



1ST LINE DEFENCE

UXO Assessed, Mitigated, Managed

Capability Statement

Marine UXO Services

Experience

Unexploded Ordnance (UXO) in the marine environment can present a significant risk to intertidal / near-shore / offshore construction and development projects.

We offer a range of support services for all types of marine projects where UXO may pose a risk. Primary market sectors include the following industries: **Oil & Gas Industry, Offshore Renewables, Cables, Dredging & Infrastructure Development** (ports, harbours, docks, construction etc.)

Historic contamination can originate from sources as diverse as WWI and WWII bombing and shelling, offensive and defensive mining, munitions dumping, offshore firing ranges, coastal defences and anti-submarine weaponry.

Our personnel have specialist experience working in marine environments ranging from rivers and lakes to docks, beaches, intertidal zones and offshore works.

Core Competencies

1st Line Defence Marine Services are split into five categories:

- Consultancy & Advisors
- Geophysical Surveys
- Investigation / Clearance
- Recovery / Disposal
- Environmental Mitigation

Consultancy & Advisors

- Consultancy
- Project Management
- Seconded consultancy to client project teams
- Provision of on shore & offshore client reps
- Documentation writing provision
- ALARP certification (Survey)
- Quality Control / Quality Assurance
- Risk Assessments / Desktop Study
- Risk Mitigation Strategies (project specific)

Geophysical Surveys

- Magnetometer Survey Electro-Magnetic Survey (EM/Pulse Induction)
- High Frequency Side Scan Sonar
- Multi-Beam Echo Sounder (MBES)
- Single-Beam Echo Sounder (Single-Beam)
- Sub Bottom Profiling (Chirp or Parametric)
- Acoustic (2D & 3D)
- Geophysical Intrusive Survey
- Interpretation and Data Processing
- Quality Control / Quality Assurance

Investigation / Clearance

- Diver investigation
- Investigation - Fixed Boom Multi-Tooling System
- ROV Investigation
- Mass Flow Extraction
- Support to Dredging Operations

Recovery / Disposal

- Destroy in-situ (high or low order methods)
- Remove, Relocate, Destroy (high or low order methods)
- Remove, Recover, Package, Transfer to land for final disposal

Environmental Mitigation

- Marine Mammal Observers
- Passive Acoustic Monitors
- Acoustic Deterrents
- Fish Scaring charges
- Water Column Sampling

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