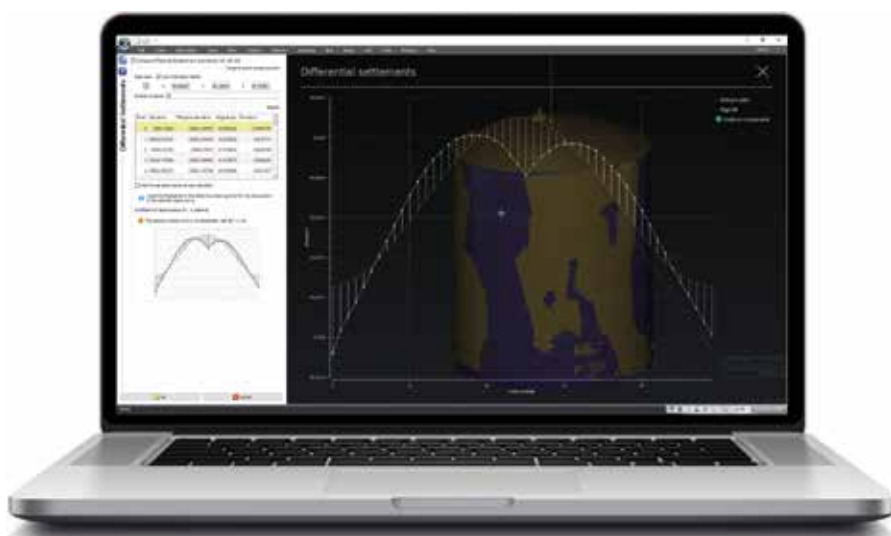




# NEW GAUGING METHOD DRIVES DOWN RISK IN TANK ANALYSIS *and* MAINTENANCE



Personnel safety and inventory accuracy are paramount in tank analysis and maintenance, regardless of the material being stored. *Joel Hurt, Plant Business Manager for Leica Geosystems, explains further.*

**F**or decades, the industry relied on manual gauging using a graduated diptape or dipstick to determine tank status. More recently, companies have replaced these often hazardous and inaccurate manual methods with float and tape tank gauging, servo gauging or hydrostatic tank gauging (HTG). However, a new method - 3D laser scanning - is taking tank gauging high-tech and enabling a giant leap forward in safety, speed and accuracy.

Laser scanning is a noncontact and nondestructive method of digitally capturing physical objects in 3D using a beam of light, or laser. It is a fast, accurate and safe way to capture tank data. For example, a Leica ScanStation P40 laser scanner completes a laser scan in approximately four minutes, has an accuracy of <2 mm and captures comprehensive

data without ladders, scaffolds or lifts.

As a line of sight device, a laser scanner can only capture what it sees; it cannot see through objects. When a laser scanner is used to capture or scan a tank from the outside, four to six scans might be needed to capture the entire tank. When an out-of-service tank is scanned from the inside, typically only one to two scans are required. This means comprehensive tank data is captured in a fraction of the time compared to other tank gauging methods.

#### How Does Scan Data Reduce Risk?

When paired with the right software solutions, scan data can be used to conduct roundness and verticality checks, create strapping tables, and assess settlement, all with streamlined reporting capabilities.

For example, companies have

begun using data from a Leica P Series laser scanner with the 3DReshaper Tank software module to safely analyse the condition of storage tanks in a matter of minutes based on American Petroleum Institute tolerances (API 650/653). When analysing roundness or verticality, the laser scanner captures the tank deformation, and the software reports it. The deformation is user-definable to the specs provided by the operator. The software displays one or several profiles as a grid and allows users to magnify deviations to better detect deformations. Users can also compute differential settlement (nonuniform settling of the tank) or localised settlement (detect low and high areas on the bottom of the tank) according to API Standard 653. Other tolerances can also be used as the baseline.

By using Leica ScanStation laser scanners with 3DReshaper software, users can identify problems early on in tank maintenance processes. This advance intelligence reduces downtime and aids in averting fines due to potential leaks and tank deformation. Additionally, it increases safety as virtually no climbing, lifts or ladders are required. All of these benefits combine to drive down risk.

#### Raising the Bar on Tank Operations and Maintenance

Increasing safety and reducing risk are key factors for success in tank storage operations and maintenance. By adding a new level of intelligence to tank measurement, 3D laser scanning and advanced processing software are transforming the way the industry handles tank gauging and other tank analysis tasks.

**For more information visit**  
[3dplant.leica-geosystems.us](http://3dplant.leica-geosystems.us)