



U.S. Coast Guard

**Maritime Transport of LNG
Presentation to the National
Academies' LNG-by-Rail Committee:
USCG Compliance and Enforcement**

Date: 21 Sept 2021



Objectives



- Provide Authority & Overview of the USCG Certificate of Compliance program for Liquefied Gas Carriers.
- Provide overview of Top 5 Deficiencies across all Gas Carriers (LNG & LPG).
- LGC Detentions over past 5 FY in the US.
- Reportable Marine Casualties on LGCs in US Waters.
- Serious and Non-Serious Incidents on LGCs Internationally.
- Australian Maritime Safety Authority Port State Control Approach





USCG Compliance & Enforcement

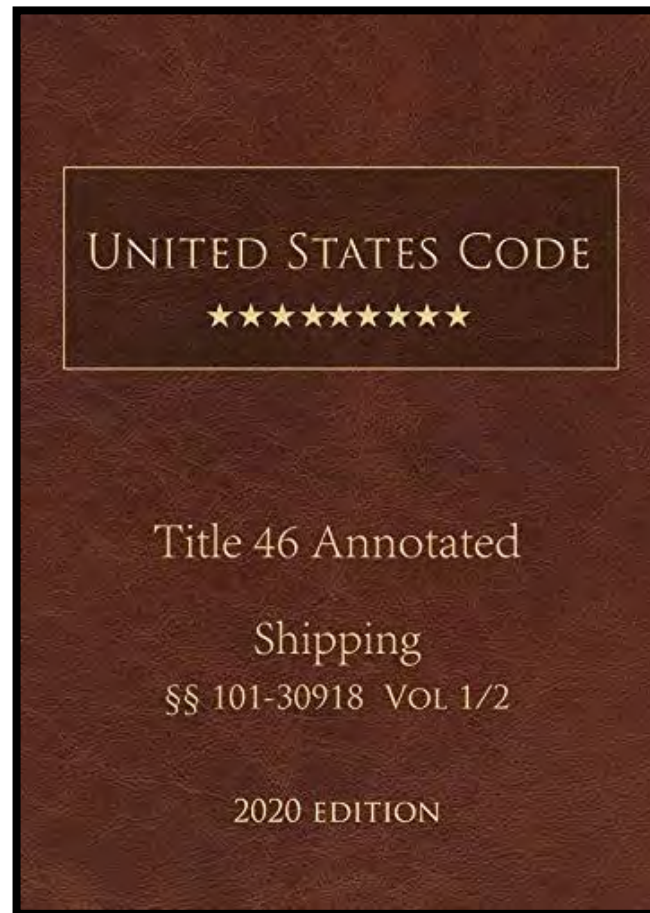


46 U.S.C 3714

- Tank vessels must undergo a compliance verification exam conducted by the USCG at its initial U.S. port of call prior to conducting operations in the navigable water of the U.S..
- COC validity is 2 years with an annual exam.

46 U.S.C 2101(39)

- Tank vessel means a vessel that is constructed or adapted to carry, or that carries, oil or hazardous material in bulk to include Gas Carriers.





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Foreign Gas Carrier Examiner Training




- Minimum 2 member examination teams.
- Advanced USCG Qualification (FGCE).
- FGCE Performance Qualification Standard (Industry Indoc within PQS).
- USCG C-School Gas Carrier Inspector Course.
- LGC NCOE Liquefied Gas Carrier Accelerated Training Program (LGCAP).
- LGC TV Series for FGCEs.
- Self-paced e-learning platform
- Tactics Techniques and Procedures (TTP)
- Shiprider Training Program





COC Examination Request Procedures





PROCEDURES FOR REQUESTING A CERTIFICATE OF COMPLIANCE EXAM

46 CFR 154.151

1
Subchapter O Endorsement Application

The owner of a foreign flag vessel must submit an application to the USCG Marine Safety Center (MSC) containing the information required in 46 CFR 154.22.


2
OCMI Notification

After receiving an approval letter from MSC, request an examination from the local Officer In Charge, Marine Inspection (OCMI) at least 7 days before the vessel arrives at its destination.


3
Required Items

Ensure the following items are available on board:

- General Arrangement Drawing
- Cargo Operations Manual



For more information, visit www.dco.uscg.mil/lgcncoe/







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A typical USCG foreign flagged gas carrier COC examination covers the following:

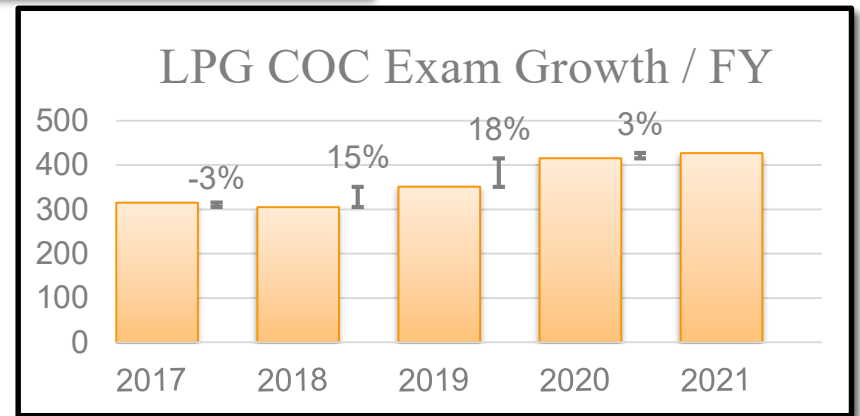
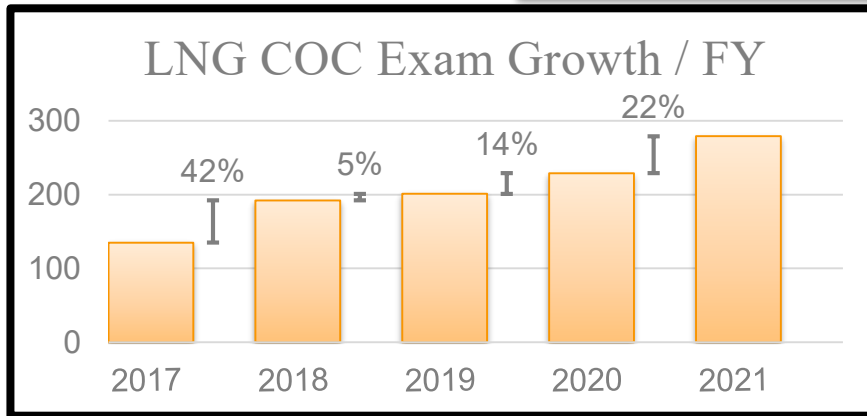
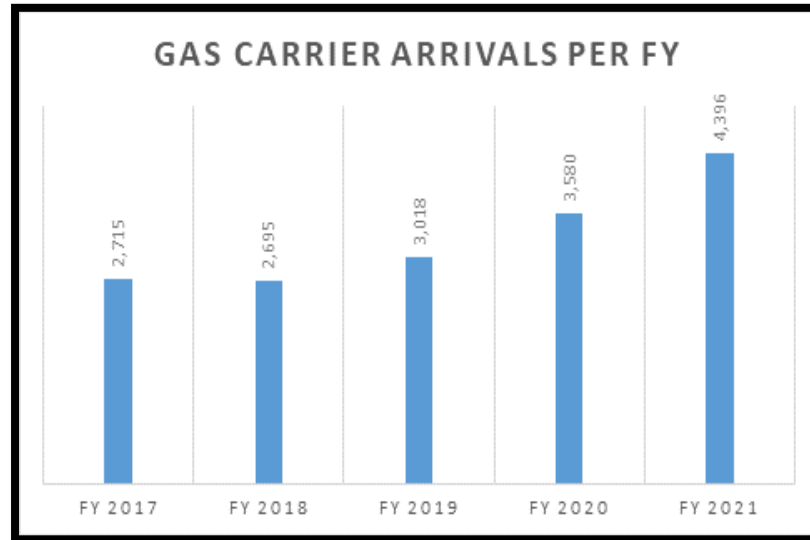
1. Documents and crew licensing
2. Cargo control room examination
 - a. Verification and testing of alarms
 - b. Review of the cargo tank monitoring system
 - i. Liquid levels
 - ii. Tank vapor pressure
 - iii. Trim and list
3. Material condition examination of the cargo tanks, gas processing units, cargo machinery spaces, firefighting systems, and emergency shutdown controls.
4. Review and examination of the gas as fuel system (if equipped)
5. Material condition examination of the engine room and inert gas or nitrogen generation plants
6. Examination of the navigation systems and lifesaving equipment
7. Crew fire and abandon ship drills
8. The COC is issued/endorsed to allow carriage of these cargoes in U.S. waters.





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LGC Arrivals and COCs





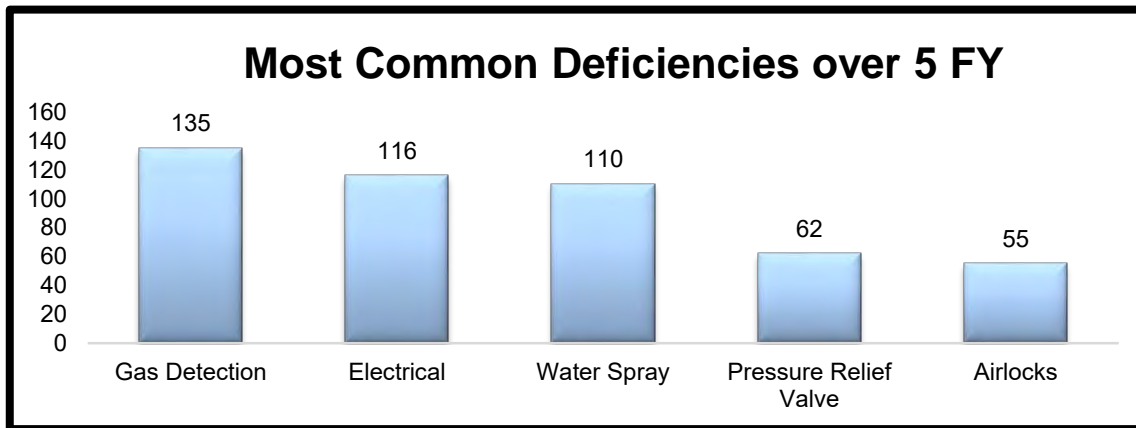
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Top Deficiencies on Liquefied Gas Carriers (LNG & LPG)



During the examinations, gas carrier examiners find deficiencies ranging in severity. The most common deficiencies include:

1. Gas detection
2. Electrical systems
3. Water spray systems
4. Pressure relief valves
5. Airlocks





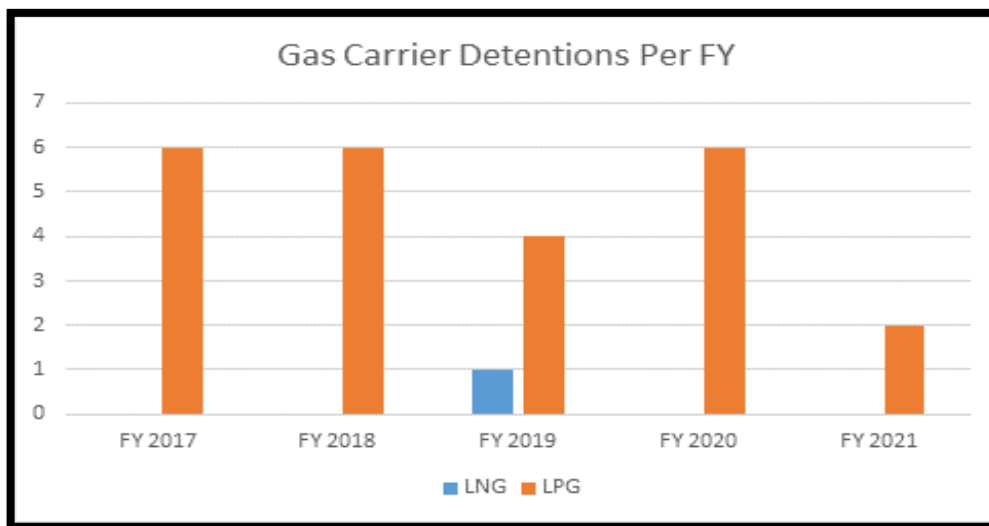
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LGC IMO Detentions (LNG & LPG)



Port State Control Detention

- Vessels found substantially below standards are detained.
- Since FY2016, the USCG has detained one LNG carrier as compared to 24 LPG carriers.



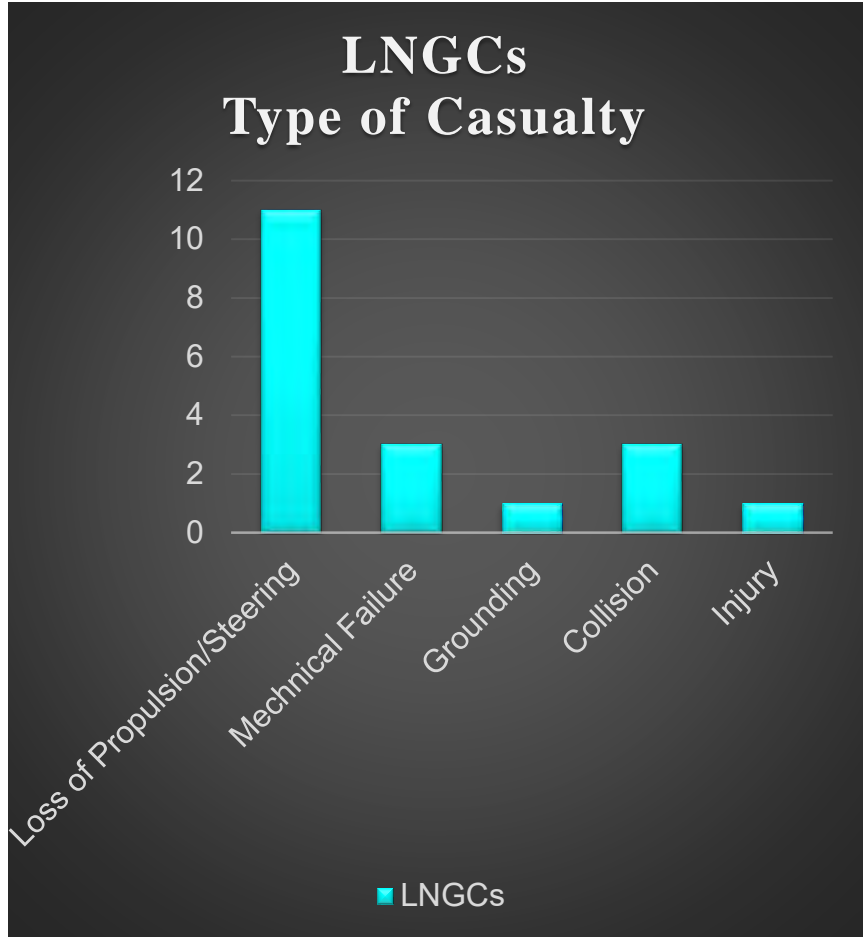
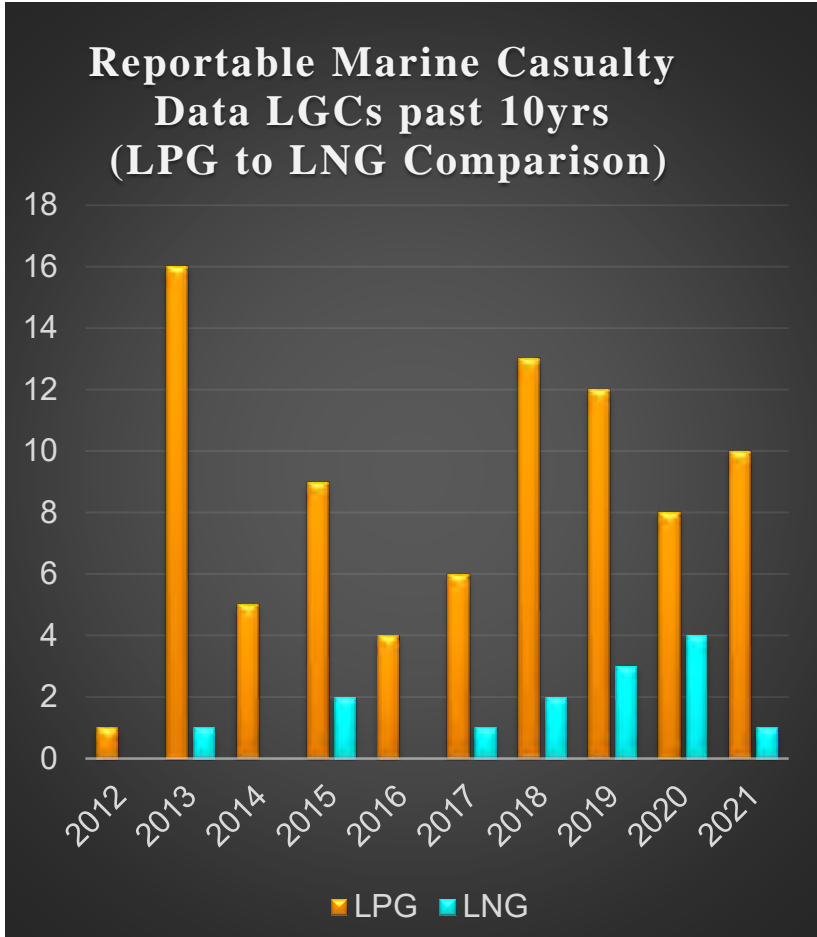
Insufficient coverage of the cargo manifold– requiring an expanded examination of the deck water spray system





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LGC Reportable Marine Casualties in US waters



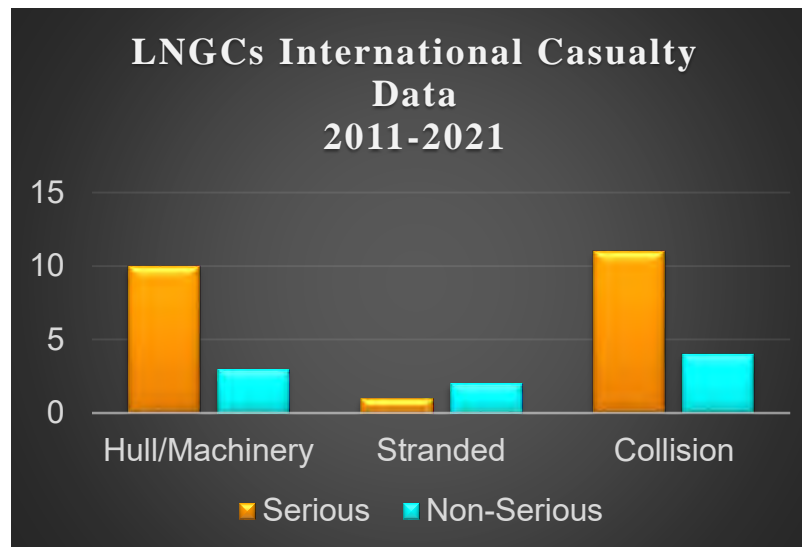


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LNGCs Serious and Non-Serious International Casualty Data



- A non-serious casualty is considered a minor incident or slight impact upon or alter trading pattern/schedule.
- A serious casualty is where the vessel sustains structural damage, breakdown or total loss of the vessel which renders the ship unseaworthy.
- Over the past 10 years:
 - 22 serious incidents and 10 non-serious incidents were reported internationally on LNGCs.
- 1990-2010; 29 Non-Serious Incidents & 39 Serious Incidents.
- 1980-1990; 7 Serious Incidents & 110 Non-Serious Incidents.





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A look at the Australian Maritime Safety Authority Port State Control



- Utilizes risk profiling system to assist in allocating inspection resources.
- Risk factor for each vessel is used as a statistical tool to prioritize inspections.
- AMSAs risk priority groups consist of 4 groups.
- In 2019, AMSA conducted 77 inspections on LGCs.
- AMSA identified 49 total deficiencies and had a detention rate of 1.30%.

Table 17 – Target inspection rate

Priority group	Risk factor (probability of detention)	Target inspection rate
Priority 1	6 or higher	80%
Priority 2	4 or 5	60%
Priority 3	2 or 3	40%
Priority 4	0 or 1	20%

Table 13 – Detentions by ship type

Category	2019			2018
	Inspections	Detentions	Detention rate	Detention rate
Bulk carrier	1826	107	5.9%	5.9%
Chemical tanker	201	7	3.5%	2.2%
Container ship	327	22	6.7%	6.1%
Gas carrier	77	1	1.3%	1.9%
General cargo/multi-purpose ship	129	10	7.8%	8.4%
Heavy load carrier	40	4	10.0%	16.7%
Livestock carrier	56	2	3.6%	7.7%
NLS tanker	30	1	3.3%	8.0%
Offshore service vessel	12	2	16.7%	0%
Oil tanker	168	1	0.6%	3.9%
Other types of ship	21	0	0.0%	0.0%
Passenger ship	56	0	0.0%	3.6%
Refrigerated cargo vessel	2*	0	0.0%	33.3%
Ro-ro cargo ship	9*	0	0.0%	0%
Ro-ro passenger ship	0	0	0.0%	0%
Special purpose ship	10	0	0.0%	0%
Tugboat	24	0	0.0%	3.3%
Vehicle carrier	172	5	2.9%	3.3%
Wood-chip carrier	62	1	1.6%	6.1%
Totals	3222	163	5.1%	5.5%

* As there are less than 10 inspections of this ship type these are not counted in the performance assessment.





Questions?

