

Expro Excellence

Expro expertise supports testing for UK's first geothermal power plant

Geothermal | Well Flow Management | Fluids



Objectives and background

- The United Downs Deep Geothermal well project will deliver the UK's first geothermal generated electricity, as well as district heating, and enable sustainable, low-impact lithium extraction
- Geothermal Engineering Ltd (GEL) required Expro to capture representative samples of high temperature geothermal fluids and establish their composition
- Detailed analysis was needed to:
 - o Aid design of the geothermal power plant
 - o Confirm the presence of lithium and suitability for extraction
 - o Identify any risks to personnel or facilities from corrosion and scaling
 - o Verify absence of hydrocarbons
- Historic samples were not representative, and existing data for the fluid composition was incomplete
- Expro were able to offer a bespoke service, based on our substantial expertise and experience in the capture, handling and analysis of fluid samples
- With full chain of custody, Expro offered sample management from the wellhead to our ISO accredited water laboratory

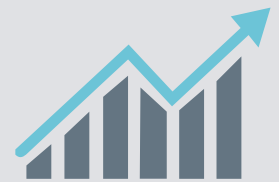
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- Expro developed unique sampling procedures to meet requirements for the project, working with multiple stakeholders to identify key objectives
- Our tailored approach safely delivered high temperature, single phase wellhead sampling, ensuring samples remained valid up until time of analysis
- Expro safely and efficiently delivered this high-profile, first-of-its-kind project in the UK with zero NPT and 100% Job Performance
- Despite very low Gas Water Ratio (GWR), Expro's experience in handling pressurized fluids effectively obtained representative sub-samples and complete an extended suite of analysis of the water and the entrained gas

Value to the client

- Expro's analysis enabled GEL to report some of the highest concentrations of lithium measured globally in geothermal fluids to date
- Measurements indicate that zero-carbon, low impact production of battery grade lithium, a key component of the UK's clean energy ambitions, will be possible
- Extraction efficiencies of 95% are expected thanks to low concentrations of interfering ions, such as magnesium, found during Expro's testing
- Our analysis of the fluid composition informed the subsequent tender and design of the power plant, and plans for corrosion and scale monitoring
- GEL expect to produce enough green electricity to power 45,000 houses, and district heating for local homes and businesses

Enhanced production



Lower carbon footprint



Insight

