



Basin Analysis and Sequence Stratigraphy (BASS) Technical Division

2021-22 Western Canada Activity Review: Recovery and Green Shoots

Speakers: Chris Podetz, W. Steven Donaldson, Jeffrey Horton and Meridee Fockler - Canadian Discovery Ltd.

Location: Online

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ABSTRACT

The havoc wreaked by COVID-19 continued through 2021, but signs of recovery became stronger as the year went on. Vaccines were distributed, people and companies adapted, and the world slowly started to do business again. For the energy industry, increased demand meant rising commodity prices, resulting in increased drilling and production activity. Oil prices (WTI) have been on a tear since November 2020, steadily rising from about \$48 US in January 2021 to a high of \$84 US in November, before exiting the year just north of \$75 US. WTI exploded to \$118 in early March 2022 in response to supply uncertainties triggered by the Russian invasion of Ukraine. Where it will go for the rest of the year is anyone's guess. Natural gas prices (AECO) rose steadily, although erratically, from \$2.37/GJ in January to over \$6.00/GJ in October, before exiting the year near \$3.75/GJ. The AECO price rose in Q1 2022 averaging around \$4.50.

Drilling in the WCSB returned to pre-pandemic levels midway through 2021, following the historically low spud count from March onwards in 2020. The Upper Mannville Colony to Lloydminster and Clearwater zones took the top spots for both spud count and total number of metres drilled in 2021 with the Montney following. The Upper Mannville heavy oil zones and the Lower Mannville Dina/McMurray heavy oil/oil sands zones enjoyed the largest percentage increase from 2020 to 2021 in spuds and metres drilled. Baytex's new and rapidly growing Grand Rapids heavy oil play at Dawson/Peavine shows that there are still discoveries to be made.

A look at the top 10 total three-month cumulative BOE production volumes for zones and operators from 2020 to 2021 is informative. The Montney reigned supreme in both years, and was up 43% in 2021, while Colony to Lloydminster and Clearwater production was up over 100%. Montney-focused companies (Tourmaline, Ovintiv, ARC) topped the operator list. Montney-focused operators had the highest percentage increases in production.

Historical Crown land sale bonus trends show the malaise that has gripped Crown land sales over the past three years. Though 2020 was particularly bad as BC and Alberta suspended sales for much of the year due to COVID, 2021 was not a banner year either, despite a better start. Alberta resumed its Crown land sales in November 2020, and held a full slate of 2021 sales. BC held only two Crown land sales (February and May), and has not offered parcels since due to ongoing land-use negotiations with the Blueberry First Nations in NE BC. On a



related note, the province has also not licensed any new wells since July 2021. Saskatchewan maintained its bi-monthly sales and Manitoba, its quarterly sales.

Things progressed rapidly on the clean tech front in 2021 as well, particularly with respect to carbon capture and sequestration (CCUS). In May, the Alberta government announced a competitive process to govern the issuance of carbon sequestration rights with the goal of developing strategically placed hubs. Hub operators would sequester CO₂ from multiple industrial sources. In September, the Saskatchewan government announced its priorities to advance private sector investment. These include CO₂ pipelines; the EOR royalty regime; clarity around who owns pore space and the long-term obligations and accountability for CO₂ storage.

Also in November, Alberta released its minerals strategy and action plan that covers a variety of industrial minerals. Of particular interest are the minerals that can be recovered from oil field brines and oil sands processing, including lithium and rare earth elements. In Saskatchewan, Prairie Lithium had its (and possibly Canada's) first well drilled solely for lithium brine completed in September with some of the highest brine concentrations in the country. BC continues to develop lithium resources with testing programs and industry/government partnerships.

On the geothermal front, the DEEP project at Tableland in southern Saskatchewan moved ahead with testing and delineation drilling, and DEEP signed an agreement with Prairie Lithium to exchange subsurface mineral rights. The Clarke Lake geothermal project in BC (now called Tu Deh-Kah Geothermal), owned by the Fort Nelson First Nation, drilled two full-size geothermal wells during the summer, confirming reservoir temperatures of 120°C or higher.

BIOGRAPHY

Chris Podetz (P.Geol.) is an Exploration Analyst with Canadian Discovery with almost 20 years experience in the Canadian oil patch. His current specialty is in researching new developments in the Montney and Clearwater. Chris holds a B.A.Sc. in Geological Engineering from Queen's University in Kingston, Ontario.

W. Steven Donaldson is a professional geologist (P.Geol.) with 23 years of experience and is currently an Exploration Analyst with Canadian Discovery Limited (CDL). Here he writes articles for the Discovery Digest publication with a recent emphasis on low carbon opportunities and clean technology. Steve earned his Ph.D. and B.Sc. Honours degrees in Geology from Western University in London, Ontario.

Jeffrey Horton has been with Canadian Discovery since his internship in 2012, working as an analyst on the Well Completions and Frac Database. After graduating from the University of Calgary in 2014 with a bachelor's degree in Chemical Engineering, Jeffrey transferred to his current role of writing technical articles for the Canadian Discovery Digest. His research and analysis focuses on hydraulic fracturing operations in Western Canada, and correlating completion designs and development strategies to well productivity.

Meridee Fockler joined Canadian Discovery in 2005 and has worked on the Discovery Digest and the consultancy sides of the business. Currently, as Technical Analysis Director, she is responsible for managing the Digest, developing and editing the content, as well as playing a



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key role in data management with GIS personnel to streamline geological mapping techniques. In addition, Meridee has coordinated several integrated geoscience consulting projects and studies. She graduated from the University of Saskatchewan with a Bachelor of Geological Engineering and from the SAIT with an Applied Bachelor of GIS.