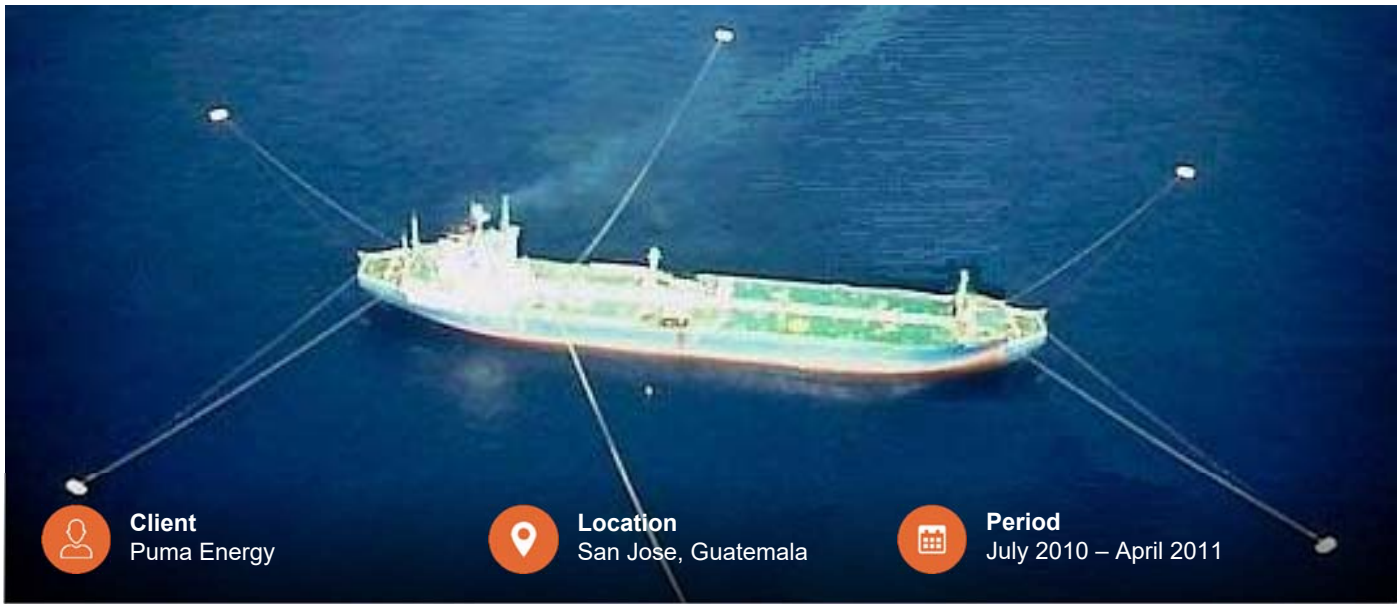
# PROJECT SHEET

## DESIGN AND CONSTRUCTION OVERSIGHT OF CBM TERMINAL UPGRADE



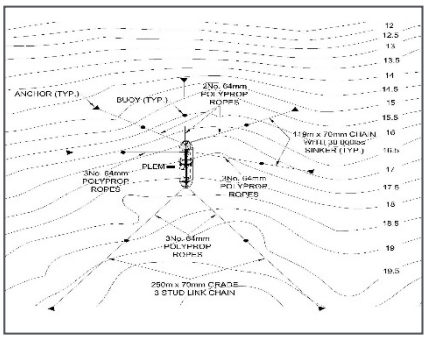

### Design and Construction Oversight of CBM Terminal Upgrade

In July 2010 Puma Energy experienced a tanker break-out at their CBM mooring system at the oil products terminal in San Jose, Guatemala. In consequence, PMI were appointed to analyse the existing CBM terminal, and to design and oversee the execution of the required upgrades to the mooring system.

### Scope of Work

The work included:

- Marine engineering system analysis of the existing terminal configuration
- Design of the upgraded terminal configuration and operability
- Preparation of mooring/operability tables for the management of mooring decision making processes
- Preparation of the terminal Operations and Maintenance manual.
- Budget estimates for the procurement of the upgrades
- Construction oversight of the upgrade works.



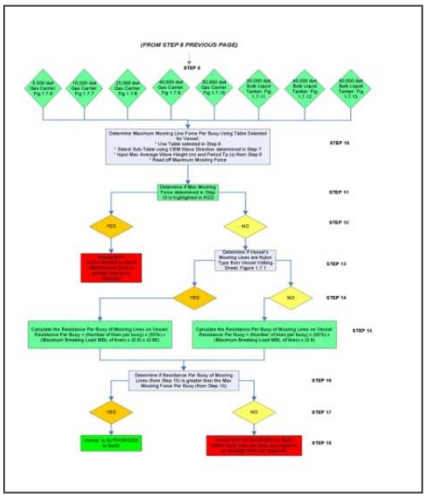

### The Works

PMI undertook a site visit to the terminal after the tanker outbreak, to assess the situation on the ground, and to gather information.

The existing terminal was then analysed against simulated expected environmental conditions, using modelling software resources.

Upgrades to the terminal were then designed, such that the terminal could accommodate the Client's product vessel requirements at reasonable operabilities.

Upgrades included the installation of two new mooring buoys as a required replacement for the previous system that relied on ships anchors for mooring in the associated quadrant of the system.



PMI compiled mooring tables to assist terminal operators in the decision making process regarding mooring permission as a function of prevailing environmental conditions.

PMI prepared execution budgets, and were present on site as Owners Engineer for the installation and testing of the two new mooring buoys.

### Conclusion

The project was executed to the Client's satisfaction.