

Summary

Most owners of chemical tankers recognize that their vessels are spending a lot of time in port compared to the total sailing time. The time spent in port can be considered as being non-productive. That is the reason why it is desirable, from the shipping companies point of view, to reduce as much as possible, the time spent in port.

From 'Port Time Analysis of Chemical Tankers, Part I' we know that:

- 43 percent of the time spent in port is lost because of delays.
- The biggest single reason for delays in port is waiting for an occupied berth (40% of the time lost). This means that a vessel can not dock at a specific berth because another vessel is still busy with cargo handling.

Based on the results above, the scheduling of the vessels through port was analyzed in more detail and a scheduling tool was developed ('Route Simulation Software').

The 'Route Simulation Software' calculates the statistical fastest route through port when taking the auxiliary conditions into consideration. The simulation is based on statistics concerning the docking times and interarrival times of vessels visiting the different docks. Information resulting in the statistics was gathered during the first part of this project.

Information concerning the auxiliary conditions is gathered by the port agent by calling the different terminals remaining in the rotation. Based on the results obtained from the 'Route Simulation Software' and additional information available about the situation in port, the port agent decides which terminal is going to be visited first.

The 'Route Simulation Software' also contains an option where the activities of chemical tankers in the port of Houston are simulated without having any knowledge of the auxiliary conditions. In this case the auxiliary conditions are deduced by simulation.

Although the scheduling tool is tailor made for its application at Texas Marine Agency, Inc. there always exists resistance among the users when introducing new software. In order to implement the software successfully, the communication towards the users and a proper documentation of the software is emphasised in this study.

In order to incorporate the 'Route Simulation Software' in day to day scheduling operations of the port agency, the following will be required:

- Gradual introduction of the 'Route Simulation Software' at Texas Marine Agency, Inc. is preferred. The users should get the change to get acquainted with the system over a certain amount of time. Therefore active support from CTA is required in the near future.
- The computer facilities at Texas Marine Agency, Inc. do not meet the required standard in order to work sufficiently with the 'Route Simulation Software'. A faster computer should be purchased.

On the long term it might be interesting to approach the scheduling problems from a broader perspective than is done in the current situation. It seems that more cooperation between the parties involved (especially the operators and the terminals) might shorten the port times of the vessels.