

# SUDBURY

## MINING SOLUTIONS JOURNAL

# Paste proposed for oilsands

## ■ Golder's Paste Technology offers relief for industry's black eye

BY NORM TOLLINSKY

**A** tailings treatment technology developed in Sudbury is one of several solutions the Alberta oilsands industry is considering as an environmentally friendly alternative to underwater disposal in tailings ponds that are a blight on the province's landscape and reputation.

Golder Paste Technology Ltd. (PasteTec), a Sudbury-based subsidiary of Golder Associates, has been pitching its technology to the major players in the Alberta oilsands sector for more than a year to help them comply with a recent Alberta Energy Resources Conservation Board Directive governing tailings disposal.

PasteTec's Sudbury lab recently received a shipment of 36 drums of oilsands tailings for processing through a new mini pilot plant. The selection of the company's technology would be a major coup.

Paste technology was pioneered at Inco in the early '90s as an alternative to hydraulic backfill.

"Prior to the introduction of paste for backfilling purposes or surface disposal, underground backfill was predominantly hydraulic fill," said Bruno Mandl, a senior project engineer with PasteTec. "Hydraulic fill was produced by separating out the coarse material from the fine material, or slime. The coarse material was augmented with cement and sent underground.

"The problem with hydraulic fill is that large quantities of water are also sent underground. That means the backfilling

process has to be stopped at certain points in time in order to allow the water to decant."

Paste backfill contains very little water, so there's no need to stop and start.

Paste technology is also commonly used for surface disposal of tailings as an alternative to conventional sub-aqueous disposal, which employs large quantities of water and has a very large footprint, as is the case in the oilsands.

The use of paste technology for surface disposal is ideal in areas such as the Peruvian Andes and Chile's Atacama Desert, where there is a deficiency of water, said Mandl.

"In order for them to obtain water, they have to pump it up from the coast to very high elevations. If you were to use conventionally discharged tailings, you'd be throwing a lot of water away as a result of evaporation."

Using PasteTec's process, the water is removed from the tailings in a paste plant and recirculated.

### Toothpaste

The PasteTec end product has the consistency of toothpaste, takes up much less space and dries quickly, allowing much faster reclamation of the tailings disposal sites.

The Alberta Energy Resources Conservation Board directive, released in February 2009, requires the reduction of fluid tailings, their capture in board-approved disposal areas and their conversion to "trafficable deposits," meaning they have to be able to bear the weight of



Left to right are Bruno Mandl, senior project engineer, Ryan Francoeur, lab manager, and Mark Labelle, lab technician, in front of mini pilot plant which will be used to process oilsands tailings.

heavy equipment.

PasteTec has designed and built paste plants for mining companies in North and South America, Europe and Australia, but has yet to apply the technology to oilsands operations.

"The technology is applicable, but it's a different industry and it's new to them, so there's the hurdle of convincing them that it will work," said Ryan Francoeur, PasteTec's lab manager.

Oilsands tailings have been making headlines across the country and around the world since April 2008, when 1,600 migratory ducks died in a Syncrude Canada Ltd. tailings

See inside, Page 20

## INSIDE

- VENTILATION-ON-DEMAND PATENT SPARKS UPROAR**  
INDUSTRY FEARS HIGHER PRICES, LESS COMPETITION .....12
- CEMI EMBARKS ON FAULT SLIP RESEARCH INITIATIVE**  
SERIES OF WORKSHOPS SETS STAGE FOR INTERNATIONAL STUDY .....14
- NORONT RESOURCES CREATES BUZZ WITH NEW APPS**  
MS SURFACE OFFERS EASY ACCESS TO MAPS, ASSAY RESULTS .....10

# Bestech helps miners meet emission regulations

## ■ Air Quality Monitoring System will be commissioned at the Iron Ore Company of Canada in Labrador City

Sudbury-based Bestech's Air Quality Monitoring System was recently purchased by the Iron Ore Company of Canada and will be commissioned in June at its Labrador City operations.

"We will be providing a turnkey AQM solution," Bestech's technical support division manager Pat Dubreuil said.

The AQM System has had a track record of monitoring SO<sub>2</sub> emissions for Vale Inco and Xstrata Nickel since 2005. It is the largest SO<sub>2</sub> monitoring network operating in Canada with 17 active monitoring sites, two meteorological stations and one SO<sub>2</sub> mobile unit operating in Sudbury.

Bestech's role is a third-party collector, monitor and reporter of company emissions data. The fixed stations collect ambient SO<sub>2</sub> concentration data, solar radiation, surface and air temperatures at various elevations and the speed and direction of the wind. This information is delivered consistently through a Web-based platform to the Ministry of Environment and the mining companies.

**"The ability to rely on the real-time data and know that it's accurate, reliable and that we can increase or reduce output at different times of the day's production is very valuable."**

Marc Butler, Superintendent of Environment, Xstrata

Vale Inco's environment air manager, Frank Javor, said that using Bestech as an independent third-party provides a higher degree of assurance to all stakeholders.

The AQM System provides Xstrata Nickel's smelting operations with real-time data, which allows the company to react and adjust production levels, ensuring legislative emission compliance. Data from the AQM System is fed directly into Xstrata's smelter SO<sub>2</sub> modelling systems. This allows the company to accurately predict its emission levels.

"The ability to rely on the real-time data and know that it's accurate, reliable and that we can increase or reduce output at different times of the day's production is very valuable," said Xstrata's environment superintendent Marc Butler.

A solid-state PLC collection solution makes the system durable to power interruptions and fluctuations. It also has multi-level security access and several data redundancy levels to provide 98 per cent data collection and retrieval 24/7. It can channel data through cable Ethernet, wireless, dial up or RFH networks managed by Bestech servers. All data is archived using three types of recording media. If a company exceeds an emission level, the AQM System can alert stakeholders instantly via email, telephone or Short Message Service (texting).

In addition to mine smelter sites, municipalities operating waste disposal facilities are interested in the AQM System, which can also track data collection for waste water meter flows, piezometer fluctuations and land and geophysics data. This system also plays a role with another Bestech energy management system that helps collect and report air quality data within mines for ventilation-on-demand, another energy-saving product that is being developed for mines to reduce operating costs. ■

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Bestech's remote control weather balloon launcher in forefront of Vale Inco Superstack in Sudbury.

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