

## **Universal Sandstone Well Cuttings Comparator Set**

Doug Hayden  
Hayden Geological Consulting

\* Raymond Strom, CT  
General Manager, Continental Rocktell Services

Janet Pennington, B.Sc.  
Technical Representative, Continental Rocktell Services

Canadian Geologists will have another tool available to facilitate the accurate description of siliciclastic cuttings samples. In conjunction with Continental Rocktell Services, Doug Hayden of Hayden Geological Consulting is producing a Rock Cuttings Comparator Set, which can be applied to a wide variety of siliciclastic reservoirs in the Western Canada Sedimentary Basin (W.C.S.B.) and formations world-wide.

The Universal Sandstone Well Cuttings Comparator Sets will be made available to all individuals that are interested in possessing a robust comparison tool for use with siliciclastic drill cuttings. The comparators cover what we feel are the most challenging and critical range of porosity in potentially productive sandstone reservoirs (6-14 %  $\emptyset$ ).

Also, an additional reference component will be available to compliment the physical rock comparator sets. Cuttings samples with unique rock properties will be further characterized with relevant petrologic data, and this data will be made available to clients as a quick reference CD-ROM. This modular system will be used to further describe the sample within the comparators, outlining the specific rock properties significant for hydrocarbon production. Petrological data in this component of the package includes total porosity, effective porosity, sample mineralogy, rock fluid sensitivity, digital drill cutting photographs, and thin-section photomicrographs. The CD's easy to use format will allow the rapid comparison of the cuttings samples from wellsite to measured standards significant to oil and gas producers.

The utilization of advanced petrographic analysis during the drilling, and evaluation of a well is often advantageous, however, too often it is omitted as the generation and evaluation of this data must be completed prior to the operational decisions being formulated.

Compounding the importance of accurate detailed descriptions being generated from wellsite is the fact that often the project Geologist may have little contact with rock samples from an actively drilling well. Such an approach can have

adverse impacts on decisions made through the evaluation, completion and into the production stages of a well. If the wellsite Geologist has this advanced comparative tool available to them while producing sample descriptions, vital considerations relating to mineralogy, rock properties and rock fluid sensitivity can be incorporated into the preliminary evaluation of the zone of interest.

The poster will characterize each component of the Universal Sandstone Well Cuttings Comparator Set. The poster will describe the information displayed on each comparator and outline the generation of the data provided in the optional petrological component. Petrographic information included on the CD-ROM will be reviewed including the significance of the following analyses: scanning electron microscopy, x-ray diffractometry, and mercury injection capillary pressure analysis.

Finally, the poster will describe the processes and procedures utilized when sampling for the production of the comparator set, and describe the methodology utilized for the advanced petrographic analysis, specifically relating to the evaluation of drill cuttings.

**Raymond Strom, CT**  
**General Manager Continental Rocktell Services**

Raymond Strom comes to the commercial rock analysis business with 30 years experience with chemical and rock lab analysis. As the Manager of Continental Rocktell Services his past experience, including instructing in the areas of scanning electron microscopy (SEM), Chemical Engineering Technology lab operations, coal science technology, Chemical and Electrical Department instrument maintenance and repair and fabrication, is invaluable.

Ray joined Amoco Canada Petroleum Company Ltd. in 1980, in charge of the SEM facility, and became responsible for establishment of maintenance, operation and procedures for that lab facility. In addition, Ray served as an advisor to international Amoco personnel on the operation, and quality control issues relating to electron microscopy associated with both rock and paleontology applications as well as FIS (Fluid Inclusion Stratigraphy) and SNIF (Stratigraphy of Non-Included Fluids).