

CASE HISTORY

SDI SUCCESSFULLY RE-DRILLED WELL USING NEW ACTIVE RANGING SYSTEM

APPLICATION

Steam Assisted Gravity Drainage (SAGD)

TECHNOLOGY

MagTracer - Active Ranging System, Sci-GAIN™, and Pressure While Drilling (PWD)

LOCATION

Northern Canada

CUSTOMER CHALLENGE

The customer was challenged with a downhole casing failure that compromised production from a SAGD well pair in Northern Canada. Steam from the upper injector well broke through to the lower well, causing failure to the producing well. To regain production, the customer requested a re-drill of the producer well. While drilling, the customer also identified that the size of the compromised section was greater than initially expected, resulting in the further need to modify casing blank placement to inhibit future steam breakthrough.

SCIENTIFIC SOLUTION

Scientific Drilling was chosen to directionally drill the producer well with a complex BHA that included our Sci-GAIN™ and Pressure While Drilling (PWD) Systems. To accurately place the re-drilled producer well, SDI utilized the MagTracer - Active Ranging System and logging while ranging temperature and pressure sensors in the injector well. PWD was used to monitor the re-drilled wellbore and logging while ranging tools were used to ensure pressure was not compromising caprock integrity. This provided the customer with real-time data that was not previously available. Because the MagTracer offers multiple communication lines, any number of cased hole logging sensors or systems can be run in combination. As a result, SDI deployed a downhole assembly on wireline in the cased wellbore that provided a ranging signal, logged temperature complete with redundancy and provided pressure data using common wireline conveyance systems. The information obtained enabled the customer to reevaluate the current liner program, proving the current plan was not optimal.

CUSTOMER VALUE

With the customer receiving continuous active ranging data, they gained invaluable information describing the steam chamber and was assured the caprock integrity would not be compromised due to drilling pressure. Due to the MagTracer's high temperature rating, the need to cool the ranging instruments with water was not required. This eliminated the costs associated with cooling equipment, allowing production to resume faster. Since the well had not been cooled with pumped water, true formation temperature was logged through the lateral. In addition, the risk of casing and tubular contraction commonly associated with pumped cooling water was eliminated. The temperature profile that was collected and displayed in real-time, from both temperature systems, enabled the customer to accurately diagnose the downhole condition of the steam chamber and liner. Active ranging allowed for accurate placement of the newly drilled producer well at the desired separation. Based on logs collected while ranging, the customer increased the number of blank liner joints to be run, ultimately increasing the production life of the newly drilled producer well.

