



LP Bulletin

Friday 28 May 2010

Bulletin 697 - 05/10 - Carriage of Cement Cargo - USA

The Association has recently been involved in a case where a Member incurred cleaning costs which exceeded US 100,000 and delayed the vessel 8 days. Some of the factors that contributed to the high cost and delay could have been prevented and we issue this bulletin to assist Members who carry cement in bulk to US ports.

A number of factors will determine the outcome of the cargo discharge of cement in bulk and subsequent hold cleaning that follows. Some of these factors include:

1. Condition of the cargo holds (cleanliness) prior to loading
2. Local weather at time of loading
3. Open or closed hatch loading
4. Moisture content of cargo at time of loading
5. Hatch leakage or ingress of water (sea or ballast) during the voyage
6. Local weather at time of discharge
7. Taking on relatively cold ballast water during cargo discharge/sweat condition possible

Some of the above-mentioned conditions are unavoidable to vessel owners, such as local weather at the load or discharge ports and moisture content of cement at time of loading. The voyage instructions or CP dictates other factors, such as open (gravity feed) or closed hatch (blown in) loading. And then some carriage conditions may or may not be preventable by owners, i.e. hatch leakage (heavy weather) or loading ballast water to minimize vessel stress during discharge operations.

In this particular case it was found that local weather at time of loading, and especially during the 7 day discharge, played a significant role in the adverse condition of the cargo holds subsequent to cargo discharge; cement residue ROB (remaining on board) was partially hardened at completion of cargo discharge. Additionally, the actions of the shore based cleaning crew exacerbated the condition and further delayed cleaning efforts and departure of the vessel by attempting to clean the partially hardened cement residue by inadequate means and by not immediately reporting the adverse hold conditions found to charterers.

At the completion of discharge of cement in bulk on uneventful "normal" voyages, a thin dry residue and small pockets of cement remain loosely adhered to exposed surfaces in the cargo hold including shell frames, shell plating, bulkheads, gusset plates and pipe brackets, ladder wells, hopper tank tops and tank tops. The residues are best removed by use of manlifts utilizing brooms, brushes and air guns to knock down the loose dry cement to the tank tops where the loose cement can be collected and bagged for removal from the cargo hold. Once all the loose dry cement has been removed, a pressure washer (2500 psi) is used to fresh water rinse each cargo hold from top to bottom to remove any remaining cement dust.

The time to clean a typical 5 hatch Handy Max bulk carrier after the carriage of cement in bulk, with the use of manlifts, shore based labour assisted by the ship's crew, is approximately 48 to 60 hours, at an approximate cost of US 42,000 to US 50,000 in labour and equipment.

The below photo was taken after the initial cleaning operation was completed (sweep, blow and pressure wash). Note remaining residues of semi-hardened cement on all surfaces. Under normal conditions all cement residue would have been removed.



Due to the semi-hardened nature of the cement residue subsequent to discharge, a more aggressive approach should have been followed from the outset of cleaning. Namely, stiff bristle brushes and hand scrapers should have been used to remove as much cement residue prior to pressure washing. The 2,500 psi pressure washers did not have enough force to remove the semi-hardened cement residue. Applying the water to the residue aided in the curing process of the cement. Unfortunately, the cleaning company continued to pressure wash each of the cargo holds top to bottom before much larger 20,000 psi pressure washers could be loaded on board.

In the below photo the cement residue is being removed by a 20,000 psi machine; however, at a much higher cost and delay. A second barge was required to transport the additional equipment out to the ship lying at anchor, as well as a fresh water barge to supply the larger power washers with clean feed water.



Below are some actions that Members can take to prevent an expensive cleanup and vessel delays:

- 1) Discourage discharge of bulk cement during periods of inclement weather. If charterers insist, they should present the vessel with a Letter of Indemnity.
- 2) The vessel should encourage the attending stevedores to knock down and discharge as much residual cement as possible. Some ports will allow the ships crew to assist in knocking down residual cargo prior to the completion of discharge operations.
- 3) Near or at the completion of discharge operations, the chief officer should assess the condition of the ROB cement in each cargo hold to determine if the residue is sticky or dry and the estimated ROB for each cargo hold.
- 4) Better communication between the cleaning company and the ship's crew. When a shore-based cleaning crew is on board, the Chief Officer often assumes the cleaning company will automatically rectify the condition of the cargo holds. The Chief Officer should constantly monitor the progress of the cleaning crew, or lack thereof, to ensure that the holds are being cleaned to the satisfaction of the vessel owners. If not, discussions between the vessel and cleaning supervisor should be held until appropriate actions are carried out. Involvement by the local agent, marine surveyor or charterers may be required to get adequate results.

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