

# Digital Core Workflow: Efficient Approach to Large-Volume Oil Sands Core Handling

Y. Greg Hu  
Loring Tarcore Labs Ltd.

Oil sands core programs are characterized by large volumes, especially for mining projects. For a large volume of core programs, it may take several geologists a few months to finish core logging. Such lengthy process is repetitive and tedious and could cause core logging geologists a great deal of anxiety and stress. It takes even longer for the laboratory to finish lab testing and deliver reports to oil companies. As a result, oil companies commonly struggle with the following issues: 1) after a few month work in confined viewing rooms, their core logging geologists are stressed out and bored; 2) sample depths from several core logging geologists may be inconsistent and even mis-match with well logs, which may require another round of depth correction by office geologists; 3) oil sands companies spend a lot of money in cutting core but may not be able to receive lab testing results timely to make their critical business decisions: either to plan the next year drilling program, to update their models and re-calculate their reserves for new financing, or to file commercial applications.

A new efficient digital core workflow is proposed to resolve the above issues, which integrates digital core images into core logging. With the advance of digital imaging technology, core can be rendered in a digital image form with extremely high resolutions. Although digital core images can not replace physical core in many aspects, digital images can be as good as physical core for deriving certain information. Digital core images may be even better than physical core in many other aspects. The paper will demonstrate how to maximize the value of digital core images for the purpose of core logging and how to speed up the entire core handling process, including core depth correction, core-FMI matching, sample selection and sample depth calculation, and facies analysis. It also demonstrates that some of these jobs can be done in downtown office without visiting the lab and that core logging can be as much enjoyable as any other office work performed by office geologist. For the first time in the oil sands history, handling a large volume of oil sands core timely becomes reality.