Nordegg Geochemical & Reservoir Properties Study 1
Fox Creek

Trican Geological Solutions is proud to offer our Nordegg Geochemical and Reservoir Properties Study 1 (Fox Creek).

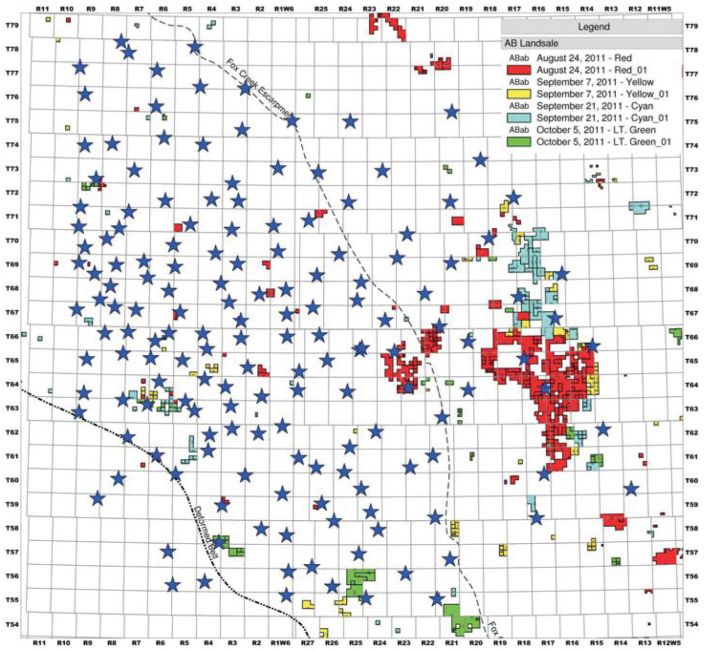
Muskwa Geochemical Study 1 - Hamburg

Cores from nine wells and cuttings from 159 wells have been analyzed to provide a geochemical and rock properties data set for the explorer of the Nordegg Formation in the Fox Creek area of Alberta. The focus of the study is the light hydrocarbon potential of the Nordegg Formation shales. The study includes the complete geochemical dataset, downhole organic content and mineralogical profiling in corewells, full TOGIP and OOIP modelling and integrated petrophysical modelling with the dataset. In addition to the analytical modelling data sets, a series of maps (isopach, structure, production, TOC distribution, and maturity trends) and 25 cross sections were generated to outline the variation in stratigraphy, define the carbonate boundaries and highlight the trends in the geochemistry. The mapping also includes user defined boundaries of Nordegg top, bottom and subunits of over 350 wells. A minimum of two samples per well location have been tested. All data is new and generated by Trican Geological Solutions. Samples have been hand-picked from archived cuttings and core. Quality assessment has been made on each analysis by Trican Geological Solutions Technical Advisors. The final product consists of a comprehensive report with data interpretation and geological mapping.

Analyses include source rock analysis (SRA), S1 - free hydrocarbon compositional analysis, mineralogy by XRD, pulse decay permeability, porosity, mercury porosimetry, adsorption isotherms, TOGIP and OOIP modelling, petrophysical interpretation and mapping (includes x-sections, TOC, Tmax).

Deliverables:

The combined analyses represent a value of over $700,000.



SRA analysis: Where is the Nordegg relative to NGL's and the oil window? Do these shales have the potential capability to produce and store light hydrocarbons or dry gas? Where is the total organic carbon distributed?

SRA analyses provides Tmax (thermal maturity - indicates the level of maturity with respect to the oil window), TOC (Total Organic Carbon) and Kerogen Type (Type I, II or III kerogen).

S1 analyses: Can we predict the presence of oil or light hydrocarbons? Can we correlate the maturity with hydrocarbon compositions?

S1 analysis is a method to analyze the composition of existing free hydrocarbons in the rock. Even with archived core, significant quantities of hydrocarbons remain allowing for compositional analysis in the C6-C40 range.

XRD analyses: What is the mineralogy of the Nordegg? How is the quartz distributed and what is the relationship to TOC? What is the relationship between the TOC and the bulk mineralogy? Does this provide a high-grading of the landsale blocks?

XRD analysis and calculated quantitative Rietveld data:
Bulk Mineralogy - indicates the total mineral assemblage
Quantitative Mineralogy - reitveld analysis is used to determine relative weight percent of each mineral
Mineral Trends - indicates relationships between various minerals and the relationships between organic carbon and various minerals

Sorption capacity, TOGIP and OOIP modelling: What are the hydrocarbon resources per section? What variables are important?

New and unpublished Bustin et. al. adsorption isotherms from the Nordegg Formation core have been integrated into this study to determine gas (TOGIP) and oil (OOIP) capacities. Various runs modelling total gas, including free, sorbed and solution gas and oil saturation variables using Trican Geological Solutions proprietary analytical software are included to evaluate the light hydrocarbon potential. Variables used include ranges in porosity, reservoir temperature & pressure, gas compositions, oil gravity and sorption capacity.

Pulse Decay Permeability (PDP): What is the true system permeability of the rock?

PDP is run under multiple net effective stress conditions to determine the true permeability of the rock under reservoir conditions. PDP is run on core plugs and captures the variability within the rock to determine the true permeability for modelling.

Porosity: What is the storage capacity for free gas and liquids?

A series of porosity measurements have been made to determine the range of porosity within each core well. Porosity is the key to determining the rock storage capacity and is used to calibrate porosity logs.

Mercury Porosimetry: What is the pore structure of the rock? How do the pore size distributions change?

Mercury porosimetry highlights the variability of pore size ranges within the formation and also provides a total porosity value relative to mercury under high pressure.

Mapping: What is the distribution and thickness of the Nordegg Formation? What are the trends in maturity?

Mapping of the Nordegg Formation in the Fox Creek area includes 25 cross sections (strike and dip to structure), isopach, structure, TOC distribution and Tmax variation throughout the study area.

Final Data
Final data reporting includes Excel tables of all data and an interpreted report displaying trends in maturity, organic content, mineralogy, TOGIP (total orginal gas in place) and OOIP (orginal oil in place).

Conditions:
A confidentiality agreement will be required to restrict transfer of data to outside parties. Data remains the property of Trican Geological Solutions.

TRICAN

Corporate Head Office
621 – 37th Avenue NE
Calgary, AB, Canada T2E 2M1
P 403.250.5582
E geology@trican.ca
W TricanWellService.com

United States
5825 N. Sam Houston Parkway West
Suite 600, Houston, Texas 77086
P P +281.716.9152
E geology@trican.ca
W TricanWellService.com