



Post-CHOPS Well Test Centre

Overview

The Post-CHOPS Well Test Centre is a fee-for-service facility led and managed by SRC that provides field and pilot-scale testing, monitoring and validation of new Post-CHOPS technologies using end-of-life, but still active, CHOPS wells. The Centre is an attractive commercialization route for technology providers as it reduces cost, risk and time from technology development to market. For industry, de-risking and pre-validating technology will allow them to move quicker into full-scale commercial piloting.

CHOPS Production

Most of the heavy oil in Saskatchewan is produced using a production technique known as Cold Heavy Oil Production with Sand (CHOPS). Thousands of CHOPS wells are coming to the end of their useful life, having produced only 7 to 10 percent of the Original Oil in Place (OOIP), leaving hundreds of millions of barrels of heavy oil in the ground.

The CHOPS production process relies on developing long, thin production channels in the reservoir, which are called wormholes. A mature CHOPS well may have many wormholes extending away from the well, creating a complex root-like structure that extends hundreds of meters into the surrounding reservoir.

TEST CENTRE PROCESS

POST-CHOPS TECHNOLOGY



EVALUATION

Low-cost selection, fast-to-fail, stage-gated process



WELL TEST

Test well best suited for technology type



VALIDATION

Independent, third-party assessment and validation



INDUSTRY ADOPTION

The CHOPS Challenge

While wormholes are central to the success of CHOPS wells, they bypass the majority of oil around the producing well, making subsequent production of the remaining oil very difficult. The challenge is to develop and commercialize Post-CHOPS technologies that can use existing wells to produce more of the remaining oil left in the reservoirs.

Industry needs new, innovative and field-ready Post-CHOPS technologies to be brought forward by industry technology developers and small-to-medium enterprises. These technologies must be technically and commercially viable, as well as environmentally sustainable. Technology developers require access to low-cost, readily available, lower risk, pre-commercial field trial opportunities.

The Reward

Between Kindersley and Lloydminster (along the Alberta-Saskatchewan border), there is estimated to be about 26 billion barrels OOIP in Saskatchewan alone. According to the Saskatchewan Ministry of Economy, primary production is expected to leave 23-24 billion barrels unproduced. An increase in heavy oil recovery from 7% to 20% of the OOIP would represent over 3 billion barrels of additional reserves.

For industry, this offers the opportunity to significantly extend the lives of their existing reservoirs, largely using their existing well stock, while increasing both production and reserves.

Benefits of the Well Test Centre

The facility accelerates field-scale development and adoption of new Post-CHOPS technologies by:

- Providing assessment and validation of technologies during the field trial process, including assessment of techno-economic performance, field readiness and environmental sustainability
- Reducing technological risk for end-user operators; provide a detailed risk and mitigation assessment, allowing operators to move quickly from commercial pilot trials to commercial-scale adoption
- Facilitating the industry sharing of results proven in the field speeds up wide-scale adoption of the technology, for the economic benefit of all stakeholders

The Three-Stage Process

1. SRC assesses the technology and, with the technology provider, performs an initial techno-economic analysis to gain project sanction and royalty credit support from the Saskatchewan Ministry of the Economy. Potential field trial well operators are then engaged. At this point, additional funding sources may also be identified, as required, for the trial.
2. The operator puts forward a well for the technology field trial. SRC works as a facilitator with the operator and the technology provider to design the field trial. SRC provides monitoring and assessment support during the execution of the field trial.
3. SRC facilitates the gathering of all relevant field trial data, including production results, to create a comprehensive, validated data set and report to be used by the technology provider, operator and other stakeholders in order to develop the next stages of commercialization.

Post-CHOPS Well Test Centre Funding

The Saskatchewan Ministry of the Economy is supporting the Test Centre by allowing producers/well operators who provide test-site wells and who meet the criteria to access an existing royalty initiative that will temporarily adjust the royalty applied to other wells operated by the producers. The owner or licensee of the well maintains ownership of the well throughout the process and is expected to assist the testing process with reasonable in-kind field support (as agreed upon with the technology provider and SRC).

The technology provider is expected to provide the field test technology free of charge to the operator and at site ready for operation. However, they may be able to recover part of their field-trial costs from third-party provincial and/or federal funders. SRC may assist in facilitating discussions for the technology provider with such prospective funders, where appropriate.