

# Storage Tank Assurance and Inspection

Ensuring the safe operation of your assets

Oceaneering offers a comprehensive range of inspection and engineering services tailored to ensure the safe operation of above ground and buried storage assets. Supported by a highly-skilled and experienced team of integrity engineers, all of whom hold recognized industrial qualifications (EEMUA and API), the inspection and integrity department is managed by chartered mechanical engineers equipped with a wealth of inspection, legislative, and project management experience.



Oceaneering holds accreditation with recognized industry bodies such as EEMUA, IMechE, UKAS, and BINDT and can tailor inspection packages to meet clients' exacting requirements.

## FEATURES

**Cost-effective, risk-based in-service and out-of-service inspections**

**Value-adding inspection and NDT solutions reduce tank outages and time onsite**

**Meets EEMUA 159 guidelines and API 653/BS EN:14015 standards**

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## Ensuring the safe operation of your assets

Tank integrity, including fitness for service (FFS) and remaining life, is estimated by using engineering calculations based on critical data collected by a range of non-destructive testing (NDT) techniques and civil engineering surveys.

### Risk and Reliability

The application of risk- and reliability-based techniques for optimizing inspection and maintenance activities follows a global industry trend of moving away from a time-based maintenance approach to a condition monitoring approach. These techniques can be applied to the total maintenance approach for conventional storage tanks.

Oceaneering, with its in-depth knowledge of risk-based inspection (RBI) and reliability-centered maintenance methodologies, is at the forefront of offering these innovative and cost effective approaches.

### Our comprehensive service range includes:

- » RBI and written scheme of examination (WSE) which determine inspection intervals and inspection work scopes
- » Creation of tank inspection and repair methodology in accordance with the requirements of API 650/653, BS EN:14015, and EEMUA 159
- » Foundation settlement assessments to detect tank foundation movement, planar tilt, and other factors affecting the integrity of the structure
- » Visual inspection of associated equipment (piping, bund wall, bund area, insulation, ground connections, anchor bolts, etc.)
- » Fitness for service (FFS) and remaining life assessment using engineering calculations based on critical data collected by a range of NDT techniques and civil engineering surveys

### Non-Destructive Testing

Advanced NDT technologies, provided by our Specialist Inspections Services department, enable us to collect highly-detailed conditional information on your storage tanks and associated pipework. Our advanced NDT offering includes:

- » Magnetic flux leakage tank bottom assessment
- » Alternating current field measurement (ACFM) of welded joints, including the shell to floor attachment

- » 3D Light Detecting and Ranging (LIDAR) scanning for dimensional and settlement assessment
- » Advanced ultrasonic testing of welds, flange faces, and complex parts
- » Ultrasonic corrosion mapping of shell, roof, and floor plates
- » Medium range guided wave testing of annular plates
- » Guided wave ultrasonics of associated pipework
- » Corrosion under pipe support (CUPS) solutions
- » Pulsed eddy current (PEC) of annular plates and insulated assets
- » Remote inspection/ NDT using drones and robotic solutions

### Our engineers also have access to a comprehensive range of conventional non-destructive testing (NDT) methods including:

- » Ultrasonic testing
- » Magnetic particle testing
- » Dye penetrant testing
- » Radiography
- » Eddy current

Many of our NDT methods, including those used to complete detailed corrosion mapping, can be deployed by remotely controlled crawlers or by employing rope access techniques to effectively reduce risk and improve efficiency.

Recognizing the range of skill sets and expertise across the inspection disciplines, Oceaneering has dedicated NDT Level 3 subject matter experts (SMEs) in each field of technology. Using a library of manufactured and ex-service test pieces, these SMEs are responsible for the full delivery of the services including the validation and qualification of methods; training and competency assurance of our operators; and procedure development and maintenance. Our SMEs are available to assist regional personnel and our global customer base with information and advice regarding integrity concerns and appropriate technique selection.