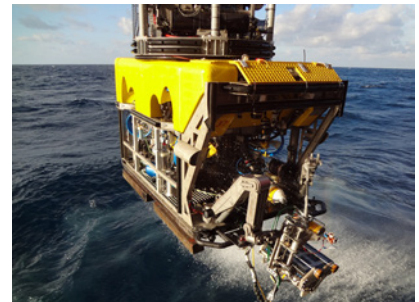


Subsea Digital Radiography

Computed or Digital Detector Array

The boundaries of oil and gas exploration continue to push production facilities into deeper water, presenting new challenges for operators requiring integrity assurance of their assets. Challenging conditions arise from working with a more corrosive product, higher pressures and temperatures, thicker fluids, and high flow rates. Inspection demands for testing of corrosion resistant alloy linings, thicker pipes, and through thicker external thermal insulation combine to further limit inspection options.



Oceaneering subsea digital radiography capabilities provide customers with reliable non-destructive testing (NDT) techniques. Our processes are non-intrusive, do not require shutdown, and penetrate coatings to detect, size, and monitor flaws and anomalies.

FEATURES

Instant radiographic images (DDA radiography)

Adaptable to most pipe sizes, no need to remove coatings

Enhanced contrast, measurement and magnification

Subsea Digital Radiography

Computed or Digital Detector Array

Oceaneering, working with a leading supplier, successfully customized digital radiography equipment capable of delivering integrity information in depths up to 10,000 feet (3,048 meters).

A Digital Solution

Subsea digital radiography is one solution that helps our customers address shallow and deepwater asset integrity needs. This unique service can be provided by computed radiography (CR) or digital detector array (DDA) systems, depending on factors including water depth and the integrity issue being addressed.

DDA produces a radiographic image which is instantly relayed to a topside monitoring and data collection system via a fiber-optic link. The assembly is operable subsea at very high pressures due to the inclusion of GE DDA flat panel detector technology, developed specifically for placement and deployment in a marinized housing.

CR produces a radiographic image following exposure to a rigid or flexible phosphor imaging plate. The plates are placed in special vacuum-packed, static-free cassettes, scanned on the vessel, and interpreted using high resolution monitors.

Applications

- » Identification of erosion and corrosion
- » Foreign object detection
- » Detection of pipeline blockages
- » Assessment of valve operational issues

Radiation Exposure Systems

Gamma

The Sentinel Model 865 Radioisotope Exposure Device is a portable industrial radiographic exposure system. The basic system consists of a camera and a pneumatic control unit. The system may be loaded with up to 240 Curies (8.88 TBq) of Iridium-192.

High Energy X-ray

A marinized, high-energy x-ray system is used to produce an x-radiation source in deep water. This method is typically more suited to higher attenuating applications including inspection of thicker and larger diameter pipes, concrete coatings, or valves.

The marinized detectors are typically incorporated into a handling tool assembly custom developed to position the radiation source and detector on the item under test. The systems can be deployed by divers or a work-class ROV.

Detection Media

The use of digital inspection technology enables shorter exposure times and instant image review and analysis. The GE Rhythm™ and Flash!Filter™ software reduces the need for re-shooting of images, enabling increased productivity and production of clear, and concise images for easier interpretation:

- » Gray levels map linearly to dose enabling wall thickness measurements when using proper calibration strategies.
- » Active imaging area is 16 x 16 in (41 x 41 cm) for DDA and either 13.7 x 16.9 in (35 x 43 cm) or 7.9 x 7.9 in (20 x 20 cm) for CR.

Other Features

- » Wall thickness analysis
- » Wide exposure latitude allows multiple thicknesses to be covered in a single exposure