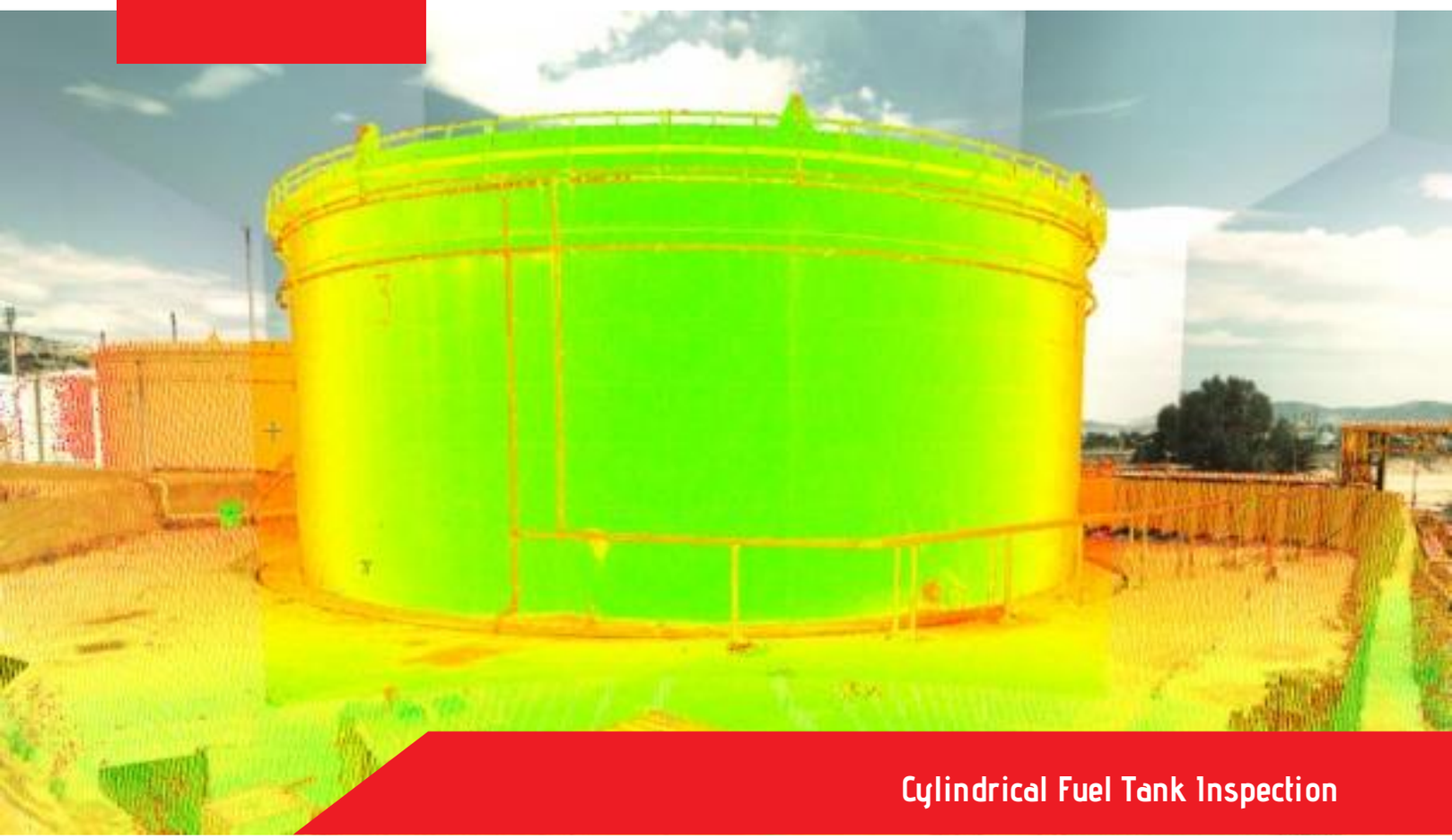
INDUSTRY

METRICA
When it's a matter of trust



Cylindrical Fuel Tank Inspection

Overview

3D laser scanning technology captures a vast array of three-dimensional positions (X, Y, and Z coordinates or points) that provide factual information about assets. For large scale storage tanks and barges, 3D laser scanners capture accurate position information that can be used to identify true shape, geometry, deformation, and locations of interior structures.

This project refers to the internal and external mapping of a cylindrical tank to inspect possible deformations. In addition to the geometric information, the 3D point cloud also provides a visual representation of the scanned object due to the large density of obtained measurements.

Fieldwork

Fieldwork: 1 day, 2 staff members

Number of scans: 6

Office work: 5 days, 1 staff member

- when it has to be **right**

Leica Geosystems

Benefits

- elimination of field interferences
- less rework
- increased productivity
- fast & accurate
- comparison and inspection regarding the construction drawings

88A Ginossati st., P.S.14452, Metemorphosis, Greece | info@metrica.gr | www.metrica-isv.gr | T. +30 2102815440

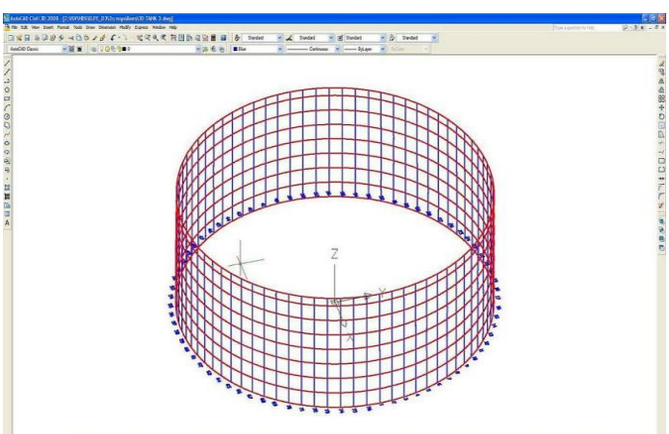
The fuel tank

Cylindrical fuel tank interior

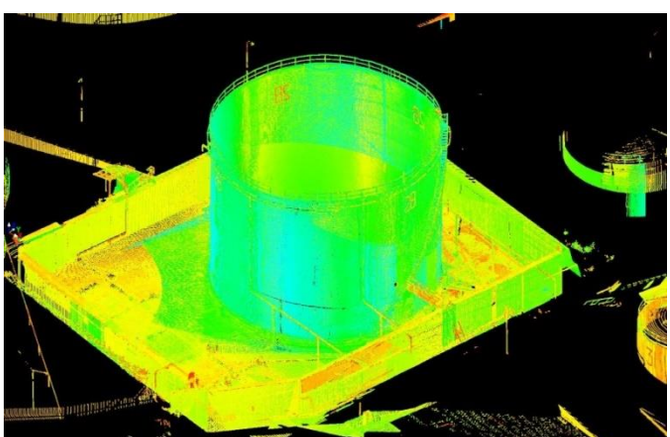
Fieldwork – Office work

The scans were performed by six setups with the 3D laser scanner, Leica ScanStation C10 with the contribution of CYCLONE-SCAN software. The surface of the tank is recorded to a degree of 99% by a 2x2cm grid. The points recorded to form the grid are numerous, 7.000.000 approximately. By the time scans come to an end, with the use of a laptop, point clouds are joined with the contribution of CYCLONE-REGISTER software. Then a real-time check is performed to verify that essential data have been recorded. This procedure guarantees that no additional visit for scans to the fuel tank will be needed.

The final joint of the points clouds is accomplished in the office using common targets recorded on the overlapping parts of the points clouds. Then the irrelevant objects are removed from the mesh. CYCLONE-REGISTER software is used for these purposes. The procedure that follows is the creation of a TIN MESH of the fuel tank. From this mesh a 10x10cm grid is exported.



Horizontal and vertical fuel tank's cross-sections



Points cloud created after the scans

Instrumentation / Software

- Leica ScanStation C10
- Laser Scanner Registration Targets
- Leica Cyclone

Deviverables

- Digital model of the tank (TIN Mesh) in vector fromat (.dxf)
- Tank's points coordinates in ASCII format
- Horizontal cross-sections per 2m and vertical cross-sections per 30cm both types in vector format (.dxf)

88A Ginossati st., P.S.14452, Metemorphosis, Greece | info@metrica.gr | www.metrica-isv.gr | T. +30 2102815440