UXO considerations for successful offshore projects

With the increased adoption of green energy, more and more offshore wind farms are being installed and this, in turn, is bringing about the need for marine UXO surveys to avoid unexpected construction delays. Fugro’s Martin Valk discusses what marine developers need to consider when planning their UXO risk mitigation.

It is suggested that the world’s oceans are scattered with around 1.3 million tonnes of unexploded ordnance (UXO). This represents a significant hidden danger that could pose a serious threat to the safety of those undertaking marine development, such as the ever-growing numbers of offshore wind farms that rely on deep monopile foundations.

Before new marine developments begin the operators behind them should consider the five following points when factoring UXO into their offshore projects.

**THE ROADMAP TO ALARP**

The starting point for marine developments must be a comprehensive UXO risk assessment with a robust risk mitigation strategy. The strategy provides a route to a safe construction site and ALARP sign-off, a certificate confirming the UXO risk is “as low as reasonably practicable”. The ALARP certificate is the end goal, so do your research from the outset. Is the certificate insured? How long is it valid for? Are there exclusion zones? Only partner with a company capable of fulfilling ALARP obligations.

**SCHEDULE MANAGEMENT**

Marine developments are major investments on a tight schedule. The UXO survey informs the quantity, type and location of potential targets across the site, but the survey findings may disrupt the schedule, leading to time and cost overrun. For example, a survey that identifies 1,500 targets will require three times more vessel days than a survey that identifies 500 targets – particularly challenging if this happens at the end of the summer season. However, a robust risk mitigation strategy can help anticipate setbacks for a swift resolution, allowing the project to get back on track. Fugro optimises operations by running survey and identification vessels simultaneously, informed by real-time data that is processed remotely. This approach is suited to weather-critical operations and maximises uptime during the summer months.

**FALSE POSITIVES**

Fugro’s UXO mantra is “better survey for less identification”. Up to 99 per cent of targets dredged out following a survey are false positives: mostly ocean debris such as anchors and chains. That inefficiency is why Fugro has invested in research and development to minimise false positives requiring a dig. We apply 3D imaging technology to investigate magnetic anomalies and support the dredge/no-dredge decision. We have used it on approximately 2,000 UXO targets to date and achieved a 75 per cent reduction in false positives, saving our clients both time and money.

**METHODOLOGIES**

UXO detection and identification methodologies often rely on oil and gas technology unsuited to today’s offshore wind industry – we are changing that. For nearshore operations, where UXOs are buried deep below strong currents, we have developed an innovative identification solution: a diverless shallow-water tool integrating sensors, cameras, an optimised dredge and more. We have eight remote operations centres that supervise ROVs and receive live data; through remote operations, we have moved many of our project teams onshore to reduce offshore exposure. Fugro’s ROVs will soon be capable of dredging out and identifying UXO targets entirely remotely, which will be a game-changer in terms of safety, cost, time and carbon emissions.

**RISK MITIGATION**

The construction of an offshore wind farm involves many elements, from export cables to foundations and jacket. Some offshore wind farm developments have multiple UXO risk mitigation strategies and use different survey and identification contractors, but this approach fails to leverage economies of scale. Instead, choose a single provider for your UXO risk mitigation strategy, covering the entire offshore wind farm site, to benefit from an all-encompassing set of standards and procedures, one ALARP validity and a single mobilisation fee.

**IN CONCLUSION**

If you are an offshore developer, initiate your UXO risk assessment and mitigation strategy at the earliest possible opportunity and choose your UXO risk mitigation provider wisely.

Select one that has a strong track record, robust processes and can optimise its survey and identification techniques to improve safety while reducing time and costs. Above all, ensure your provider sets a clear roadmap to ALARP and can fulfil its obligations, should the project take an unexpected turn.