



Message from the GTT CEO

Let's keep in touch.

Quite often at GTT, we notice that people in the LNG industry are not fully abreast of all our activities. More importantly, they do not receive technical information from us in a timely manner. Obviously, it is our responsibility to pass on information that could be of interest to you!

The purpose of this newsletter is to improve on this by giving the LNG industry a regular link to GTT. Our aim is to communicate every quarter useful technical information and new technological developments as well as to inform you about our growing services offer.

We hope that you will find it useful and timely. In the not too distant future we will be asking you what you think so it can be improved to meet your needs.

Meanwhile, at GTT, we are very excited about having a new way of being in contact with you.

Let's talk on a regular basis!

Philippe Berterottière, Chairman & C.E.O.

TECHNOLOGIES / GTT experts exchange with LNG industry players at 2014 ISOPE Conference in Korea

For the 6th consecutive year, GTT took part in the Annual International Society of Offshore and Polar Engineers Conference (ISOPE Conference) held in Busan, Korea, near major Korean shipyards.



This annual conference, which brings together thousands of engineers and researchers to discuss and debate special themes, this year, had a forum on "Sloshing Dynamics". During the symposium, the latest studies and papers about liquid dynamics were presented to participants, among them, numerous classification societies and shipyards.

At this year's conference, GTT experts were particularly involved in each of the nine sessions dedicated to sloshing and took an active part in a quarter of the overall sessions - 12 out of 49. They also represented design companies in the panel discussion which gathered the main classification societies (ABS, Lloyd's Register, DNV GL, Korean Register and Bureau Veritas) and explored new ideas for LNGC projects and methodologies.

GTT experts also presented their work and some studies that were co-produced with different partners, most of them specialized in hydrodynamics: HydrOcean, ECM, ENS-Cachan...

For the first time, the ISOPE sloshing dynamics symposium welcomed some engineers from the aerospace industry, which shares similar issues with containment systems of rocket fuel. ■



NEWS / Real-time monitoring of sloshing for LNGCs using SloShield™

GTT and its partner Cryovision announce the launch of an innovative monitoring system to help reduce the effects of liquid motion in LNGCs (Liquefied Natural Gas Carriers), including extra boil-off of LNG cargo, due to "sloshing" inside the vessel's hold.

The new tool, SloShield™, allows LNG carrier operators to constantly monitor the sloshing induced vibrations of each tank thus isolating specific sloshing activity and giving the crew real-time visual indicators that allow them to make critical decisions to optimize the ship's operation.

SloShield™ is the result of a joint effort between GTT engineers, drawing on significant amounts of actual historical data on liquid motion in navigational situations, and the Cryovision team who will install the tool to address this very specific LNG transport need.



SloShield™ will be distributed by Cryovision on a turn-key basis that includes: studies, class validation, procurement, erection and commissioning. In addition, GTT experts are available to review the sloshing data, together with the operational environmental parameters to capitalize on each vessel's specific experience. The SloShield™ package combines the best of GTT's unrivalled expertise in measuring and analyzing sloshing activity at sea and Cryovision's field experience and reactivity. Installation of the tool can even be done while LNGCs are at sea to meet customer constraints and schedules and optimize dry dock inspections. ■

MEETINGS / Posidonia 2014 - GTT brings focus on LNG as a fuel

Helping to improve air quality in coastal regions thanks to eco-friendly ships is becoming an increasingly important issue for ship owners and operators. GTT, with its extensive LNG expertise, has a solution: LNG as a fuel.

LNG bunkering was a "hot topic" during the last Posidonia exhibition, which took place in Athens in early June. This event gathered the international shipping community for five days of meetings, conferences and celebrations. More than 19,400 visitors, 1,843 exhibitors from 93 countries attended, making this year's edition the most successful in the event's history.



During Posidonia, GTT held a seminar focusing on innovation topics, and the session on "LNG as a fuel" was the most popular. The seminar dealt with questions about the upcoming stricter European emissions regulations and also, how LNG can be used as a bunker fuel on any type of vessel.

As discussed at the seminar, the new emissions regulations strongly incite ship owners to consider using cleaner fuels, especially with the onset of International Marine Organization (IMO) regulations coming into effect as of January 2015. These stricter regulations will apply to specific Emission Control Areas (mainly coastal

regions around North America and Europe) with eventual implementation for the rest of the world in 2020. Using LNG as a fuel is one solution that eliminates not only SOx (Sulphur Dioxide), but also reduces particle emissions of NOx (Nitrogen Oxide) by up to 90%.

As GTT experts explained in the seminar, LNG bunkering solutions present new challenges, like keeping LNG at cryogenic temperatures throughout the refueling process. With this in mind, GTT talked about its development of bunker, feeder vessels and barges that maintain the lowest temperatures inside their tanks to ensure minimum temperature increases during delivery. With these upcoming new technologies, the LNG is kept at the lowest possible temperatures in any thermodynamic conditions (Temperature, Pressure) when the bunkering operation starts in order to avoid loss of valuable fuel through evaporation.



Learn more about LNG as a fuel at www.gtt.fr ■



SERVICES / GTT Training is up and running!

GTT's new training initiative is now fully operational with the first LNG Cargo Operations course having been completed at the end of June, and registration for courses throughout the year are now open. By using its extensive expertise in the behaviour of LNG, LNG tank technologies and LNG cargo operations the training initiative will assist the LNG industry in addressing the current shortfall in the availability of experienced personnel. The initial course portfolio focuses on the training for ships officers (LNG Cargo Operations), familiarisation courses for LNG and the use of LNG as a fuel and technical training for the GTT Tank technologies. Courses will be both scheduled and run on demand and further details can be obtained by contacting Dr Alan Whitcher at awhitcher@gtt.fr or +44 7751 886860 ■



Save the date

GTT will be at **SMM, Hamburg**
9-12 September 2014

Please come and visit us at Hall B2

Recent versions of key GTT documents are available:

- Secondary barrier tightness for Mark III system rev 04 – 06/2013

If you would like a copy or require any other document, please contact commercial@gtt.fr