

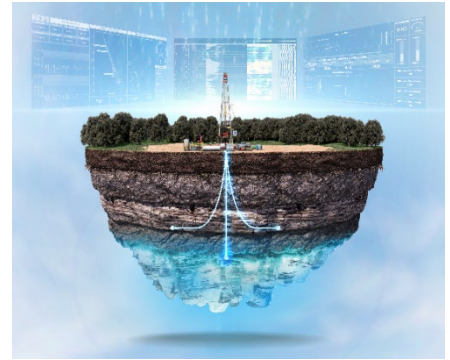
Integrated Services Planned, Engineered, and Managed a Project That Intercepted and Remediated a Poorly Abandoned Well On UK Mine Site

Objectives

- Drill, intercept, and remediate a previously drilled well (2013) that posed a significant health, safety, and environmental (HSE) and financial risk to impending mining operations. The original borehole was drilled in the location of a production mineshaft with 918 ft (280 m) of uncemented open hole with a bottomhole assembly (BHA) fish inside.
- De-risk the shaft sinking operations by closing the possible fluid pathways through intercepting, then cementing, the original borehole.

Our Approach

- The Weatherford ISP team were approached to assist with the planning and coordination of drilling activities (excluding rig and wireline ranging) of an intercept well at a mine site. In close collaboration with the operator's engineers, the ISP team created a detailed plan to provide the best chance of ranging and intercepting the offset well.
- Through early engagement with the operator at the planning phase, the engineering scope was developed to overcome significant challenges that were observed in offset wells, including hole instability, accidental sidetracks, and stuck and lost BHAs.
- A key feature was the use of the CENTRO platform, the energy industry's most advanced well construction, operations-driven solution that provides exceptional collaboration, enhanced transparency, and advanced agility for all asset procedures and processes.
- The plan involved drilling mapping wells followed by interception sidetracks. All new drilling activities included both conventional and new technology from Weatherford as well as a separate third-party contractor already in place.
- In addition to Weatherford, third-party suppliers were used to bring all the drilling services required to drill, remediate, and abandon the well under one contract. Cementing, fluids, bits, mudlogging, and plugs and packers were sourced and project managed by the Weatherford ISP group.
- The initial mapping well to identify offset wells and the location of the fish to range against was completed using 10 BHAs to a measured depth (MD) of 3,458 ft (1,054 m) before cementing and sidetracking for an additional mapping well.
- A total of 4 BHAs were deployed to map Well 2 and, following extensive ranging on both wells, the plans and intercept targets were aligned for the maximum chance to intercept the offset well on the first attempt.



The CENTRO platform is the ultimate well construction command center for flawlessly optimized wells. It delivers an end-to-end solution that seamlessly integrates all well data for advanced multi-domain viewing and real-time analytics for all rigsite operations.

LOCATION

United Kingdom

WELL TYPE

Onshore, directional

HOLE SIZES AND ANGLE

17-1/2, 12-1/4, and 6 in., maximum angle: 28° inclination

DEPTH

5,662 ft (1,726 m) drilled in 1 donor well with 4 sidetracks

PRODUCTS/SERVICES

- Integrated Services and Projects (ISP)
- CENTRO® Well Construction Optimization Platform
- Drilling services
- Tubular running services
- Fishing and re-entry services
- Drilling rental tools
- Cementation products
- Real-Time Operations Centre



Integrated Services Planned, Engineered, and Managed a Project That Intercepted and Remediated a Poorly Abandoned Well On UK Mine Site

Our Approach (continued)

- The second sidetrack continued to run frequent ranging tools on wireline to confirm the well path against the estimated interception point. After the seventh BHA, the interception of the offset well below the fish was confirmed. The well was cleaned out to the original total depth (TD) with a bullnose bit and cemented as per plan to complete the objective of fully cementing the original well below the fish.
- An additional two sidetracks were drilled to intercept the wellbore above the fish, totaling a further 24 BHAs to drill, intercept, and remediate the original wellbore successfully.

Value to Customer

- The Weatherford ISP team successfully managed the third-party suppliers and operations to deliver the entire scope—from planning through execution—with minimal nonproductive time (NPT) across all services under the Weatherford contract.
- The vendor-neutral nature of the CENTRO platform promoted cohesive collaboration between all parties and yielded best practices and continuous performance improvements throughout the entire operation.
- The commercial solution negated the need for the operator to conduct a lengthy and costly tender exercise with multiple vendors, then issue and manage multiple contracts.
- The technical solution proposed for the intercepts ensured the operator could progress with the shaft sinking operations. This saved the operator the expense of redesign and relocation of the mineshaft in an environmentally sensitive area.



With the best-fit project delivery model, goal-oriented service integration, and customer-centric project management, Weatherford Integrated Services serves as an extension of a customer's taskforce and partners in the overall success across well construction, production, and abandonment.

