NEWSLETTER OF THE USCG LIQUEFIED GAS CARRIER NATIONAL CENTER OF EXPERTISE

# The Gas Gauge

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USCG LIQUEFIED GAS CARRIER NATIONAL CENTER OF EXPERTISE 2901 TURTLE CREEK DRIVE PORT ARTHUR, TEXAS 77642-8056

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## Events:

**Liquefied Gas Seminar Series**

Dates: January 20

Location: VTC

**CTAC Liquefied Gases Sub-Committee**

Dates: February 24-25

Location: New Orleans

**Chemical Transport Advisory Committee**

Dates: February 26

Location: New Orleans

**USCG Liquefied Gas Executive Forum**

Dates: November 18-20

Location: Houston

# Liquefied Gas Carrier NCOE Semi-Annual Update

Like the liquefied gas industry, the LGC NCOE is undergoing a transformation itself due primarily to a heavy transfer season this past summer. The LGC NCOE gave a fond farewell to all three of its active duty members and welcomed its replacements. CDR Jason Smith reported in as the new Detachment Chief and comes to the LGC NCOE with recent liquefied gas experience while Chief of Prevention at Sector Boston and before that as the US liaison to the IMO coordinating and attending US delegations. Also new at the LGC NCOE is LCDR Anthony Hillenbrand and LT Dallas Smith. LCDR Hillenbrand has most recently held tours at Sector Houston, Sector Honolulu and Sector Columbia River where he has gained an in-depth understanding of the liquefied gas industry. LT Dallas Smith reported onboard after a 12 month industry liquefied gas training program where he worked with both Cheniere and Excelerate Energy and has held previous tours in Sector Houston and Sector Corpus Christi. As we settle into our new jobs we are looking to meet with field units and liquefied gas industry partners to discuss new projects, current USCG guidance, and ways we can further collaborate. Please contact us if you'd like us to visit your location.

Admiral Zunkuft visits Cheniere's Sabine Pass LNG

Since our last edition, we have received many visitors. Of particular note was the Commandant of the Coast Guard, ADM Paul Zunkuft who visited the Houston area to witness the growing liquefied gas industry and broader energy renaissance. During his stay, he had an opportunity to visit Cheniere's Sabine Pass LNG facility and noted the scale and maritime impact of this and the many other projects that have just received or soon to receive approval to operate and export. He also expressed that the USCG is preparing to accommodate for this increased work from a guidance and workforce perspective and that the LGC NCOE is instrumental with that development..

Recognizing this increased workload, we continue to urge local units to prioritize the Foreign Gas Carrier Examiner (FGCE) qualification. If your inspectors are not able to attain this qualification locally due to limited liquefied gas traffic but there is a need for a liquefied gas qualified individual in your port, we have developed a robust OJT training plan allowing most inspectors the ability to obtain the qualification within 3-4 weeks on temporary duty at the LGC NCOE. Please contact us if you have someone needing this service.

With the new staff has come some new ideas that we are excited to unveil. Starting this month we will be holding bi-monthly Liquefied Gas Seminars available online to all USCG members. These seminars will be presented by industry experts and include topics for a broad audience to include those in vessel and facilities inspections, response, and law enforcement. For more information to include upcoming seminar topics and dates, check out this edition's Service Center article on page 4. In addition to the Seminars, we are working to host a USCG Liquefied Gas Executive Forum next November, giving senior industry executives an opportunity to discuss their projects to Captains of the Ports and other USCG senior leaders. In return, the USCG will have the opportunity to highlight some of its most recent policy for industry senior executives. More on this event will be sent out via formal invitation early this year.

From an industry project stand point, we are working closely with local units on the many new proposals and ongoing construction work, to include large export and small scale liquefaction facilities, vessels using gas as fuel, and liquefied gas bunker facilities. Of particular note we are involved with Harvey Gulf's LNG powered OSVs, the LNG powered container ships under construction for Tote and Crowley, and Conrad Shipyard's LNG bunker barge with GTT's Mark III Flex tanks.
We look forward to staying connected to both the USCG field units and industry representatives and we are always open for better ways to serve both communities.

## Training Tips: Master Task List & PQS Tasks

As the Coast Guard's Subject Matter Experts (SME's) for the examination of foreign liquefied gas carriers, the LGC NCOE has the responsibility for maintaining the Foreign Gas Carrier Examiner (FGCE) Master Task List. The Master Task List was last revised in 2012 & 2013 by the LGC NCOE staff and field FGCEs. This list identifies all of the tasks and their steps that are required of a FGCE to perform his/her job.

In March 2014, the Office of Commercial Vessel Compliance (CG-CVC) released a revised FGCE Performance Qualification Standard (PQS) that was developed utilizing the tasks and steps contained in the FGCE Master Task List. The FGCE PQS requires units to notify the LGC NCOE Training Officer, Mr. Rob Hanley, when PQS tasks are deferred. This requirement was established as a means to provide assistance to an apprentice FGCE in finding opportunities to demonstrate compliance with a particular task. Although not stated in the FGCE PQS, this requirement was also established as a means to continually monitor the effectiveness of the FGCE Master Task List. When the LGC NCOE receives notification of a PQS task deferment, that task is analyzed to determine if it is still valid. When a task is determined to be no longer valid, a recommendation to remove the task from the FGCE Master Task List and the FGCE PQS will be forwarded to CVC-2.

The deferment of tasks is not considered to be a negative action for the apprentice or for the unit. In fact, when a unit defers a task and then reports it, that unit is actually providing valuable information to the FGCE qualification process that will be used to later justify improvements. In the future, please remember to follow through with reporting the deferment of FGCE PQS tasks.

For additional information, please refer to LGCNCOE Field Notice 01-14 or contact Mr. Rob Hanley.

USCG Liquefied Gas Dashboard

(as of 3 November 2014)

| District | Unit | FGCE's | 4 yr avg Exams | past trend | forecast |
|---|---|---|---|---|---|
| 1 | MSD Portsmouth | 1 | 4 | ↓ | – |
| | SEC Boston | 7 | 48 | ↓ | ↑ |
| | SEC New York | 1 | 0 | – | – |
| | SEC SE New England | 5 | 4 | ↓ | – |
| 5 | MSD Lewes DE | 1 | 0 | – | – |
| | SEC Baltimore | 4 | 1 | – | – |
| | SEC Delaware Bay | 1 | 4 | – | – |
| | SEC Hampton Roads | 5 | 4 | – | – |
| 7 | MSD St Croix | 0 | 4 | – | ↑ |
| | MSU Savannah | 3 | 10 | – | ↑ |
| | SEC San Juan | 4 | 7 | – | ↑ |
| | SEC St Pete | 3 | 11 | – | ↑ |
| 8 | DDE Victoria TX | 1 | 6 | ↓ | ↑ |
| | MSU Lake Charles | 4 | 8 | ↓ | ↑ |
| | MSU Port Arthur | 4 | 14 | ↓ | ↑ |
| | MSU Texas City | 3 | 3 | – | ↑ |
| | SEC Corpus Christi | 4 | 6 | ↑ | ↑ |
| | SEC Houston | 11 | 73 | ↑ | ↑ |
| | SEC Mobile | 2 | 3 | – | ↑ |
| | SEC New Orleans | 5 | 10 | ↓ | ↑ |
| 11 | SEC LA/LB | 2 | 1 | – | – |
| | SEC San Francisco | 1 | 3 | – | – |
| 13 | MSU Portland | 3 | 1 | – | – |
| | SEC Puget Sound | 3 | 2 | – | ↑ |
| 14 | MSD American Samoa | 0 | 2 | – | – |
| | SEC Guam | 0 | 1 | – | – |
| | SEC Honolulu | 1 | 3 | – | – |
| 17 | MSD Kenai | 0 | 1 | – | – |
| | ACTEUR | 1 | 1 | ↓ | – |

## Guidance Gouge

*Update on significant updates to the following documents:*

The IMO Maritime Safety Committee (MSC) approved the draft IGF Code in principle and proposed amendments making the Code mandatory under SOLAS in November 2014. MSC plans to adopt both at the next session scheduled for June 2015. The Code will provide mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing on LNG, to minimize the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved.

The revised International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (the IGC Code) was adopted by the MSC. The completely revised and updated Code has been developed following a comprehensive five-year review and is intended to take into account the latest advances in science and technology. It will enter into force on 1 January 2016, with an implementation/application date of 1 July 2016.

Comments on the CG-OES Policy Letters 01-14 Guidelines for Liquefied Natural Gas Fuel Transfer Operations And Training Of Personnel On Vessels Using Natural Gas As Fuel and 02-14 Guidance Related To Vessels And Waterfront Facilities Conducting Liquefied Natural Gas Marine Fuel Transfer (Bunkering) Operations have been reviewed, final policy letters have been written and submitted for final approval.

The CG-ENG-5 LNG Barge Policy Letter is currently under review for approval.

# NCOE Community Spotlight; Mr. Jamie Wilson, Sector Houston-Galveston

*Each edition we spotlight one member of the USCG's Liquefied Gas community that has gone above and beyond to help keep the liquefied gas industry safe, secure, and clean. In this edition we shine the light on Mr. Jamie Wilson, USCG Sector Houston-Galveston's Port State Control Training Officer…*

Houston has always played a significant role in the energy and chemical markets worldwide. The "Energy Renaissance", occurring across the nation is only further reinforcing Houston as the nation's busiest liquefied gas port. In the past year the Coast Guard conducted 204 Gas Carrier Certificate of Compliance (COC) exams nationwide, with 108 conducted by Sector Houston-Galveston. Because of these numbers, the Coast Guard relies on Sector Houston-Galveston to qualify a good portion of our Foreign Gas Carrier Examiners. So who's behind all these exams and training opportunities? Mr. Jamie Wilson.

Mr. Wilson, has been assigned to Sector Houston-Galveston since 2006, has seen total COC exams conducted in Houston increase by 97.4 %, while nationally total number of COC exams have increased by only 8.9 %. Houston has seen an increase in COC exams across all ship types during this time period; Oil Tankers up 59.6 %, Chemical Tankers up 109.4 % and Gas Carriers up an incredible 120.4 %. A subject matter expert in Gas and Chemical tankers, he has trained countless inspectors to qualify as Foreign Gas Carrier Examiners (FGCE) and Foreign Chemical Tanker Examiners (FCTE). In addition to training Apprentice Marine Inspectors (AMI) stationed at Sector Houston-Galveston, he routinely facilitates the LGC NCOE's access onto liquefied gas carriers in order to train other AMIs from around the country. Since 2006, Mr. Wilson has played a critical role in the training of over 50 AMIs who will go on to conduct exam throughout the U.S. and influence the future of the marine safety program. Mr. Wilson's impact on the Liquefied Gas community does not stop there, he has also been an active participant in the review of both the FGCE and FCTE Performance Qualification Standards (PQS) and works with Coast Guard Headquarters, Training Center Yorktown, the Marine Safety Center, the LGC NCOE, and the industry led Chemical Tank Vessel subcommittee to try to review and recommend policy, keep abreast of inspection trends, new technologies, and sound interpretation and enforcement of standards and regulations.

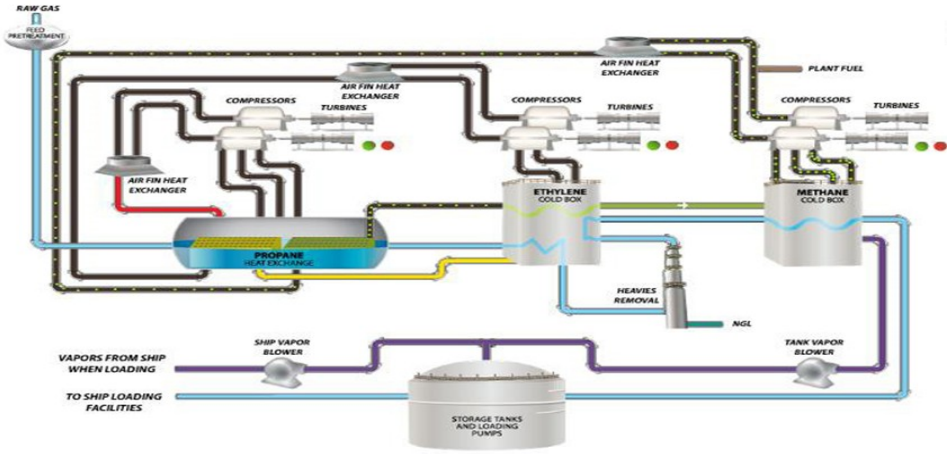
**"We need to study and know regulations, but then need to work with the mariners to learn how to apply them during an inspection or examination."**

When asked to provide some insight on his job, he said "Be willing to ask questions of the crews of these vessels and respect that these crews are usually the most professional and knowledgeable mariners in their trade. Companies assume the risk for the transport of hundreds of millions of dollars worth of products and put forth great effort to ensure the mariners are licensed and vetted before being hired and trusted to transport these cargos." Mr. Wilson said that most of what he knows about the industry was learned from these mariners, but when it comes to what's most important, Mr. Wilson stated "We need to study and know regulations, but then need to work with the mariners to learn how to apply them during an inspection or examination."

Mr. Wilson is commended by the LGC NCOE for his support in attending close to a quarter of all foreign gas exams, qualifying countless inspectors, and providing technical assistance to ensure USCG policies and regulations are relevant and effective. In closing, we asked Mr. Wilson why do you do it and he said "I get the most gratification from the mariners who ask me how long I sailed on Gas Carriers, I never have, I tell them, all I know was learned from you and your peers. This is always greeted with a smile and a handshake."

## Tech Talk: The LNG Liquefaction Process

There are several Liquefied Natural Gas (LNG) liquefaction processes, but one of the most common seen is the ConocoPhillips Optimized Cascade system. There are currently ten Optimized Cascade units operating or under construction worldwide. This system receives raw natural gas from the pipeline grid. It is first treated to remove contaminants such as $CO_2$, $H_2S$, water, and mercury before entering the liquefaction section of the plant. The gas is then chilled, cooled, and condensed to approximately –260 degrees Fahrenheit by the use of a cascade liquefaction system. The Optimized Cascade system uses successively colder heat exchangers that utilize propane, ethylene, and methane as refrigerants. Product leaving the methane exchangers is LNG ready for storage. The LNG product is then pumped into insulated storage tanks before being loaded on LNG Carriers to be transported to LNG import terminals around the world. Gases which continually boil out of the LNG as it warms slightly in the storage tank are captured and returned to the process to be re-liquefied, thus minimizing product losses.




## LGC NCOE Service Center: Liquefied Gas VTC Seminar

The LGC NCOE will be starting a Liquefied Gas Seminar Series for USCG members this month. These seminars will be accessible through video teleconference (VTC) to any USCG workstation. The bi-monthly seminar will be held the 3rd Tuesday of each odd numbered month at 11:00 (EST). The seminars will be approximately 60-90 minutes and will cover various liquefied gas topics, including: Liquefaction Systems, Cargo Containment systems, FERC permitting, LNG Fueled Engines, etc. The presenters will include: liquefied gas industry experts, members of the LGC NCOE staff, and CG marine inspectors from around the Coast Guard. The first seminar topic will be LNG 101 and will be given by Captain Mark Lane, Senior VP for Operations at Excelerate Energy. The seminar will be held be held on Tuesday, January 20. Call in details to be provided. If you would like to recommend a training topic, volunteer to present a topic, or receive additional details, please email us at LGCNCOE@uscg.mil.

## How Full is YOUR Tank?

*This is our chance to test YOUR knowledge of the Liquefied Gas Industry. First person to correctly submit all the questions below will receive a LGC NCOE Challenge Coin! Send your answers to LGCNCOE@uscg.mil with the subject line "Gas Gauge; How Full is YOUR Tank". After the first person has correctly answered all the question, we will post them on the LGC NCOE website; www.uscg.mil/LGCNCOE.*

1. **What type of tank is this and what would this particular type of tank be used for?**
2. **What standard is this type of tank built to?**
3. **Will this tank ever have to be internally examined?**
4. **What is the Coast Guard's jurisdiction with this tank?**