

Expro Excellence

Thermite punch intervention enables low enthalpy geothermal production to be optimized

Well Intervention & Integrity



Objectives and background

- Our client operates an innovative low-enthalpy geothermal network that harnesses energy from abandoned coal mines, accessed via boreholes completed with 7 in slotted liners
- This geothermal energy is used at nearby domestic and commercial premises
- One of the boreholes experienced a decline in production, falling below the minimum requirement of 150 m³/hour. The issue was identified as poor inflow performance from a particular interval in the 7 in slotted liner
- Expro was engaged to provide a solution to optimize production of the borehole through the restoration of in-flow performance

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- Expro's solution involved increasing the flow area within a 30 cm target interval of the 7 in slotted liner
- This was achieved using an E-Line-deployed Thermite Punch system to create an additional 6 in² of flow area. Explosive punches were avoided to minimize the risk of damage to the surrounding mine structure around the borehole
- Three Thermite Punch runs were conducted within the target interval
- A Downhole Video Camera was deployed following the Thermite Punch operations, confirming successful punch placement. This also verified that the additional flow area created exceeded the initial target by 100%

Value to the client

- The client successfully optimized production from their low-enthalpy geothermal borehole by increasing the flow area by 12 in² in the target interval
- This intervention assured a continued geothermal energy supply to nearby domestic and commercial premises
- Expro's Thermite Punch solution effectively minimized the risk of damage to the surrounding abandoned coal mine structure

