



## Client

Ciment McInnis

## Vessel Type

Panamax and Seaway Bulk Carriers

## Location

Port-Daniel-Gascons, Quebec, Canada

## Determining Operational Limits for Ships Manoeuvring at the McInnis Cement Port Terminal

McInnis Cement entrusted the Maritime Simulation and Resource Centre (MSRC) to carry out a study to establish the operational limits for their planned port infrastructures in Port-Daniel, Canada.

The objectives of the study were:

- Set the upper limit of winds for all dockings and departures;
- Assess the performance of tugs under severe wind and sea conditions and issue recommendations on what should be the size, type and power of tugs;
- Recommend navigation aids which should be installed; and
- Recommend the types of manoeuvres which could be undertaken by different types of ships, with or without tugs, under different loading conditions depending on the wind strength and direction and depending on the characteristics of the swell and waves.

For this study, the MSRC developed two types of ship models, the mathematical structure of the location's database, the new structures, coastline, bathymetry, navigational aids, etc. Current vectors and tidal cycles were also incorporated.

Simulations were conducted by CLSLP pilots.

