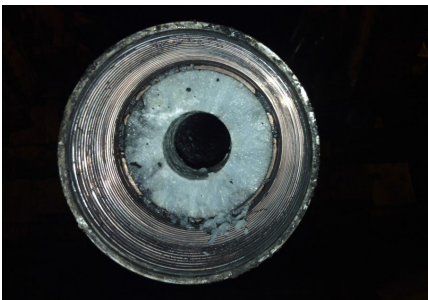


Oceaneering Radiation & NORM Management

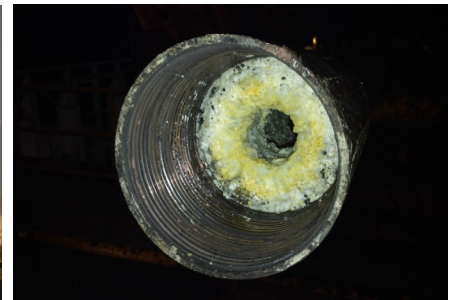
Oceaneering Australia is an industry leader in the detection, handling, storage and disposal of naturally occurring radioactive material (NORM) from oil and gas waste. Our regulatory advisors can assist in the development and implementation of radiation management and protection plans in accordance with local statutory requirements. Our trained radiation safety officers (RSOs) can mobilize offshore or onshore to detect NORM at an early stage in a campaign, implement safe operating procedures and provide regulatory advice to the operators. Our officers can assist with onshore transport requirements for Class 7 dangerous goods. Oceaneering Australia also has the capabilities to decontaminate, temporarily store and permanently dispose of NORM for our clients.



NORM Scale—5 1/2" Completion String



NORM Contaminated Subsea Heat Exchanger



NORM Scale—4 1/2" Completion String



NORM Contaminated Subsea Trees



Contaminated Subsea Heat Exchanger

Facilities & Storage

Oceaneering Australia holds the only licensed facility in the Northern Territory for the handling, transportation and storage of NORM. The facility has 376,736 sq ft (35,000m²) of available space with 22,066

sq ft (2,050m²) of secure undercover storage. The facility has a high bay serviced by 38-tonne and 5-tonne overhead cranes, and a low bay serviced by a 6-tonne overhead crane capable of 262 ft (80 m) of travel. The facility contains two wash bays approved for

NORM decontamination and oil separation to 5-micron filtration, and has a secure hazardous goods storage area. The facility is serviced by 11-tonne and 5-tonne forklifts, providing the capabilities to handle various subsea structures and large equipment.

Regulatory

- » Licensed RSOs
- » Accredited Radiation Protection Advisors (RPAs)
- » Trained NORM technicians
- » Registered radiation handling and management facility
- » Registered NORM storage facility
- » Development of radiation management/protection plans for clients
- » Issue of Certificate of Clearance



NORM Contaminated 300 Te Flexible Flowline

Permanent Disposal

Oceaneering Australia is an industry leader in regulatory approved permanent disposal of NORM. Oceaneering Australia has various pathways to permanently dispose of NORM and can provide solutions that best suit the clients' requirements.

Equipment

- » Zone-rated surface contamination meters
- » Zone-rated gamma dose rate meters
- » Zone-rated personal electronic dosimeters
- » Thermoluminescent dosimeters
- » ROV subsea NORM probe
- » Purpose-built wash container and filtration system
- » Offshore-rated mobile milling unit for NORM
- » Purpose-built enclosed wash pad and containment area
- » 3,000 psi, 5,000 psi, and 40,000 psi pressure cleaners
- » NORM handling consumable PPE packs



World First Subsea NORM Probe

Track Record

Oceaneering Australia has provided radiation services to clients such as Woodside Energy, BHP Billiton, Clough/Nexen, Apache, Quadrant, ConocoPhillips, MODEC, ENI, PTTEP, Roc Oil, Well Ops, Jadestone, Sapura Energy Berhad and ALARA Logistics.

Personnel

To safely and efficiently complete radiation and NORM management services, a wide range of expertise is often required. Oceaneering can provide the following personnel:

- » RSOs
- » RPAs
- » Project managers
- » Project engineers
- » Design engineers
- » QHSE managers
- » NORM technicians
- » Subsea technicians
- » Tooling technicians
- » Ultra high-pressure cleaning operators
- » Class 7 transport license holders
- » Dangerous goods transport experts



Purpose Built Wash Container



NORM Filtration System



Ultra High Pressure Cleaning