

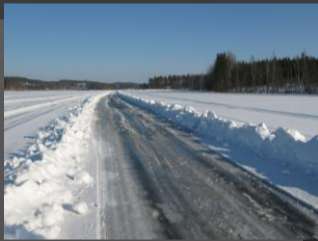
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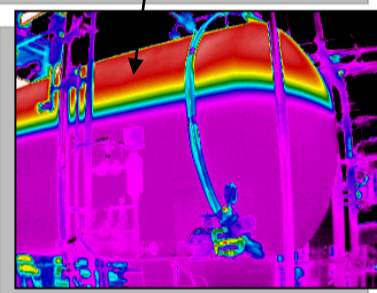
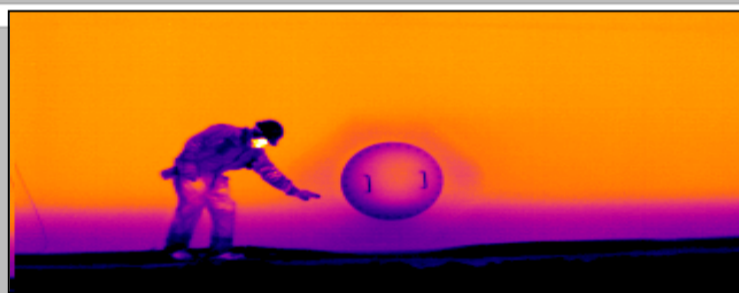
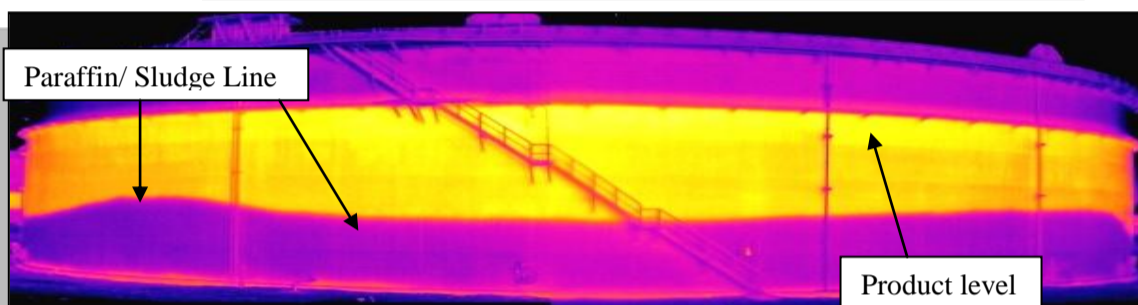
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### Application Spotlight: A Case Study of Storage Tank Build Up



#### Problem:

A Canadian company had crude oil storage tanks in a facility in Africa. They knew that they had significant paraffin build-up that diminished the tank capacity and would require cleaning and recovery of product from the paraffin. Determination of the paraffin volume was required to plan and tender the project.

#### Solution:

Maverick Inspection used thermal imaging technology to scan the outside of the tanks and map out the paraffin levels. The high temperature differentials between atmospheric conditions and the product temperature created an ideal thermal signature. This allowed not only for the paraffin levels to be mapped out, combining dip values with perimeter signatures, but even for bottoms such as sand and/or water to be noted. The client was able to provide the information to engineers who modelled the deposits in 3D software, taking the tank bottom profile, tank dimensions, dip values, and thermal signature data into account and then quantifying the paraffin.

#### Other Applications:

Because infrared scans are normally performed during regular operating conditions, pre-shutdown and turnaround imaging is used to plan upcoming maintenance and cleaning of storage tanks and other process equipment. However, thermal imaging of uninsulated process vessels, tanks, and piping is also a quick way to troubleshoot problems. Detecting sludge in tanks, thermal separations of product layers, blockages, deposits, build-up, and even monitoring chemical cleaning procedures are all situations where Maverick Inspection has applied thermographic techniques.

For example, Maverick frequently studies glycol dehydration towers, comparing drawings with the thermal signature under operating conditions to help overcome dewpoint and glycol loss problems. Once the most likely areas of concern such as a fouled chimney tray or glycol line has been identified, then video inspection tools are available to gather more information if needed.

You can visit Maverick's Infrared Applications pages for more images and descriptions of process and storage tank imaging.

[www.maverickinspection.com](http://www.maverickinspection.com)



**RVI : Large Opening Inspections using RVI Zoom Cameras**



**Ex FM** INTRINSICALLY SAFE AND EXPLOSION PROOF SYSTEMS AVAILABLE

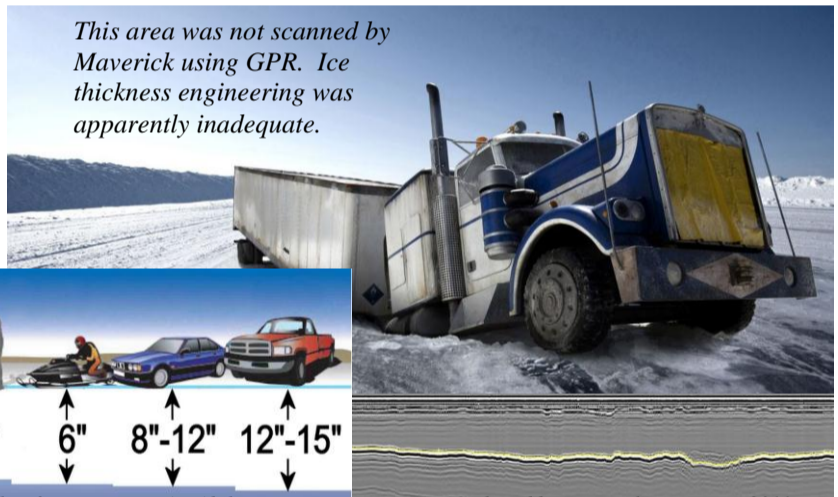


Robotic pan/ tilt/ zoom cameras are ideal for vessels, flare stacks and underground systems, eliminating the need to send personnel into a hazardous or confined space environment. The deployment on these high resolution camera systems are quick and are easily accessible through openings as small as 3". The PTZ cameras offer full color high resolution imaging with high intensity lighting to illuminate large surface areas to observe internal conditions.

For more information on video inspection technology, please contact Ryan Brosda @ 780-467-1606

**GPR : Profiling Ice Thickness – Ice Roads, Frozen Rivers & Lakes for Safety**

Maverick has the capability of performing Ground-penetrating Radar on ice roads, rivers, lakes and other frozen bodies of water to determine the thickness of the ice. When combined with core samples, this allows a 100% clear picture of the ice-thickness profile, providing far more information than cores alone can achieve.



*This area was not scanned by Maverick using GPR. Ice thickness engineering was apparently inadequate.*

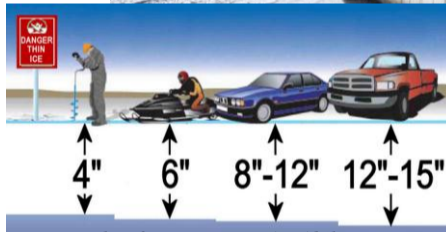


Image taken from Wyoming AgrAbility

Data Gathered by Maverick Inspection, 2011

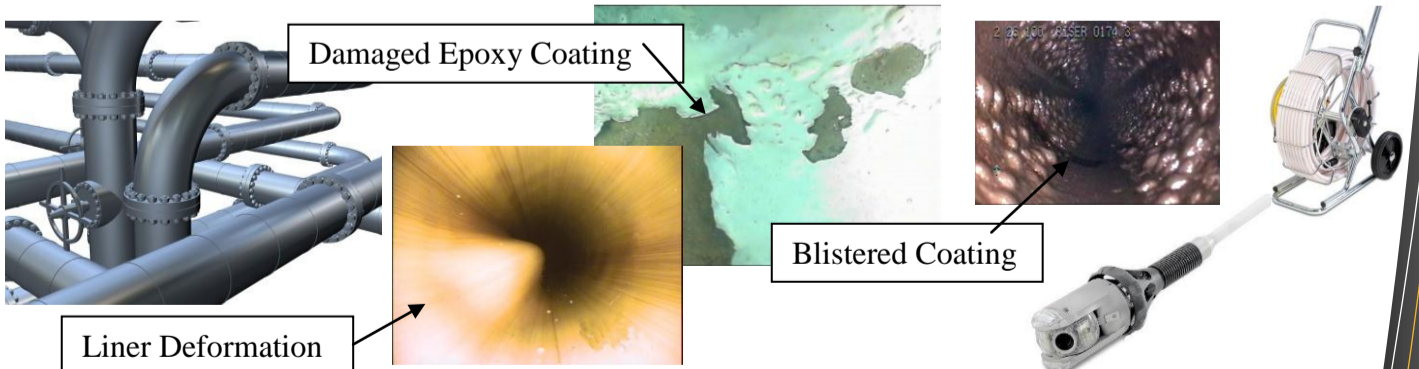
For more information about GPR capabilities, please contact James Harrison @ 780-467-1606

**RVI : Pipeline Coating & Liner Inspections using Small Diameter Video Camera Systems**

There are countless injection lines buried in Western Canada that are internally coated or lined. Many of these have been in the ground for years and their integrity and internal condition is unknown. Often no one knows that there is a problem until a failure occurs.

Using Video Inspection tools is a good method of confirming the condition of these lines including produced water lines, emulsion lines, brine lines, steam lines, etc. The video systems work well in cast iron, fiberglass and coated lines. These intrinsically safe and explosion proof systems can be inserted into the line from risers at the wellhead, excavated cut-outs, pig launchers, and satellite or header locations.

For more information about RVI capabilities, please contact Ryan Brosda @ 780-467-1606



For information about Maverick's safety program, please contact Leslie Tessari @ 780-467-1606

Company Culture ◦ Safe Behaviour ◦ Accountability ◦ Safe Environment



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