



MAVERICK NEWSLETTER

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20th Anniversary Edition

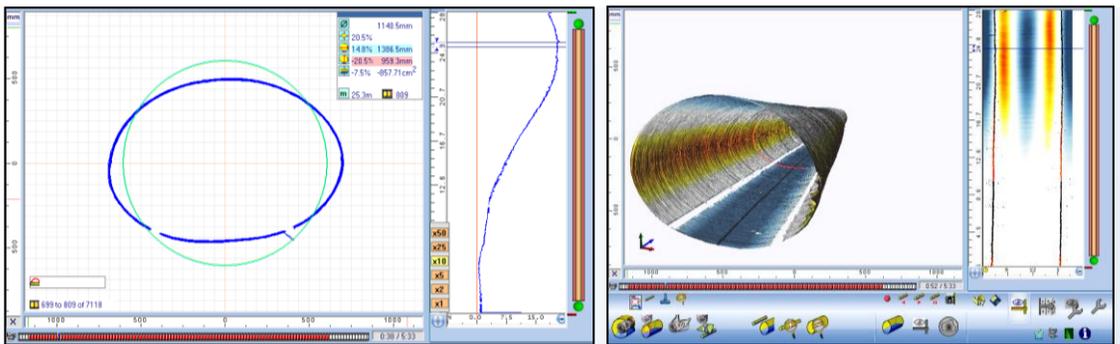
Next Issue: Maverick is turning 20 in May of 2014. Take a look into the past.



Find us on the web



Application Spotlight: A Case Study of Pipe Deformations



The Problem: Far up north, at the Alberta Oil Sands Industrial Area, a section of Highway 63 was under construction. A 30 meter length of 1200mm diameter carbon steel sleeve was bored beneath the highway without impeding normal traffic flow. The 1200mm carbon steel sleeve was intended to act as a bypass duct for introducing utilities and other piping.

The Horizontal Directional Boring of the sleeve commenced and followed through to the other side of the highway where it was extruded with noticeable deformations. The internal diameter ended up at only 1000mm on the other side of the highway. Engineers and consultants were wary about the possibility of even more damage to the pipe. Could it still be used to pull through the planned utilities despite the deformations?

Confined space entry was discounted as a viable choice since the integrity of the pipe was not confirmed and was treated as unstable because of the known deformations. How could the engineers gather the information regarding the pipe's internal diameter?

The Solution: The plant engineers and construction groups called Maverick, who suggested the use of remote video technology and laser profiling to accurately measure the pipe wall surface and to provide deformation & deflection reporting with true internal diameter read outs. Maverick's research & development team had to design and build a new skid-assembly for attaching the laser since the pipe wall roundness was obscured with deflections. A large robotic explosion-proof crawler was used with the laser skid. The unit was also equipped with a built-in inclinometer providing the clients with real-time information on any pipe elevation changes while conducting the inspection.

A total of four passes, two from either end of the cast iron sleeve, were laser-profiled and video-inspected showing multiple areas of pipe sleeve with continuous deformations.

During the internal inspection of the metal sleeve, real-time video captured and recorded the laser-ring projected onto the pipe-wall surface while pulling back the laser-skid with the remote crawler. The recorded video documentation of the laser-projection was later transferred into a 3D machine-vision software which outputs various measurements and results, helping engineers to determine the exact starting and ending of the deformations with cross-sectional measurements and capacity reports. The ovality (out-of-roundness) of the sleeve was measured as high as 20.5% of the pipe diameter, leaving 79.5% of the pipe diameter available.

The Results:

Maverick furnished the clients with a user-interactive disc including the 3D reporting so they could make the necessary adjustments for the new utilities to be installed with precision. The inspection revealed that even with the visible deformations of the pipe that no additional boring, no re-work and no new construction were required, saving the client thousands of dollars, and all without disrupting the flow of traffic along the highway.

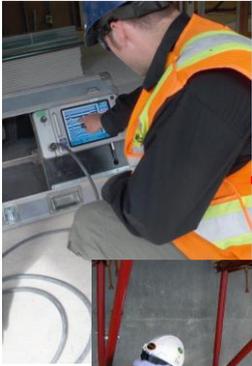
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GPR- Rebar Placement Quality Assurance - Bridge Girders



Rebar was exposed at the bridge pier during sandblasting. Engineering called for 35mm depth of coverage.



During construction of a major roadway project in Alberta, Maverick was contracted to help with the Quality Assurance Program concerning the pre-fabricated concrete girders.

The girders were originally constructed off-site and were later placed onto the bridge piers. During regular construction activity it was discovered that some of the rebar in at least one girder was substantially below the required depth-of-coverage. Maverick used Ground-penetrating Radar (GPR) to scan the girders on that bridge, and several others. GPR depth estimates were used to provide information on rebar depth of coverage. Physical verification was used in any potentially problematic areas, and proved that Maverick's GPR methods were able to produce results within +/-3mm in 95% of the locations examined. The remaining 5% include areas which were not physically verified, where there was surface interference or where rebar chairs caused "false positive" overly shallow readings. With this information the general contractor was able to revise their ongoing maintenance and warranty provisions to their client and proceed with the job of building bridges.

For more information on ground-penetrating radar applications, please contact James Harrison at 780-467-1606

RVI - CSA Approved/ Explosion Proof Inspection System

Maverick has added to its growing arsenal of CSA EX video inspection systems, Canada's first CSA Approved V2.7 small diameter pan & tilt camera with zoom for hazardous environments. This small, robust and versatile EX camera head can inter-change quickly and attach itself to either a robotic video crawler or push system or can be deployed as a drop camera. The inspection applications that are best suited for deploying EX camera systems would include pressure vessels, towers & stacks, injection lines and pipelines with multiple bends. The camera is also equipped with measuring capabilities using an onboard laser to provide clients with pipe lateral size and internal diameters.



For more information about remote video inspection applications, please contact Ryan Brosda at 780-467-1606

2014 IPEIA / Oil Sands Conference & Trade Show

Maverick will be exhibiting at the IPEIA (International Pressure Equipment Integrity Association) in Banff, AB on February 19th - 21st at the Banff Centre. Maverick will also be exhibiting at the Oil Sands Trade Show on September 9th & 10th at the Suncor Community Leisure Center in Fort McMurray, Alberta. We look forward to meeting you at these upcoming events. Please find our booth, and come talk to us about what's new in specialized inspection and non-destructive testing.



Maverick Inspection Ltd. Upcoming 20th Anniversary

Maverick Inspection Ltd. was founded on May 19, 1994 as a traditional NDT company. Where we are today, in 2014, is very different from where we started. Maverick's 2014 Summer & Fall newsletter will be our special edition issue where we will take a look back from the past to the present, examining our developments in providing cutting-edge technologies and specialized non-destructive services.

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

Company Culture ♦ Safe Behaviour ♦ Accountability ♦ Safe Environment



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