Expro Excellence

Innovative solution for Hydrogen sampling in Colombia

Well Flow Management | Fluids Sampling and Analysis

Objectives and background

- Natural hydrogen is a fascinating, naturally-occurring gas generated in specific geological settings. Recent sub-surface studies in Colombia have shown promising indicators of this valuable resource. Tapping into natural hydrogen presents an exciting opportunity for the country, paving the way for a more sustainable energy transition
- White hydrogen, also known as natural or geologic hydrogen, is formed through natural geological processes. It is found underground in pockets and can be extracted through drilling. This promising new energy source could significantly contribute to reducing carbon emissions
- A forward-thinking energy operator in Colombia is keen on producing cleaner energy and strongly believes that hydrogen will be key to their progress
- The operator identified several potential sites and sought a solution to perform sampling and hydrogen measurements
- The primary goal of this project was to closely monitor, capture, and analyze soil vapor gas from various locations to confirm the presence of hydrogen
- With a broad initial scope, Expro was invited to use its expertise in sampling and analysis to collaborate with the operator and develop a comprehensive approach

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- To address the challenge, a solution was required to monitor and collect sufficient, representative samples from the surface ground level to a depth of around fifteen feet
- Analyzing these samples would identify the extent of hydrogen present in different locations and provide valuable insights into the soil composition
- Expro worked closely with the customer to determine the best approach for soil vapor management and H_2 isotopic analysis
- The team developed a specialized sampling device and protocol to ensure representative sampling and maintain sample integrity for both on-site and laboratory analysis
- Expro implemented a cutting-edge methodology, seamlessly integrating various technologies to ensure smooth and trouble-free operations
- Over 50 samples, including gas and water, were collected and analyzed, providing a comprehensive dataset

Value to the client

- Expro's innovative solution for sampling and analyzing hydrogen-rich gas samples proved invaluable. The patented approach delivered representative samples, and subsequent analysis allowed the client to map the hydrogen distribution across their fields. This mapping identified several hotspots for further evaluation and exploitation
- The successful production of naturally occurring hydrogen will significantly aid Colombia in its transition to lower carbon energy generation and help achieve its net-zero ambitions

Lower carbon footprint

Partnership