



*Client Focused*  
*Worldwide Experience*  
*Innovative, Value Added*  
*Practical Solutions*

## **Shell Albian Sands Jackpine Mine Upstream Expansion 1, 80 km north of Fort McMurray, Alberta**



Jackpine Mine Expansion 1 project is part of a strategic development plan that Shell Canada is pursuing in order to increase its production capacity out of non-conventional oil reserves (oil sands) in Canada. This project which will add a 100,000 bbl/cd to Shell's current capacity of 155,000 bbl/d, started in 2006 and was finished at the end of 2010.

This mega size project included significant earthworks and deep foundation installations, requiring a knowledgeable Geotechnical Company experienced with the Alberta oil sands. Thus, GES Geotech Inc. was retained in September 2006 and continued its services until the completion of the project in 2009.

GES extended its geotechnical design and construction services to many contractors working on the Jackpine site; these included JV Driver Projects, Clark Builders, Midlite Construction (working for SNC Lavalin), Ledcor foundations, Ruskin Construction, and Amec Colt.

### ***GEOTECHNICAL SERVICES***

- Design and construction monitoring of deep foundations for main control room and Administration Building.
- Borehole investigation for establishing subsurface conditions and design of raft foundations for External Tailings Pump Houses.
- Monitoring and verification of ground preparation, including compaction review at below zero temperatures.
- Subgrade review and slope stability verification of deep trenches for underground utilities.
- Design and construction monitoring of crane pads (with vertical loads up to 1,000 kPa).
- Monitoring and verification of concrete and steel-driven pile installation pile installation activities.
- PDA (Pile Dynamic Analyser) testing and reporting of steel pipe piles.