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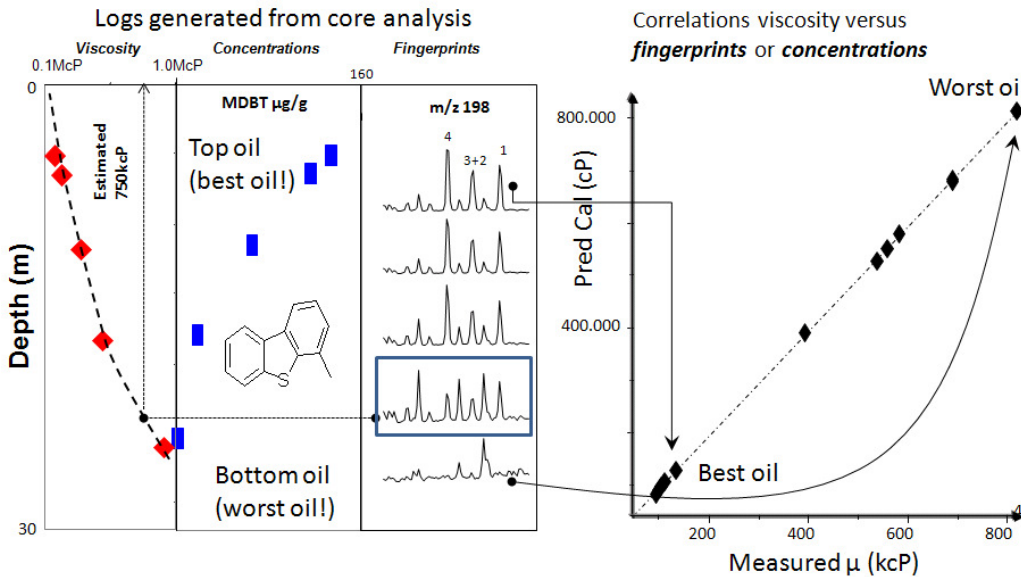
# Gushor Inc. Newsletter



## The Benchmark for Geochemists: Establishing Baseline Data Sets from Q<sup>2</sup>-comp and Oil Viscosity!

By: BARRY BENNETT, DIRECTOR OF GEOSCIENCE TECHNOLOGY – GUSHOR INC.

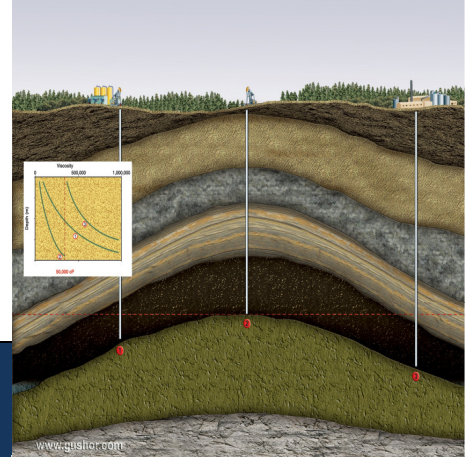
Surveyors employ the benchmark to serve as the "bench" for a leveling rod, thus ensuring that a leveling rod could be accurately repositioned in the same place in the future. In petroleum geochemistry, a baseline study establishes the reference point for which future applications may be based. The figure shows typical physical property (viscosity) and chemical composition (MDBTs = Methyl dibenzothiophenes) logs in a reservoir, that are generated from "fresh" core samples, thus avoiding issues introduced from future sampling, handling and storage. It is easy to see that the increasing viscosity down the oil column is matched by a concomitant deterioration (biodegradation) in oil quality seen from MDBT fingerprints (m/z 198) and concentration data. The data is processed using chemometrics (ProxVisc™) which builds correlations between viscosity and hydrocarbon fingerprints or concentration data. These strong correlations are seen when combining accurate (1-2% error – Q<sup>2</sup>-comp) hydrocarbon quantification with the best available oil viscosity data.



Considering that SAGD wells are typically located at the base of pay to maximize recovery, based on the predictions above, a well placed towards the bottom of the oil column shows a fingerprint containing highly altered MDBTs (boxed fingerprint) and consequently a viscosity estimate ca. 750kcP. At a later date, when horizontal wells are drilled, the cuttings may be analyzed and the hydrocarbon composition data is generated. This data may be applied to the ProxVisc™ model to produce predicted viscosity for oils in the cuttings even when they are contaminated by drilling fluid.

A baseline data set is the geochemist's benchmark that provides the basic requirement for viscosity prediction or production allocation from cuttings, stored cores or samples with low bitumen saturation.

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## Gushor Inc. Services

### Geosciences Solutions

- **Petroleum Systems Analysis**
  - Exploration
  - Development
  - Production
- **Analytical Services**
  - Heavy & Conventional Oil
  - Water Chemistry
  - Gas Analysis
  - Geochemistry
- **Geosciences Software**
  - GNAWD Pre-drill API/Viscosity

### Technology Applications

- **Plunger™**
  - Laboratory
  - Field
- **GVisc™**
  - Solvent Extracted Viscosity
- **ProxVisc™**
  - Viscosity Estimation
- **Carbonates**
  - Mechanical Extraction

### Unconventional Wisdom

- Reduced Emission Recovery
- Carbon Management
- Biodegradation
- Fluid Mobility
- Heavy Oil Recovery

### Gushor Education





## Tools For The 21<sup>st</sup> Century....

**Tools for the 21<sup>st</sup> century low carbon energy supply – Q<sup>2</sup>-comp GCMS-functional solutions for conventional and unconventional resource assessment.**

Exploration petroleum geochemistry saw a peak of discovery and development around the 1970's/early 1980s with few radically new concepts, methods or approaches since then. The 70/80s also saw the development of quick screening methods for assessing oil/gas source rock potential (e.g. Rock-Eval), the development of approaches to assessing temperature history of oil and gas source rocks (maturity), methods for relating different oils/gases to one another or source rocks through molecular or isotopic fingerprints and the definition of practical approaches to modelling oil/gas generation from source rocks.

These methods and approaches however are not always portable as tools for the exploration/production activities of unconventional resources....

To continue reading please visit our website or blog!



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## Field Viscosity Logging – Book Early!

With the winter drilling season fast approaching and the level of activity expected in the Canadian heavy oil industry we wanted to ensure companies know that booking is now available for our field viscosity logging. Please book early to avoid disappointment, it is booking up fast!

Why Perform Viscosity Logging in the Field:

1. Decisions as to whether well testing to recover production data or fluids is viable or not, can be made based on real time fluid data that is generated at well site.
2. In conjunction with other well data, decisions can be made at rig site, on where to place horizontal well segments based on rapid analysis of fluid property variations from a vertical well profile. Cold production zones may be identified while the rig is still on site.
3. The most accurate viscosity data possible is obtainable free from sample storage and processing artifacts.



## Barry Bennett Takes On R & D!

Barry Bennett will assume the internal role of Director of Geoscience Technology. This newly created role will not only encompass his existing role of Director of Geosciences, but also the role of Chief Science Officer. Now reporting to Barry will be our Research & Development, Laboratory, and IP Estate teams. Good luck and congratulations Barry!

Barry can be contacted at [bennettb@gushor.com](mailto:bennettb@gushor.com) or 403-608-9994.

## Norka Marcano Receives Award!

Gushor is pleased to announce that one of our senior project managers, Norka Marcano, has recently been awarded the Best Oral Geology Presentation at the Road to Recovery 2011 – CSPG, CSEG, CWLS Joint Annual Convention.

The title of the presentation was "Using Produced Oil Molecular Composition to Monitor In Situ Upgrading Operations in Oil Sands and Heavy Oil Reservoirs".

To view the abstract please click [here](#)!

## Lab Construction – Phase 1

Gushor is pleased to announce that the construction phase of our new laboratory has begun, and expected move in date will be the end of August 2011. We are thrilled about the move so we have decided to share the development process and will have updates regularly on our website and Facebook site showing the progress of the laboratory build out.

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Should you have any questions about our services and what we will be offering out of this new laboratory space, please feel free to contact us at [info@gushor.com](mailto:info@gushor.com).

