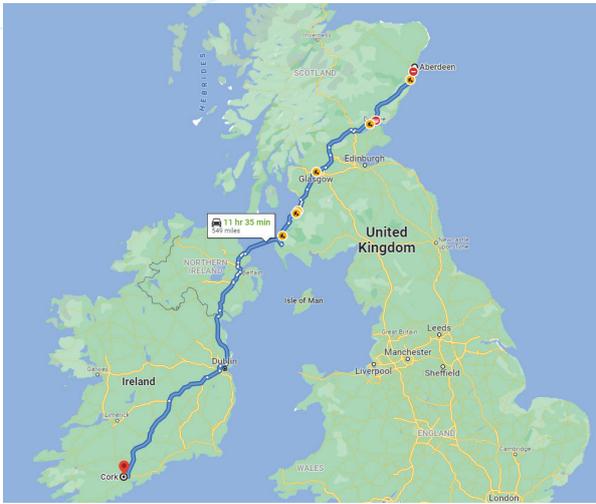


Constantly changing Covid-19 and Brexit regulations

→ With the UK and Ireland in various states of lockdown from project start to completion, agility, flexibility and swift decision-making was key in keeping up with constantly changing government regulations. To complicate matters further, midway through the project, Brexit resulted in changes in customs requirements.

Location and supply chain

→ A limited 'in-country' supply chain meant that equipment had to be mobilised from Aberdeen, either by vessel (taking 2.5 days) or by truck (taking approximately 12 hours).



Road/ferry route Aberdeen to Cork



Vessel route from Aberdeen to Cork

THE SOLUTION

A comprehensive strategy delivered by proven experts

Meeting the combined need for high operational performance and cost effectiveness was going to depend on skillfully managing a number of factors.

Early engagement was vital

By engaging with the client early our team had full visibility of the project and could develop a comprehensive strategy, which included a variety of contingency options.

From the word go we held regular sessions with key vendors to assure their capabilities and understanding of the challenge while focusing on optimising the abandonment design. We also visited the site numerous times to work with platform personnel to carry out equipment and deck planning.

A tailored solution

Although a 'bundled service' approach is commonplace in many oilfield projects and in some scenarios is more convenient, in this case it would have been significantly more expensive - nor would it provide access to the most effective solutions or combinations of technologies and equipment needed. The optimal technical and commercial solution ultimately selected, was considerably lower in cost than the bundled service, as established through performing a full services tender.

Collaboration throughout

Close collaboration between AGR, KEL and all service partners would be crucial to the outcome of this project. Our team worked closely with KEL throughout, holding regular meetings at the client office in Cork and in Aberdeen, where KEL's Well Engineering Manager was based for critical planning periods.

Once contracted, AGR's key vendors worked closely with this planning team to ensure relevant technologies and potential solutions were recommended as we worked towards the finalised abandonment plan.



Regulatory support

- The Irish regulatory body (CRU) had no previous experience in this type of decommissioning work and so, in the absence of specific regional requirements, we utilised the OGUK Decommissioning Guidelines.
- Our team of compliance experts supported KEL throughout the process and fully engaged with the Irish regulator. This eased the transition between the production and decommissioning phase and ultimately enabled regulatory compliance and Safety Permit award.

Experience and learning in decommissioning

- As it often does, our experience proved key. Having successfully completed more than 550 well campaigns worldwide, we were well positioned to deliver this complex project.
- We followed our trusted Well Abandonment Delivery Process, which is the foundation for all our planning and execution campaigns. The process is built on industry best practices and expertise we have accrued over three decades.
- We successfully exported our experienced UK team to deliver the abandonment design, planning, contracting, regulatory compliance, execution and wrap up the project in a safe and timely manner.



0
LTI's



30
years in
business



6
continents



200+
wells
decommissioned

THE OUTCOME

Setting the standard for Ireland's future decommissioning

Despite the challenges faced in this project, the outcome has set a precedent for future abandonment operations in the region.

Delivered safely, on time and under AFE

- The project was successfully completed on time and under the Authorisation for Expenditure (AFE) figure.
- Our teams achieved an outstanding QHSE performance and in full accordance with regulatory requirements.
- Through 355 days of continuous operations across both platforms the following HSEQ achievements were recorded:

0 reportable incidents
or minor injuries

0 spills or
environmental impact

100% chemical
permit compliance

Unique service design and collaboration ensures success

A carefully designed project plan, which maintained excellent collaboration with the client and vendors throughout, ensured limited platform infrastructure, Covid-19 delays/uncertainty, and Brexit-related challenges were all overcome.

In addition, our team utilised innovative and cost-effective methods, such as hydraulic workover units (HWU) and 'Perf & Wash' technology as an alternative to conventional milling. This helped us deliver the project under budget.



Engineering innovation flourished

Through close collaboration with KEL and key vendors, several engineering innovations were implemented, improving the safety and efficiency of the project. This included designing and manufacturing a bespoke pipe storage facility on-board and a structural solution which allowed the casing cut at seabed to be removed as part of the platform decommissioning.

A tailored solution

The sequence of operations was split into three phases to achieve maximum efficiency. First, the wells were suspended, then plugged before the casing and conductor were cut. This approach optimised equipment and personnel utilisation, allowed for the immediate implementation of lessons learned and provided significant cost savings by delaying the use of the HWU until necessary.

No logistical delays

Extensive logistics planning and communication with suppliers made sure that delays and disruption were largely avoided, in spite of the challenges created by the global pandemic and Brexit. The project was delivered while adhering to stringent Covid-19 guidelines, resulting in no positive tests recorded offshore.

Continuous learning to enhance performance

→ Despite the accelerated nature of the programme, we implemented lessons learned 'on the job', to save further time and cost for the client.

→ Examples included:

- Identifying specialist nipple set plugs (rather than permanent plugs), removing the requirement for additional tubing cuts.
- Reduced pressure testing requirements based on actual observed reservoir pressures, thereby reducing stress on the well envelope.
- Load-out and equipment installation was optimised based on early learnings in the project, reducing the number of lifts and improving safety.
- Through performing cement bond logs prior to abandonment, the remedial cementing design was adjusted to maximise use of existing annular cement in place.
- Redesign of platform equipment was carried out to reduce skidding times between wells.
- Reduced casing cutting times by identifying a more powerful unit and improved cutter technology.

"We would not have got to this point without the huge effort put in by the entire AGR team and I would like to recognize this and thank everyone for their contribution and dedication in achieving this. Operations have been carried out safely and efficiently reflecting the positive attitude and enthusiasm which you've all brought to the job.

So, thanks to all and well done."

Mike Murray

Head of Engineering & Projects
PSE Kinsale Energy Limited