

CASE STUDY OIL & GAS

Project

DIGITIZING A COMPRESSOR STATION

KEY ACHIEVEMENTS



Reduced safety risk for the field operations team



Inspection time cut by more than 80% versus a typical ground scan



Reduced post scan processing time by more than 40%



Comprehensive data capture using a single versatile tool

SIMPLIFYING DETAILED DATA CAPTURE TO CREATE A DIGITAL TWIN OF A COMPLEX ASSET

Digitally capturing 3D point cloud data for oil and gas assets presents unique challenges and opportunities. An onshore compressor station is no exception, comprising vast amounts of equipment that typically includes incoming pipelines, mainline valve stations, yard piping, filtration, liquid separation vessels, cooling towers, various utilities, compressor skid, and export pipe-related infrastructure.

Capturing the configuration and equipment dimensions of an entire facility requires a solution with the ability to accurately and safely scan both indoors and outdoors, as well as above, below, and between the various equipment.

VERSATILE, MOBILE SCANNING

Aerial Production Services (APS) is an industry leader in providing safe, innovative, and precise solutions for aerial inspections in the construction, telecommunications, and oil and gas industries. They continuously assess technologies that can improve the efficiency and safety of the 3D data capture process and deliver cost-effective solutions without the need for unplanned outages or extended shutdowns.

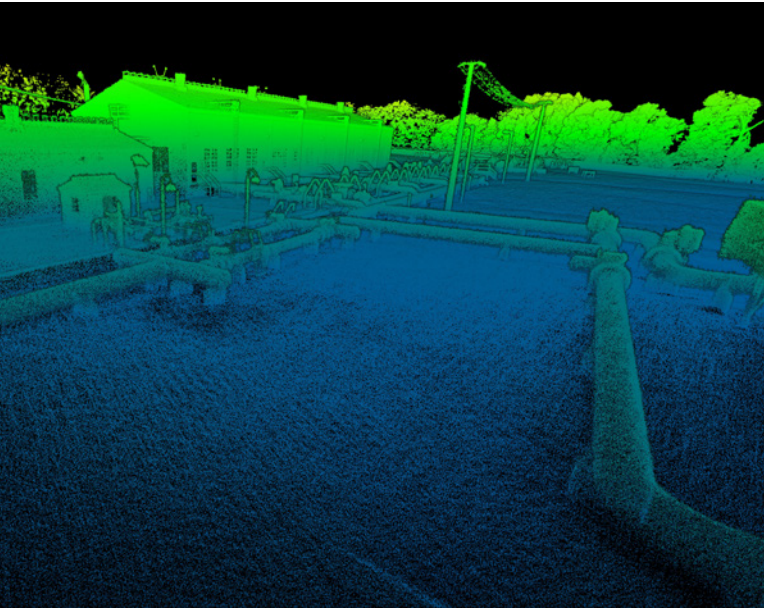
To accurately capture a digital model of a large onshore natural gas compressor station located in the southeastern United States, APS chose Emesent's Hovermap. A world-class, simultaneous localization and mapping (SLAM) based LiDAR system, Hovermap enables the capture of 3D point cloud data of an entire asset accurately, quickly, and safely using a single, versatile technology and workflow.



AERIAL PRODUCTION SERVICES

Project

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“Its versatility is one major reason we decided to go with Hovermap. To take it off the drone and use it in other scanning methods is really useful for us and something you don’t see in other systems on the market.”

DREW TALLEY, Aerial Production Services | Field Operations Manager | Oil and Gas Team

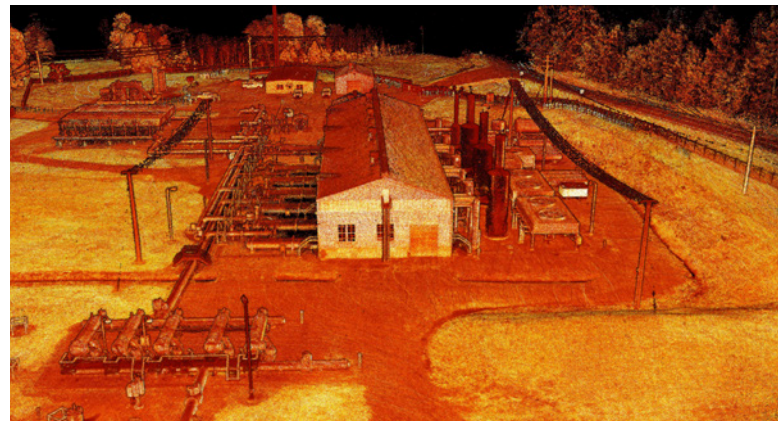
OUTPUTS

Using Emesent software, APS was able to process the raw scan data from Hovermap into 3D point cloud data in their desired format in less than two hours. These outputs formed the basis for APS to create a 3D digital twin of the entire compressor station.

This visualization model will be used by the asset owner to support their maintenance, operations, and construction planning activities for future expansions, as well as provide dimensional data measurements for the design and installation of new equipment.

“The Hovermap unit allowed us to capture data with a depth of detail that we couldn’t achieve before, and to do so in hours, rather than days. Terrestrial measuring tools would have provided some footprints but being able to fly above and below the equipment gave us a thorough representation.”

DREW TALLEY, Aerial Production Services | Field Operations Manager | Oil and Gas Team



DATA CAPTURED IN JUST TWO 25-MINUTE FLIGHTS

APS deployed Hovermap by mounting the unit to a DJI M300 drone and used the Pilot Assist mode to enable personnel to maintain a safe standoff distance from the in-service equipment while getting close enough to capture the required details. To do the same with a typical ground LiDAR scan would require dozens of scans totaling approximately six and a half hours without capturing detail at height. By using Hovermap, APS was able to scan the entire facility in just two 25-minute flights, reducing inspection time by more than 80%. To enhance the 3D point cloud data captured in heavily congested areas, APS then removed Hovermap from the drone and conducted a walking scan survey.

REVOLUTIONIZING THE FUTURE OF OIL AND GAS ASSET INSPECTION

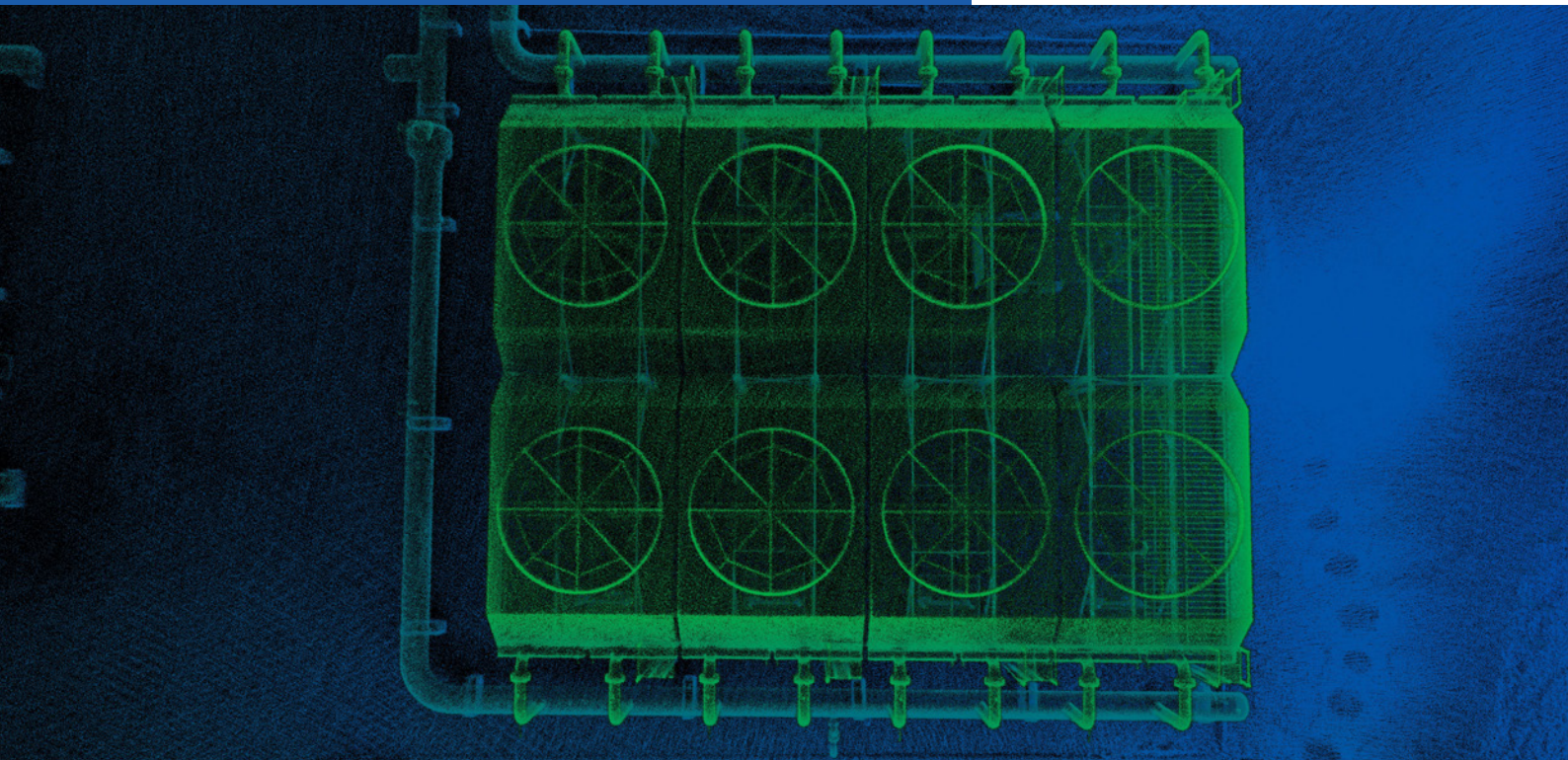
In the oil and gas sector, terrestrial inspections are increasingly being superseded by drone surveys as asset operators look to sophisticated tools and analytics software to digitize their assets. Doing so enables them to capture data more quickly and safely, as well as provide greater insight into the condition and monitoring of changes over time of physical assets and their surrounding environment.

The use of LiDAR scanning makes it possible to:

- visualize sites preconstruction and monitor construction activities,
- digitize physical assets to create 3D digital twins or as-builts,
- plan operations, construction, and engineering activities,
- inspect long linear infrastructure for erosion, damage, and geohazard slides,
- analyze watersheds to determine watercourses and detect potential erosion,
- optimize monitoring and maintenance schedules for plant and equipment, and
- reduce downtime from unplanned maintenance and shutdowns.

“Hovermap is incredibly versatile, and we continue to find new ways to use it to save time across all of our client sites.”

DREW TALLEY, Aerial Production Services |
Field Operations Manager | Oil and Gas Team



Aerial Production Services (APS) is a drone service provider headquartered in Maryland, USA. Since its inception in 2014, it has completed more than 30,000 aerial inspections for the construction, telecommunications, and oil and gas industries. APS is known for its early adoption of innovative technologies to provide optimum outputs for clients. APS was introduced to Hovermap by Qntfi, a leader in the distribution of 3D measurement equipment and related software.

Our flagship product Hovermap, is a smart mobile scanning unit that combines advanced collision avoidance and autonomous flight technologies to map hazardous and GPS-denied environments. Hovermap is uniquely versatile, it can be mounted to a drone, cage, backpack or vehicle to map challenging, inaccessible areas. With a wide range of applications, Hovermap is being used by customers around the world.