Milling 1,500 ft of Existing Cement Casing Saves USD 340,000 in Intervention Costs

Deploying Jet Blaster service and 4¾-in positive displacement motor helped prepare leaking, low-integrity wells for permanent abandonment.

**CHALLENGE**
Mill 1,500 ft of cement in 9½-in casing with CT in two wells with poor cement integrity and gas leak.

**SOLUTION**
- Use 4¾-in positive displacement motor (PDM) to mill cement in 9½-in casing under pressure control.
- Deploy Jet Blaster* engineered high-pressure jetting service to clean casing side after milling using the 2¼-in tool.

**RESULTS**
Reduced rig intervention costs after successful milling to prepare the well for permanent abandonment, saving the operator approximately USD 340,000 within one month between both wells.

**Gas leak in abandoned well**
An operator in the United Kingdom who acquired an existing asset needed to address a gas leak in two onshore wells with poor cement integrity. The operator detected a gas leak through the steel plate welded to the 20-in casing.

The wells were originally drilled to TD at 3,620 ft below the rotary table and cased with 9½-in casing. Based on the limited information available, the operator was unable to determine whether the casing strings were concentric in the well. Also, the 9½-in casing was cut at 485 ft below the rotary table to attempt to pull the casing by the previous operator. Well schematics identified a 19-ft gap in the casing string at this level and indicated a potential drop in the casing below.

**Larger PDM to mill out abandonment plugs**
The operator collaborated with Schlumberger to create a customized solution for the gas leak. The team used a 4¾-in PDM with an 8½-in bit to mill out the abandonment plugs under pressure control with a CT unit. The 2¼-in tool with the Jet Blaster service was then used to clean the casing side and two retrievable bridge plugs were set for each well prior to mobilizing a workover rig to abandon the wells in compliance with current Oil & Gas UK guidelines.

**Collaboration to eliminate gas leak**
The collaboration between Schlumberger and the operator reduced rig intervention costs by an estimated USD 340,000 within one month. The operator also removed the existing poor-integrity cement, enabling proper abandonment of the wells per regulations.

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A 4¾-in PDM with an 8½-in bit was used to mill out the abandonment plugs with a CT unit, and the wells were prepared for proper permanent well abandonment.