

## Industry: Oil Sands Processing

- Hydrotransport Slurry

**CiDRA**<sup>®</sup>  
Oilsands

## Application Note

### SONARtrac<sup>®</sup> SOLUTIONS

#### A SONAR-Array Based, Non-Contact Flowmeter That Provides Reliable Measurements in One of the Most Challenging Slurries: Increases Throughput and Lowers Operating Costs

##### Benefits

- Clamp-on technology enables quick installation without shutting down the process
- Payback on investment of under one year with SONARtrac flowmeter versus high maintenance, short lifecycle, conventional in-line meters
- No signal degradation due to wear or scaling
- SONARtrac flowmeter provides accurate, repeatable flow measurement even on chromium-lined, carbon steel pipes
- Enables more accurate mass balance measurements
- Not dependent on other instruments to make measurement

*“One of our key tasks is to accurately measure pump performance. SONARtrac flowmeter provides accurate, reliable measurements and gives us the confidence that we have good flow data to review”*  
—Pump Efficiency Team Member

##### Process

Hydrotransport, where oil sands processing and refining begin, is a more recent and cost-effective method employed in the industry. The process begins with the addition of caustic and air to the oil sand lump digestion that takes place in a hydrotransport pipeline, rather than in a processing plant, and at slurry temperatures of approximately 50°C. The efficiency of the process is dependent on the length of the pipeline, the temperature of the slurry, and the amount of caustic and air added. The high velocities and abrasive nature of the slurry create rapid wear of the pipeline and is particularly harsh on in-line instrumentation.

##### Challenge

The slurry in a hydrotransport line is an abrasive mixture consisting of water, sand, rocks, clay and bitumen. The slurry is pumped through the hydrotransport pipeline at rates of approximately 4 to 5 meters per second. Pipes are rotated several times a year to even-out the wear on the inside of the pipe caused by the abrasive slurry. Likewise, in-line flowmeters; Venturi meters for example, which are typically used to measure volumetric flow of the hydrotransport slurry, require frequent maintenance, repair and replacement resulting in higher operating expenses and increased costs and process downtime.



##### SONARtrac Solution

SONARtrac flowmeters offer a compelling economic value and a superior technical solution to measuring and monitoring flow in aggressive, hydrotransport slurry applications. SONARtrac flowmeters clamp-on to existing pipe, including lined pipe, do not “pinch” the flow and have no wetted parts, thereby maintaining the full integrity of the piping system and ensuring measurement certainty. SONARtrac flowmeters have delivered improved accuracy versus existing Venturi meters, thereby enabling more accurate and reliable mass balance measurements.

The customer’s investment in SONARtrac flowmeters is expected to deliver a better than one-year payback on the basis of hardware, reduced investment in spares inventory, installation and maintenance cost. This does not include the expected financial and operational benefits associated with increased production uptime.

**SONARtrac<sup>®</sup> Technology**

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