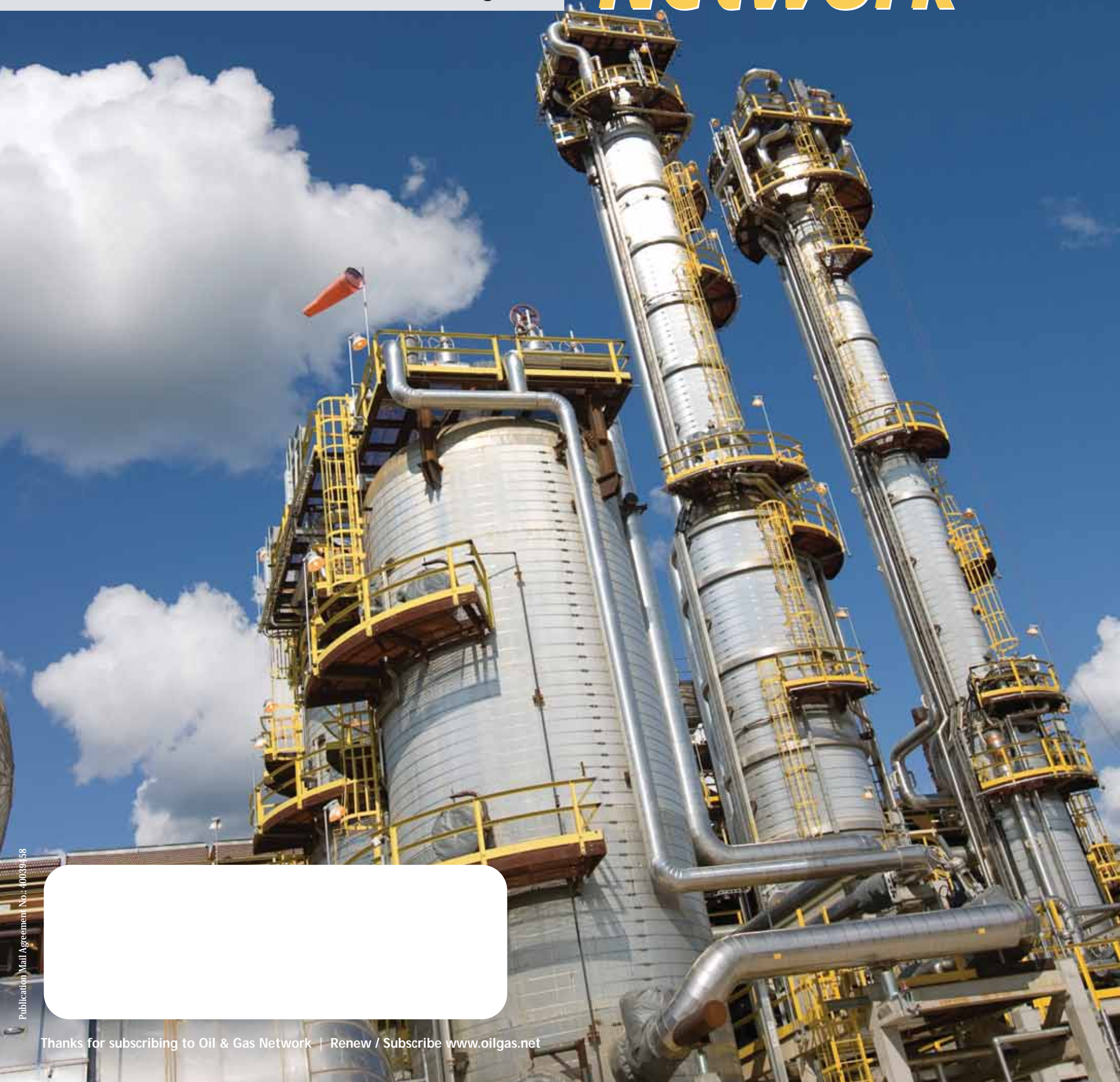


# Oil & Gas Network

August 2009 Volume 10, Number 4 [www.oilgas.net](http://www.oilgas.net)



Publication Mail Agreement No.: 400399-58



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# Remote site surveillance system to assist oil sands companies in reducing operational risk

By Shelly Brimble

**A** Calgary-based company has created a unique technology solution to help firms manage the operational risks associated with bitumen resources located in remote areas.

"Oil sands producers face many safety, security, environmental and operational risks every day. Our solution mitigates these risks through the application of our video analytics and real-time event notification," says Dr. Wael Badawy, president and CEO of Intelliview Technologies.

Throughout the last decade, activity in the oil sands has risen dramatically and even with the lull brought on by the recent economic downturn, it continues to be Canada's capital of oil production.

The oil sands contain 173 billion barrels of recoverable reserves of the nation's total 179 billion barrels of oil.

Producers are only starting to scratch the surface of this vast bitumen resource, but as oil sands development increases so also do the operational complexities associated with accessing these reserves in remote areas that are subject to some of the harshest of environmental conditions. Petroleum companies continue to seek new solutions to keep pace with rising operational concerns and increasing regulatory compliance requirements.

Regulatory guidelines were recently launched by the Energy Resources Conservation Board (ERCB) to manage the lifecycle of

tailings ponds. Tailings ponds are created through surface mining operations. Bitumen is removed from the oil sands through the addition of hot water. What is left after that process is put into a separator allowing the water to rise to the top where it is skimmed off and the sand to drop to the bottom to be taken out. The sludge clay material that is left behind is put into tailings ponds to settle and dry for reclamation.

There are currently 13,000 ha of land under wettable surface as a result of the tailings ponds. "This is growing each year, and unless industry changes the way it manages and reclaims tailings it will continue to grow," says Stephen Smith, previous ERCB Fort McMurray executive manager and current ERCB executive manager, Application. Smith added that Directive 74: Tailings Performance Criteria and Requirements for OilSands Mining Schemes deals with existing mining operations, but the ERCB has already given industry the heads up that once it is established, the Directive may well be grandfathered to older tailings ponds as well.

The regulations focus on finding measurable and accountable solutions. Smith noted that the ERCB does not prescribe any one technology solution, but rather sets the end results and leaves it up to industry to select the solutions.



"Directive 74 reflects the growing concern for the safety and monitoring of tailings ponds. The recent duck deaths at Syncrude have spurred industry to review new technologies. Our video analytics technology can be an important part of the solution for oil sands operators, especially for the surveillance of tailings ponds, and for remote sites in general," says Badawy.

Intelliview provides a digital video recorder (DVR), with a suite of analytics on-board, to deliver local processing of video images. In effect, the system converts passive cameras into intelligent video sensors. The system can be programmed to send an alarm only when prescribed incidents occur. Within three seconds of an event or condition, an alarm and jpeg image is sent through the company's LAN, WAN or web server. This incident-only communication significantly reduces operating costs since it minimizes the demands on bandwidth.

Since the entire surveillance system is manufactured and programmed locally, it can be tailored to meet each operator's unique specifications. "We are one of a select few analytics firms (less than 10 in the world) that has our own sourcecode, and this gives us the capability to modify the system to meet a customer's specific needs," says David Ruhlen, Intelliview's business development manager.

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The number of analytics algorithms in the IntelliView solution suite is substantial, and the ease of programming the policy rules is impressive. Companies can receive notification if a person has crossed a virtual boundary, or fence-line, if an individual is loitering or has left an object behind, or even if a person has fallen and remains immobile. The analytics suite can also be used as an operational aid to monitor valves and other production equipment, and is currently being field tested to facilitate and verify remote equipment start ups.

To further enhance its analytics solution, IntelliView has also created a technology to compensate for environmental conditions that are often responsible for false alarms. Other analytics solutions can be fooled by environmental conditions such as shadow, snow and glare, but IntelliView's patented Environmental Filter will reduce such false alarms by up to 96 per cent. The company confirmed this vastly improved

performance through an independent study using City of Calgary traffic cameras.

"IntelliView has a decided edge in the remote monitoring of oil and gas sites because operators will quickly come to ignore any analytics solution that produces a high rate of false alarms. Our solution delivers the real value of a video system, which is the accurate assessment of a site condition and the real-time notification of the event," adds Ruhlen. Till now, the harsh environmental conditions associated with remote sites, along with the lack of power and communications infrastructure, have precluded the widespread use of video surveillance as a monitoring option.

IntelliView's unique system architecture is particularly amenable to remote-site deployment. Cameras of virtually any type (analogue, IP, fixed, PTZ, thermal or infrared) connect to the locally housed DVR, and the supporting power infrastructure

can include solar panels, battery and fuel cell arrays, wind turbines and generator systems. The communications options are equally diverse, including radio, cellular and satellite connectivity.

The IntelliView system has recently been field-tested by a major producer at a site near a rural community that has been frequently vandalized. Local teenagers used the location as a gathering spot, and vandalism to the facility (including axe marks to a sour gas pipeline) became a regular occurrence. The producer needed know when the facility had been compromised, and it needed to know in real-time.

IntelliView's system was easily deployed to the site on a mobile platform, complete with self contained power and communications infrastructure. The producer soon had the site back under its control, and the facility was returned to a normal operating status.

Another IntelliView surveillance innovation includes a speed bump camera that records every vehicle coming into a remote location. Traditionally license plates are difficult to record so they are legible. Being in the speed bump enables it to capture a close shot and the camera operates in extreme conditions, including snow.



Knowing when an unauthorized vehicle has entered a remote site can provide operators with the information and the ability to react quickly to avert site damage or safety issues for their field staff. This can also help operators prove they have protected worker safety when dealing with Bill C-45 concerns.

"With increasing incidents in eco-terrorism in the industry, this system can become a valuable tool to help petroleum companies in combating this type of risk," adds Ruhlen. **OGN**



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