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PERSPECTIVES

Challenges to Cost Modelling for Marine-Related Property Claims

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INTRODUCTION

Marine facilities have evolved into highly developed, complex, vital infrastructure. What were once collections of docks, pavements, warehouses and guard shacks have become complex cities.

Modern ports have rail facilities, multiple utilities (e.g. steam, water, sewer, storm drain, electrical and communication services), fuel distribution, hoisting and conveyance systems, dust control, fire suppression, bulkheads, seawalls and communication equipment, as well as numerous structures and improvements designed for efficient cargo handling, distribution and transport, business uses, emergency services and repair.

These developments are exposed to risk 24 hours per day, 365 days per year. Risk factors include hazardous weather, equipment failure, structure failure, cargo catastrophes and human error. Property claims can quickly become unwieldy.

How do these property claims, with their inherent risk factors, differ from garden variety property claims? Logistics is the answer. Costs associated with logistical challenges drive the overall value of these claims disproportionately higher than non-marine counterparts. Logistical aspects create challenges in the cost modelling process of assembling a rough order of magnitude and should be identified in the earliest stages of the claim resolution process.

Returning a marine facility to its pre-loss condition presents logistical challenges that go beyond the long lines at the port entrance. Supply chain issues are magnified by specialized marine equipment that is subject to reinstatement and by local facilities' issues affecting delivery and storage of materials. Marine facilities must make business decisions driven by the financial realities of a global economy. Therefore, scheduling of all activities must accommodate a diverse array of facilities' stakeholders' activities, including the owner's operations, tenants' operations and third-party activities related to both. Assembling qualified construction personnel for marine work creates hurdles due to the security requirements for unescorted, unsupervised labour. Personnel face the same access challenges as materials. Contractor equipment is subject to port restrictions related to access control and operational limitations. Contractors working at ports require significant planning and scheduling, both of which carry costs commensurate with complexity.

This article examines factors that drive costs, expose all parties to additional risk and affect the length of the reinstatement period. It will show how stakeholders can work together to craft an accurate scope and schedule for reinstatement, as well as steps to take and questions to ask when crafting a cost model as part of the rough order of magnitude (ROM) process. A ROM is an estimate of costs drafted in the earliest stages of a claim when the totality of a repair scope has not yet been defined. It is an integral component of the reserve setting process.

A BREAKDOWN OF MATERIALS, LABOUR AND EQUIPMENT

Marine equipment that may be required for reconstruction presents the twin challenges of lead time and delivery constraints. Examples of this equipment include cranes, refrigeration equipment, material handling equipment, marine power equipment and other components not generally installed outside commercial marine facilities. Delivery by boat is sometimes required for components such as cargo cranes and related cargo handling equipment. Specialised installation crews with specific equipment installation training and programming knowledge are often required for such unique components, requiring scheduling in advance of timely delivery of long lead items. Reinstatement contractors must overcome the challenges of crafting a proposal and schedule where the equipment, delivery mechanism and crew(s) all coincide for timely delivery and installation.

All these aspects, including acquisition, delivery and installation, can be affected by site-specific logistical constraints.

The logistical aspects of long lead equipment acquisition and managing delivery of construction materials should be factored into a contractor's schedule and, consequentially, the price of reconstruction. Examples of logistical challenges include access issues such as entry gate time limits and restricted paths of travel. Gates and paths of travel are strictly controlled to accommodate the tenants' activities. Both affect a contractor's ability to deliver material and personnel to the site of reconstruction.

Further magnifying these complexities, and driving costs, are logistical "challenges within challenges". For example, delivery drivers generally require an escort from the time of entry through to the time of departure unless that driver has proper credentials. Parking personal vehicles near a worksite may be limited or prohibited.

On-site storage of equipment and/or materials may be restricted or, in a worst-case scenario, prohibited, due to the working constraints of port tenants and site availability. If offsite storage is required, the cost of warehousing the equipment and material, the delivery process, and potential impact on construction crews should all be considered. Accounting for the costs of these challenges is critical in assembling a representative ROM for proper reserves and managing completion expectations.

Workers at marine terminals in the US are required to hold a valid transportation worker identification credential (TWIC). This reduces the pool of qualified personnel from the general population of construction personnel to credentialed members. The TWIC Card is required by the US Maritime Transportation Security Act and is required for workers who access secure areas.

Limited crews, possibly working limited hours, with potential access restrictions and potentially having insufficient material on hand to complete a shift, can exacerbate costs. Facilities are eager for repairs and reconstruction to be completed, but the needs of port tenants are the primary focus of port operators, which can be at odds with efficient reconstruction practices. In accommodating those needs, extended project durations and periods of overtime and premium pay can significantly affect the cost of repairs.

CALCULATING A ROUGH ORDER OF MAGNITUDE

Predicting these challenges and crafting a cost model to produce a responsible ROM must encompass the cost of repairs with these known or expected impact costs. An expert or adjuster tasked with assigning monetary figures to these factors must somehow account for these variables as described above. The following is a basic starting point from a former marine contractor.

Identify the Property Damage

This may sound obvious, but a detailed damage assessment is necessary. Has a structure suffered simple architectural damage? Does it have structural damage? Does it have both? Is there equipment to be repaired or replaced? By establishing the parameters of the repair process, an analysis of the probable logistical hurdles can be made and solutions predicted. Determining the types of labour, the types and quantities of material, the supplies and the equipment needed for reinstatement will allow for an analysis of the potential logistical magnitude each aspect will pose.

An example of logistical disparities of magnitude would be the difference between a metal warehouse panel replacement and a reinforced concrete warehouse wall panel reconstruction. While both are wall repairs, the former would require one or two trades and can be accomplished in a matter of days. The latter would require several trades with varying crew compositions, a significant lay-down area, accommodations related to gates and roads for deliveries of equipment and material, operational accommodations and flexibility for time extensions for each accommodation. Remembering that reinstatement activities must accommodate the facilities' activities and restrictions, one begins seeing the escalation of costs related to the magnitude of logistical considerations.

Does the Repair Require Any Long Lead Time Equipment

Marine equipment, or components, can have significant lead times. Equipment lead time encompasses the design or redesign, the review process and the final approval process to release for fabrication. The fabrication and packaging of all components and the final shipping and delivery are predicated on the completion of the former stages. Shipping can include multiple modes of transportation. With each component of lead time being contingent on the completion of its predecessor, the risks of schedule slippage are omnipresent. Knowing the duration of each activity and knowing who is responsible for completing each activity will help establish a timeline for the completion of all reinstatement activities. This knowledge is a significant factor in developing the cost model and schedule.

What Are the Facility's Working Constraints?

The contractor, subcontractors, suppliers and vendors will all be required to conform to the port's operating restrictions. Such restrictions will include gate access (e.g. which gate, what time, how many deliveries are allowed, etc.), road use, (e.g. which roads, what times, what size loads, etc.) and numerous other site-specific logistical concerns. Restrictions on crane erection and use, parking areas, laydown areas, actual working times allowed on the repair site, actual times allowed for transit within the facility and possible disruptions due to changing conditions will all impact the contractor's ability to proceed with the work. Identifying these in advance will allow for a more reasonable calculation of the ROM and evaluation of the final claim amount.

Figure 1A *- Collapsed crane.*

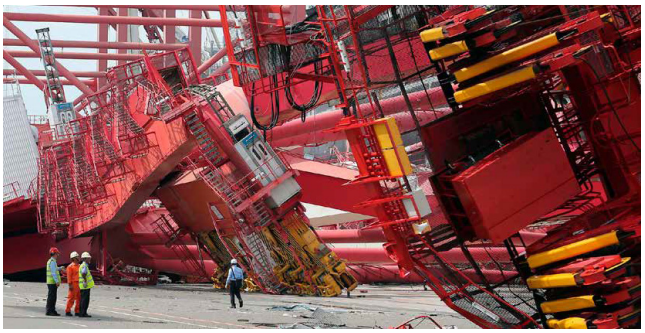

Figure 1B *- Collapsed crane and port personnel.*

Knowing the facility's requirements and identifying the impacts on reconstruction activities require constant communication between the facility and the general contractor. These requirements and any changes should be relayed to the expert and the adjuster in a timely manner. Working closely with the facility and the reinstatement contractor while drafting a cost model is imperative to limit the risk of omitting potential logistical costs from consideration.

Will the Repair Process Require Temporary Repairs for Occupancy?

This is critical information but may not be readily apparent from the initial inspection. While a port may be able to work around an affected structure, the areas surrounding the structure may require occupancy by the operator or tenant. This may become an issue when the schedule for repairs is presented. This may not become an issue until materials or replacement equipment have been approved for ordering.

Having the preliminary schedule, with previously identified contingencies, approved by the port operator is a critical step in developing the cost model for the ROM. If this information cannot be determined, a conference with the stakeholders should be arranged to set expectations, clarify scope and document the understanding of the expected working constraints.

How Prepared Is the Contractor?

Selecting a well-prepared contractor, with the ability and experience necessary to plan for logistical challenges, personnel challenges and general degree of difficulty inherent to marine construction, is the key to successful reinstatement. Questions to ask include:

- Does this contractor have marine experience?
- Does this contractor have qualified personnel?
- Does the contractor have, or have access to, the required equipment?
- Does this contractor have the financial wherewithal to prosecute the work in a timely manner?

A contractor with knowledge, experience, personnel and financial capability is the ideal resource for navigating the evolving challenges of property damage repairs and reconstruction. Planning for contingencies presented by inexperience should be a factor in determining the ROM.

CONCLUSION

An adjuster and expert, working together with the port representative, the property stakeholders and the reinstatement contractor should, collectively, be able to craft an accurate scope and schedule for the types of reinstatement discussed in this article. These are the keys to the assembly of the cost model. The details of a well-defined scope of work and a schedule of activities should form the reasonably calculable cost components necessary for a responsible ROM and setting accurate reserves. This data is the key to evaluating the final close-out of a claim, including any supplemental claim costs arising at the completion. If all entities remain in contact throughout the course of reconstruction, the claim should proceed to a fair and reasonable conclusion. Involving experts early in the claim process ensures efficient and cost-effective planning, collaboration and follow-through are applied from start to finish.

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