Solving challenges from sea to space

OCEANEERING AT A GLANCE

Founded in 1964, Oceaneering has grown from an air and mixed gas diving business in the Gulf of Mexico to a diversified, advanced applied technology organisation operating around the world. Innovation and creativity has been a key to our growth.

Our goal is to provide safe, cost-effective and quality-based solutions and services to satisfy our clients’ needs.

OUR PEOPLE

Our technology easily impresses - some of it is so advanced that it has found its way into space. But more impressive than our technologies are our people. Oceaneering maintain an open culture in which everyone is given the opportunity to share ideas and opinions. We employ more than 11,000 personnel in 23 countries around the world.

ASSET INTEGRITY

We are industry leaders in the provision of Asset Integrity services. The full story is told in the following pages.

REMTELY OPERATED VEHICLES

ROVs are submersible vehicles operated by technicians from a central van, typically onboard a floating drilling rig or surface vessel. They are piloted by means of microprocessor-based control system through an armoured electrical fibre-optic umbilical. ROVs are used to perform a variety of offshore oilfields tasks in water depths that ordinarily preclude the use of manned diving. These tasks include drill support, subsea hardware installation and construction, pipeline inspections and surveys, and subsea production facility operation and maintenance. We own and operate the largest fleet of oilfield work class ROVs in the world.

SUBSEA PRODUCTS

We manufacture a variety of built-to-order specialty subsea oilfield products. These encompass production control umbilicals, tooling, Installation and Workover Control Systems (IWOCs), and subsea hardware.

While most of our subsea products are sold, we also rent tooling and provide IWOCs and some tooling as a service line.

SUBSEA PROJECTS

We perform subsea oilfield hardware installation and inspection, maintenance, and repair services. We service shallow water projects with our manned diving operation utilising dive support vessels and saturation diving systems. We service deeper water projects with dynamically positioned vessels that have our ROVs onboard.

In Australia, we operate and maintain offshore and onshore oil and gas production facilities, provide subsea engineering services, and operate an offshore logistics supply base.

ADVANCED TECHNOLOGIES

We provide engineering services and related manufacturing principally to the US Department of Defence, NASA and its contractors, and the commercial theme park industry. The US Navy is our largest non-oilfield customer for whom we perform work primarily on surface ships and submarines.

Oceaneering Asset Integrity is an industry leader in the provision of risk and reliability centred services.

Consistent organic growth coupled with strategic acquisitions has positioned Oceaneering as one of the largest providers of integrity services in the world.

Operating worldwide, with regional head offices in USA, Brazil, Australia, United Kingdom, Norway and the UAE, we offer more than 50 years experience of delivering services in a safe, innovative and cost effective manner. Our specialist teams of skilled personnel deliver services that provide solutions to the many challenges that arise in the Oil and Gas, Chemical, Power and Construction industries.

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Our values

Our highly skilled and experienced employees working world wide are the key to our success.

We are dedicated people who work together as a team that includes our clients and subcontractors. Our goal is to live up to our core values. They are not just words, they are important and valuable tools, and we strive to live by them every single day.

Safety & the Environment

The safety, health and well-being of our employees, contractors, customers and the public are our number one ethic and will not be compromised.

• We believe all incidents and injuries can be prevented.
• We protect the environment.
• We are committed to a culture where all employees adopt an HSE mind-set both at work and at home to keep themselves and each other safe.

Teamwork & People

We invest in people, demonstrate compassion and respect to all and promote leaders who challenge, motivate, and acknowledge their people.

• We achieve mutual trust by open, two-way communication, mutual respect and doing what we say.
• We care about our people.

Customer Focus

Our internal and external customers are the reason for our existence, and we are committed to their success.

• We listen to our customers.
• We are responsive to our customers and we deliver predictably.
• We are committed to healthy, long-term, value-added customer relationships.

Ethics

We require the highest ethical and legal standards, in both internal and external relationships. We act honourably toward ourselves, our families, our teams, our shareholders, our communities and our customers.

Accountability

Accountability is the cornerstone of the Oceaneering culture.

• Accountability cannot be delegated.
• A strong commitment to accountability is essential.
• We do what we say.

Excellence

We will be better tomorrow than today by focusing on continuous quality improvement, innovation and embracing change.

• We focus on results; we are committed to being the best at what we do.
• We are committed to seamless operational excellence across service lines.
• We believe both capable people and effective processes are critical for excellence.
Asset Integrity provides condition assessments for process, drilling equipment, structures, lifting appliances, mooring system offshore platforms, FPSOs, and onshore plants.

Asset Integrity delivers a customised integrity solution.

We establish inspection programmes, plan and execute inspections, evaluate, report and make recommendations to our clients. This provides the basis for informed decision making, which leads to asset integrity assurance.

Oceaneering focus on adding value to clients’ operations. Our pragmatic yet innovative approach has resulted in many long term relationships of more than 25 years with the industry’s leading operators.

IN-SERVICE INSPECTION

Inspection and Integrity Management

Services portfolio:
- Condition data management and trending
- Corrosion Engineering
- Corrosion Monitoring
- Fitness for purpose assessment
- Risk Based Assessment (RBA)
- Non-Destructive Testing
- Specialist Inspection Services
- Third party vendor inspection
- Corrosion monitoring (coupons and probes)
- Vibration Management
- Storage Tank Inspection
- Anomaly review and recommendations on remediation
- Condition assessments
- Strategy definition
- Periodic Integrity reports
- Key performance indicators on asset condition
Non-Destructive testing (NDT) is the branch of engineering concerned with all methods of detecting and evaluating flaws in materials. Flaws can affect the serviceability of the material or structure, so NDT is important in assuring safe operation as well as quality control and assessing plant life. The flaws may be cracks or inclusions in welds and castings, or variations in structural properties that can lead to loss of strength or failure in service. The essential feature of NDT is that the test process itself produces no deleterious effects on the material or structure under test.

Ocean engineering supply multi skilled and experienced engineers certified to the appropriate requirements of all NDT disciplines relating to conventional and specialist techniques. Our NDT services are available for either new build or in-service applications.

Conventional and Specialist Non-Destructive Testing

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SPECIALIST INSPECTION SERVICES

Acoustic Ranger
- Rapid technique for the detection of leaks and blockages in tubes and pipes.

Alternating Current Field Measurement (ACFM)
- Quick and reliable technique for the detection of surface breaking cracks through paint and similar protective coatings.

Digital Radiography
- A reliable, cost effective alternative to conventional film by employing digital capture media. The service can be split into flexible solutions using Computed Radiography or Digital Detector Array systems depending on the integrity issue and access.

Corrosion Mapping
- Non-invasive ultrasonic corrosion mapping providing a reproducible fingerprint.

Guided Wave Technology
- Rapid and reliable technique for assessing condition of small and large diameter pipes. Particularly useful for detection of Corrosion Under Insulation (CUI).

Magnetic Flux Leakage (MFL)
- Rapid inspection of storage tank floors for the detection of corrosion and erosion.

Phased Array Pipework Inspection
- A phased array transducer enables an ultrasonic beam to be electronically focused or swept at an angle along the length of the array reducing the scanning requirement of conventional transducers. Technique can be used in lieu of radiography in the correct circumstances.

Phased Array Flange Face Inspection
- In-service inspection for the detection of flange face corrosion.

Phased Array Small Bore Scanner
- An innovative approach to inspection of boiler tubes and thin walled piping.

Pulsed Eddy Current (PEC)
- Non-contact technique for measuring the thickness of steel through any non-magnetic material.

Time Of Flight Diffraction (TOFD)

Tube Inspection
- Inspection of ferrous and non-ferrous small diameter tubes: IRIS, Eddy Current, Remote Field Eddy Current, Disearch
Rope Access

Oceaneering Asset Integrity are firmly established as leading providers of multi-disciplined Rope Access services to most industry sectors, including the upstream and downstream oil and gas industry.

Rope Access is recognised as the safest method of working at height due to the combined effect of a high standard of training, quality equipment and reduced numbers of personnel involved in completing a task and therefore exposed to risk. Job specific risk assessments and detailed method statements alongside the guidelines of IRATA and the HSE make Rope Access the growing choice for difficult location access.

A full member of IRATA (Industrial Rope Access Trade Association) and SOFt (Norwegian standard) means full involvement and continuing commitment to high levels of safety and training.

Experienced instructors provide candidates with training on our purpose built towers prior to appraisal by an IRATA Qualified Assessor. Oceaneering offer courses of IRATA training and certification.

Applications for Rope Access are constantly evolving. Work is not limited by height, inclination or location and can be implemented far beyond the limitations of conventional fall arrest systems or alternative access methods.

Inclination
Unlimited movement horizontally or vertically.

Location
Internal, External, Offshore, Onshore, Confined Spaces, Ships, Cliffs, Rigs, Bridges, Buildings, Towers, Dams, Tanks, Cranes, Pylons, Chimneys and Refineries; Rope Access can reach virtually all locations regardless of whether the work is at height or depth.

Speed
Rapid set-up and de-rigging.

Safety
Fewer personnel involved, eliminates risks.

High Trade Safety Record
Highly trained personnel independently assessed.

Cost Effective
Small “hand picked” teams providing efficient access and egress also, provide the total package of work and reports: Fewer men, less time.

Typical Tasks Deployed by Rope Access Include
- Conventional NDT – MPI, DPI, Ultrasonomics, Visual Inspection, Eddy Current
- Specialist NDT – SCAR Radiography, Guided Wave UT, ACFM, ToFD, Corrosion Mapping
- Paint Inspection
- Electrical Installation and Maintenance
- Inspection of Fire and Gas Lines
- Mechanical installation & Welding Fabrication
- Coating Removal & Application
- Photographic & Video Surveys
- Insulation removal and reinstatement
- Lifting Equipment Surveys
New Pipeline Construction Inspection

**PIPE LAYING ACTIVITIES**

Oceaneering offers a comprehensive range of inspection services for both onshore and offshore pipe laying activities.

Operating from strategically located operational and service centres around the world, the company is at the forefront of pipeline NDT technology with a proven track record of delivering inspection requirements within demanding construction cycles.

**RADIOGRAPHIC INSPECTION**

The department provides a range of four-wheel drive pipeline crawlers capable of operating in pipes from 3” in to 72” outside diameter utilising high output constant potential X-ray heads or gamma radioisotopes. Gamma radiography is possible down to 3” OD pipes using 1mm spherical selenium 75 radioisotopes operated from specially designed tungsten exposure heads.

**AUTOMATED ULTRASONIC INSPECTION**

Oceaneering has one of the largest fleets of Phased Array automated ultrasonic (AUT) systems in the world. Since 2004 Oceaneering’s AUT capability has been deployed in many parts of the world, on a variety of projects and for numerous clients. Pipe sizes inspected have ranged from 5” to 48”, wall thickness from 12mm to 33mm and to a variety of technical standards.
Oceaneering use of advanced inspection methods in combination with cutting edge subsea delivery systems is resulting in reduced environmental risk.

Oceaneering is pushing the boundaries of inspection technology and making the subsea environment a safer place. For many years subsea inspection has been primarily visual, with very little applied inspection technology. Oceaneering offers a comprehensive range of inspection services for subsea application.

SERVICES
- Inspection of Rigid Risers, Flexible Risers and Flowlines
- Subsea Digital Radiography Testing (DRT)
- Internal Pipeline Inspection
- Subsea Confined Space Inspections

SUBSEA INSPECTION TECHNOLOGIES AND PRODUCTS
- Neptune – ROV based high resolution ultrasonic imaging inspection tool for rigid and flexible risers.
- Trident – Diver and ROV deployed advanced ultrasonic delivery system including Phased Array capability.
- Monoscan – ROV deployable, fully automated, high resolution ultrasonic imaging tool. It is designed to inspect welds on large diameter tubular structures such as windmill monopiles.
- RITS – Riser Inspection Trolley System is an ultrasonic inspection tool especially designed for external inspection in the splash zone area, allowing both above water and under water inspection.
- DRT – Subsea Digital Radiography Testing uses real time radiography to non-intrusively inspect for corrosion and blockages in subsea pipelines.
Improved pipeline inspection activities to reduce environmental risk.

Pipeline operators make extensive use of Pipeline Inspection Gauges (PIG) to clean and inspect pipelines. For a line to be piggable, it must have a location to insert the PIG, a location to remove it, an adequate flow of product to propel the pig and last, but not least, no obstructions. A significant proportion of the pipelines in use today do not meet these criteria and are therefore deemed unpiggable and uninspectable. Oceaneering’s innovative and patented technology is changing this perception.

Oceaneering use state of the art ultrasonic technology, propulsion solutions and single point launch and receive bidirectional solutions.

Corrosion, erosion, weld quality and cracking can all be detected with the data presented to an operator in real time and stored digitally for further analysis if required. Operators now have the information needed to make decisions on pipe condition and projected life that enables continued safe and environmentally conscious operation.

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TOPSIDE TECHNOLOGIES AND PRODUCTS

- Hybrid Inspection Tool (HIT) - Ground breaking video inspection tool for long range internal pipe inspection.
- Pipe Intruder - Meets many geometrical challenges for unpiggable pipelines.
- Pipe Rover - Meet the demands for propulsion inspection technologies for large pipelines.
- PipeScan - Ultrasonic pulse echo (PE) methods for wall thickness measuring and corrosion detection.
- Laser Video - Designed to provide contractors, owners, or consulting engineers with the ability to determine internal pipeline conditions after initial installation.
- WeldScan - Has the ability to perform radial scanning around the pipe circumference in order to reveal possible imperfections in girth welds or base material.
All asset owners want to improve operational performance and profitability. They want a modern solution that is cost effective and requires minimal manpower.

Oceaneering provide an integrated maintenance management service with a risk and reliability approach focused on clients critical areas of operation.

1. More time devoted to your core business.
2. A cost efficient inspection and maintenance solution.
3. Reduced downtime through better availability.

**MAINTENANCE ENGINEERING**
Operators might find it challenging to develop a good maintenance program for their equipment and systems. However, the risks of running a poor maintenance programme are high.

Oceaneering’s Maintenance Engineering Department supplies clients with a cost effective quality software program.

**CORROSION MANAGEMENT**
The SOLV concept is currently in use on more than 50 different offshore installations and onshore plants, around the world. It has given customers a substantial documented profit in the terms of cost savings, increased efficiency and improved safety barrier control. SOLV is a unique and effective planning and maintenance management tool. The objective of SOLV is to achieve optimal maintenance with the resources available.

**ADVISORY SERVICES**
Oceaneering’s advisory services are provided to ensure clients maximize the return on assets by minimising risks associated with safety and loss of production.

Oceaneering provide a range of engineering, inspection and measurement services to optimise hydrocarbon production or drilling facilities ensuring safety and reliability. Services are provided throughout the life cycle of the asset providing opportunities for significantly reduced maintenance costs.

**INTEGRITY ENGINEERING**
The integrity management process is to secure sufficient safety, protection to the environment and asset availability for the plant in an auditable and justifiable manner at all times. The requirements, guidelines and recommendations of companies, customers, regulatory organisations and classification companies give shape to the main premises for this process. Services offered are: Inspection Strategy, Barrier Identification and Performance Schemas, Risk based Inspection, Condition Assessment and Monitoring, and Vibration and Stress Measurements.
Asset Condition Evaluation Tools

Software systems supporting the management of corrosion, inspection and plant integrity processes.

Oceaneering’s suite of software systems present managers and engineers responsible for implementing, maintaining and improving the corrosion management strategy with knowledge and information on equipment condition.

Our software systems incorporate a suite of modules, which are used to store and assess the various data formats gathered through inspection and monitoring activities, and can be used to assist in the implementation of the following key steps:

DATA STORAGE
Equipment details, design information, inspection data.

PLANNING
Schedule work activities.

EXECUTION OF WORK
Implement inspection strategy, gather data.

ANALYSIS
Anomaly recording and tracking, results, data, information, risk assessment.

REVIEW
Performance, strategies.

IMPROVEMENT
Modify inspection strategy, recommendations, repairs.

The degradation and inspection management systems stores clients’ asset data (pipe work, pipelines, vessels, valves, etc).
Maintenance Services offers a range of specialised services for plant repair and maintenance. Our services are carried out on-site with portable equipment and are used to undertake the most challenging work with the tightest tolerance requirements.

Our expertise in selecting fit for purpose methods and equipment, as well as our engineered approach ensure that our clients in many cases can continue producing while we do our work.

The repair and maintenance services may also be combined with our testing and inspection services, delivered as a seamless operation with multiskilled personnel.

Our experience and range of services make us an ideal partner when planning maintenance and modification projects. Our mobility, flexibility and expertise is available to solve the toughest of challenges.

From its substantial track record Maintenance Services has developed a unique broadness of service offering, ingenuity, innovation and proprietary tooling.

Maintenance Services provides a complete index of single services, major projects or multiyear programmes.

- Repair and Maintenance Services
  - On-site Machining
  - Cold Cutting Services
  - Hot Tapping, Line Stopping & Plugging Service
  - Engineered Composite Repair
  - Rental Equipment

- Testing and Commissioning
  - Pressure Testing
  - Umbilical Testing
  - Inspection Service
  - High Pressure Cleaning Service
  - Hot Oil/Chemical Flushing Services
  - Bolting Service

- On-site machining
Crane and Lifting Certification

Oceaneering’s inspection services for lifting equipment uses an in-house developed software database to keep track of condition monitoring, inspection intervals, maintenance programmes and history.

**ENGINEERING STUDIES, MODIFICATIONS AND UPGRADING DATA STORAGE**
Oceaneering perform engineering studies for crane replacement, modification and upgrading. Through alliance partners we also install and modify cranes.

**COVERING ALL DISCIPLINES**
The department cover all necessary disciplines i.e. Engineering and Inspection (E&I), piping, mechanical, structural, document management, planning, cost/benefit, risk assessment etc. Our personnel have extensive knowledge within Non-Destructive Testing (NDT) and Rope Access, and provide services ranging from the design stage to the certified product.

**HYDRAULIC TEST-JIG**
Oceaneering have an in-house designed 40 ton hydraulic Test-jig. The jig is built for remote monitoring systems, in order to have high focus on safety handling during the testing of lifting equipment. The test done by the jig can be documented by a printout of time/weight graph.

**SUPPLY AND APPROVAL OF ADDITIONAL LIFTING EQUIPMENT**
Oceaneering supply lifting equipment such as loose lifting gear. We provide new replacement or repair of equipment if damage is found to lifting gear during inspection, thus enabling certification.

**INFORMATION SERVICES PROVIDED FOR LIFTING EQUIPMENT**
- Inspection, testing and certification of lifting equipment
- Engineering and modifications
- Maintenance and repair of appliances and gear
- Supply and approval of additional lifting equipment
Conductor Stabilisation Solution

A conductor stabilisation method for reducing wave-induced damage and increasing guide stability.

Oceaneering Asset Integrity developed a conductor stabilisation method called CSS™ to improve traditional techniques for reducing wave-induced damage and to increase guide stability.

Offshore wave-induced damage to a rig can be costly and dangerous. Lateral wave movement causes conductors or caissons to impact on each other resulting in fatigue and fracturing.

Wave damage intensifies from subsea to topside. Damage caused by the wave shock effect can be limited by installing the CSS™ as low as possible subsea.

The CSS™ uses an elastic Polyurethane compound that can be cast for subsea conductor tube installations or injected directly for topside applications.

REDUCES DAMAGE

Increases guide stability and extends life of conductors and caissons.