



3D LASER SCANNING: 3D Model M&E

Revamping existing brown field M&E facilities is challenging. Having accurate and up to date as-built information is essential. During the life cycle of the plant there are often many shutdowns and modifications. Unfortunately, as is often the case, the as-built records, are not updated as thoroughly as one would like.

3D laser scanning is a valuable tool in quickly and accurately obtaining an up to date as-built of the existing M&E facility.

The 3D laser scanner is portable and light weight making it easy to deploy to remote sites by commercially available flights or helicopter for small tie-ins or entire plant surveys.

Back in the office commercially available plug-in softwares for PDS and PDMS allow standard CAD design tools to work within the raw 3D point clouds(as-built) collected by the 3D laser scanner on site. Clash detection is also available directly between the 3D pointcloud and the 3D model designed. The designer is assured of a clash free design.

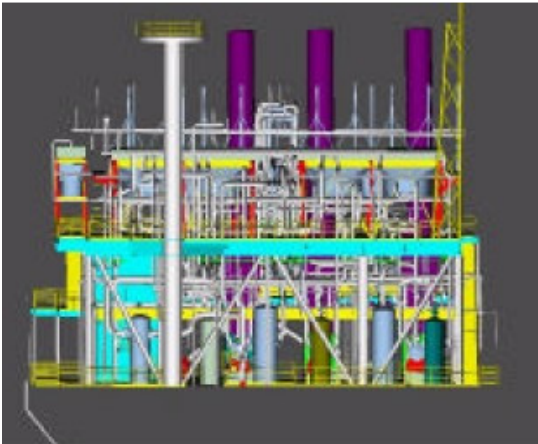
A major EPC contractor required to modify an existing offshore gas compression platform. The existing as-built records were dated from the 1970's and often not legible.

The contractor required an accurate up to date 3D model of the entire platform in PDMS format.

The contractor would use the 3D model to design a new compressor train to expand the platform from 3 to 4 compressors.



Site Photo



3D model

The platform had 2 main levels and was approximately 24m x 26m x 12m in size with considerable congestion.

The field survey was completed in 6 days on site.

A Total Station was used to provide survey control and independent QC on the 3D laser scan data.

The platform remained operational throughout the entire survey.

Access to the platform was by helicopter

Office processing took a further 1 month to generate a 3D model in PDMS format of all pipes, beams and equipments of 2" in size and larger.

Although in this particular case the entire facility was modeled it is often not the case. As mentioned earlier it is possible to design and run clash detections within PDS and PDMS using the raw 3D pointcloud and the proposed new design. Minimal 3D modeling can then be completed once the location and route of the proposed new equipment is finalized working off the raw 3D pointcloud