Quantitative risk assessment in wreck removal tendering

Sam Kendall-Marsden, of The Standard Club, explains the role of quantitative risk assessment in wreck removal

The Standard Club is one of 13 clubs in the International Group (IG) providing insurance for shipowners in relation to third-party liabilities flowing from the operation of their ships. The mutual system enables the clubs to provide very high limits of cover (currently up to US$3billion) in relation to a broad range of risks. Despite a recent decline in the number of claims, the Club continues to experience annual claims inflation of 5 per cent.

In addition, the exposure shipowners face in relation to very large claims has increased markedly in recent years. An example of this is in the context of wreck removal, where increased costs have been attributed to the involvement of the relevant authorities, advances in technology and the increasing significance of environmental considerations. However, if Clubs are to maintain the breadth and depth of cover provided on a cost-effective and sustainable basis, then it is vital rising costs be kept under control.

Contracting

Contracting is a key aspect of cost control in the context of wreck removal operations. Last year, the IG large casualty working group reported on a study of recent wreck removal cases (the executive summary can be read here: www.standard-club.com/news-and-knowledge/news/2016/11/web-alert-the-international-groups-large-casualty-working-group-updates-recommendations-to-clubs-handling-major-casualties.aspx). Contracting was one of the issues examined and, in addition to selecting the right contract, the working group: "... emphasised the need for Clubs to be keenly focused on ensuring adequate and effective risk transfer mechanisms in contractual terms of engagement".

This means using contracts as a means of shifting risk from the shipowners and their Clubs to the salvors performing wreck removal operations.

Quantitative risk assessment

Quantitative risk assessment (QRA) is a process used to facilitate the identification, quantification, mitigation and allocation of risks in project management. QRA has been used in the offshore oil and gas, construction and nuclear industries for a number of years and is now being used with increasing frequency in wreck removal tendering, particularly for larger operations. It is a team-based approach, in contrast to the more traditional approach of salvors submitting wreck removal tenders that are then assessed in isolation by technical consultants engaged by and on behalf of the shipowner and their Club.

The first step in the QRA process is the identification of risks (both technical and non-technical) that could have adverse consequences on the wreck removal operation in terms of time and/or cost. Those potential effects are then assessed, together with the probability of the risks eventuating. A software tool facilitates a process of all relevant stakeholders (including salvors and technical consultants) collaborating to devise risk mitigation measures. The likely effects of mitigated effects eventuating are modelled to a prescribed degree of accuracy to ensure results are reliable. The final step is then to determine the contractual allocation of the various risks and the costs of the corresponding mitigation measures as a means of risk control.

QRA in practice

A hypothetical example of how QRA might work in practice involves the scenario of a wreck that is required to be removed but which is partially embedded in the sea bed. A risk that could have time and/or cost consequences is a need for more dredging than initially envisaged if, say, the wreck were embedded to a greater degree than initially thought. The effect of this would be an increased scope of dredging work, bringing with it increased time and cost. The impact of this risk can be assessed as a factor of the probability of it eventuating, coupled with the time and cost effects were it to do so. A practical mitigation strategy could be to conduct more detailed surveys to establish a more accurate picture of the wreck site. A risk control strategy could involve salvors assuming the liability for any further dredging that may be required, in exchange for enhanced reward. It is also arguable the salvors would be in the best position to manage the risk, given they are likely to be the party with the most detailed knowledge of conditions on site at the outset and as the operation evolves.

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Contractual issues

The allocation of liability agreed by the parties will be reflected in the wreck removal contract, which may be for a lump sum price. The most commonly-used contracts in the context of wreck removal operations are the BIMCO Wreckhire, Wreckstage and Wreckfixed forms. If the desire is to use the QRA process to arrive at a true lump sum contract then either of the latter two forms are likely to be preferred over the former, being lump sum contracts. However, if this is indeed the desire, then it would be necessary to eliminate contractual mechanisms undermining the lump sum concept, for example clause 4 of the BIMCO Wreckstage and Wreckfixed forms which allows a salvor to claim additional costs.

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There will be a need for clarity in relation to the parties' obligations, especially the salvors' wreck removal obligations. It will also be important for the salvors' method of work to be precisely defined and for there to be some control mechanism over proposed variations. Similarly, the nature of the salvors' obligation to adhere to the project timeline should be defined. Given the contemplated shift of risk onto the salvors, the contract will need to clearly define the circumstances under which the contract may be terminated, which might be confined to where performance becomes physically impossible as opposed to merely more difficult.

Benefits of risk-shifting through QRA

The key benefits of the process for all parties are a greater degree of confidence in time and cost forecasts and a reduction in overall project risk through the risk identification and mitigation process. More accurate reserving benefits not just the Club but also reinsurers. Furthermore, increased certainty of project duration assists in managing the expectations of external stakeholders like local authorities and can also mitigate potential third-party liabilities, for example, business interruption claims.

For the Club, there can also be the benefit of risk transfer and the reduction of areas where costs may subsequently increase. In contractual terms, this could take the form of a true lump sum contract. For the salvor, there is the opportunity to earn an enhanced reward in exchange for the assumption of a greater degree of risk. In addition to enhanced reward, greater confidence in cost forecasts means there is a lower probability of profit margins being eroded by unforeseen eventualities. Salvors may also enjoy the benefit of certainty in relation to the timing of payments and the front-loading of planned engineering, which drives efficiency.

Potential concerns

Engaging in a QRA process increases the burden of work on salvors tendering for wreck removal contracts, which may disadvantage the smaller salvage companies that lack the resources of their larger rivals. That said, the process will not be appropriate in every case, and in smaller salvage operations conventional methods of risk assessment are likely to remain appropriate. At the other end of the scale in the context of a very large and complex operation, it would arguably not be appropriate to use the QRA process as a means of shifting risk to salvors in exchange for enhanced reward because in an operation with a large number of imponderables the risk premium is likely to be too great. For the salvor, there is also the danger of striking a catastrophically bad bargain. Furthermore, while technically-complex wreck removal operations share certain common features with the large projects where QRA is already commonplace, there are also significant differences including the immense time pressure that can be imposed by local authorities, changing conditions on site and uncertainties about the condition of the wreck. That said, QRA may still have a role in discrete components of larger wreck removal operations.

The QRA process relies on the proper identification of material risks, the quality of the information about those risks and assessments of their probability and consequences. To the extent the inputs are inaccurate, so conclusions drawn will be correspondingly unreliable. There is no substitute for a detailed assessment of conditions on site, the correct interpretation of that information and an accurate assessment of risk informed by the experience of appropriately-qualified marine professionals.

Conclusion

The increased use of QRA in the context of wreck removal tendering reflects a desire for greater certainty. There have been recent cases where initial forecasts proved inaccurate and subsequent increases in project scope led to corresponding increases in project duration and cost. The QRA process facilitates a much more forensic analysis of key risks, the creation of robust mitigation strategies and the contractual allocation of risks between the parties. It is not just the paying party that benefits, salvors too can benefit through increased certainty of the project timeline and – sometimes – increased reward for the assumption of increased risk.

The QRA process may not be appropriate for every case and more traditional methods of risk assessment will remain appropriate, particularly in the context of more straightforward operations where risks are limited. It is also the case that not all salvors may have an appetite to accept increased risk, in exchange for enhanced reward or otherwise. Some may embrace the concept of assuming the role of "risk partner" with the shipowner and their Club but others may see their role as simply one of performing a service in exchange for reward.

However, in an increasingly difficult salvage market characterised by falling revenues, accepting a greater degree of risk (sometimes in exchange for enhanced reward) may become increasingly difficult to resist. ***MRI***

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