Description

The vast oilsands deposits of Northeast Alberta in Canada contain a huge amount of recoverable oil, second in size only to Saudi Arabia. These deposits are contained under 142,200 km² of Alberta’s vast northern forests that are over 381,000 km² in total area. Contrary to common misconception, only 3% of these deposits are accessible via mining methods with the remaining 97% being too deep to be mined. That remaining 97% contains over 170 BILLION barrels of proven recoverable oil and improving technologies may more than double that.

A number of innovative and non-intrusive methods have been developed to free the oil from the subsurface sands thus allowing for a more conventional extraction by drilling. This leaves the vibrant surface forests and wildlife relatively undisturbed with simple roads, drilling pads and processing plants occupying a miniscule position above ground relative to the large areas subsurface where the oil is being efficiently extracted. The extraction is a long-term process that requires the operators to maintain year-round access to the pads and sites in all weather conditions including harsh near-arctic winters with heavy snowfalls along with extremely wet springs. Those freeze-thaw cycles followed by wet springs wreak havoc upon normal road/pad construction methods. Canadian Aboriginal Remediation Environmental Services (CARES) Ltd. was founded in late 2005 specifically to introduce the PowerCem Technologies alternative construction processes in Canada with an initial focus on these demanding oilsands projects.

After a number of successful demonstration projects in 2006 and 2007, forward thinking firms began to adopt the CARES Ltd. PowerCem based solutions as an economical and far superior alternative to the standard clay-gravel-wood matting methods traditionally utilized. In August of 2008 a major multi-national oil company chose the CARES Ltd. RoadCem based solution to stabilize 4 drilling pads and access roads encompassing 100,000 m². The gravel required was reduced by over 90%, better clays didn’t have to be sourced as in situ native soils were sufficient and millions of dollars worth of wood matting didn’t have to be manufactured and placed. The final mix design was a RoadCem cement-flyash stabilized base of 300mm thickness with a small amount of road crush gravel for a friction/wear course. Construction time was significantly reduced and the benefit not only met the high load demand of the initial drilling cycle, the stabilized base provides years of trouble free access and a simple future reclamation.

Technical proposal.

| Soil Type | High silt content plastic clays verging on loamy clay. |
| Subgrade Conditions | Very high water table overlaying muskeg with pockets of deep peat. |
| Location Challenges | Remote northern location with nearest cement & ash sources 8 hours travel. |
| Dosage of RoadCem based additives | 1.7 kg/m³ – Cementious (OPC/PFA) 170kg/m³. |

Map of Alberta’s Oilsands Deposit

Muskeg terrain, wet extremely unstable subgrade
Spreading of PowerCem based additives

Start of blending operations

High productivity blending > 10000m³/day

08/10/2008

Spreading of cement

Maintaining compaction & trim

Drilling underway on completed pad

09/18/2008