



## PAM and Independent Tank Tonnage Effects

### Introduction

The installation of modular buildings for use as living quarters, industrial spaces, and workshops has become increasingly prevalent in recent years. Irrespective of the amount of time that portable modules are installed onboard, the potential risks to personnel within these buildings can be comparable to those within traditional living quarters.

Furthermore, the installation of Portable Accommodation Modules (PAM) and/or independent tanks can potentially change the measured tonnage (register tons) of the host vessel. Independent tanks by design are intended for the storage of combustibles/flammable products or hazardous noxious liquid substances (NLS) and must be designed in accordance with [46 CFR 58.50](#) or an industry standard which provides a level of safety equivalent to that required by §58.50.

This issue of the [Drill Down](#) explores how PAMs and/or independent tanks can impact tonnage. While the guidance contained in this document may assist the industry, the public, the Coast Guard, and other Federal and State regulators in applying statutory and regulatory requirements, this document is not a substitute for applicable legal requirements nor is it a regulation itself. Thus, it is not intended to, nor does it, impose legally binding requirements on any party outside the Coast Guard.

### What is a register ton and why is it important?

A register ton is a volumetric measurement not to be confused with the measurement of weight. Although the installation of a PAM and/or independent tank will add weight to the vessel, the tonnage calculations are associated with enclosed volume rather than weight.

### Definitions

- **Authorized Measurement Organization (AMO)** – An entity that is authorized to measure vessels for tonnage under [46 CFR Part 69](#); currently consisting of seven Classification Societies.
- **Convention Measurement System** – Measurement system under Subpart B of 46 CFR Part 69, based on the rules of the International Convention on Tonnage Measurement of Ships, 1969 (Convention). This

Formal Measurement System uses the vessel's total enclosed volume as the principal input for tonnage calculations. Tonnages assigned are expressed in terms of gross tonnage ITC (GT ITC) or net tonnage ITC (NT ITC). A new vessel issued a U.S. (domestic) tonnage certificate is measured using the convention system and may also use the U.S. Regulatory System.

- **Deck Cargo** – Freight carried on the weather decks of a vessel for the purpose of its transport between two separate and distinct locations, and which is off-loaded from the vessel in its original container (if applicable) without undergoing any processing or other use while onboard the vessel. An independent tank is not deck cargo if it is filled and emptied while aboard the vessel.
- **Portable Enclosed Space** (formerly “Temporary Deck Equipment”) – An enclosed space that is not deck cargo, and whose method of attachment to the vessel is not permanent in nature. Examples of portable enclosed spaces include modular living quarters, housed portable machinery spaces, and deck tanks used in support of shipboard industrial processes. If these spaces are permanently affixed to the vessel (i.e., welded), they are treated as part of the superstructure.
- **Register Ton** – A unit of volume equal to 100 cubic feet.
- **Regulatory Measurement System** – Measurement system that comprises Subparts [C](#), [D](#), and [E](#) of 46 CFR Part 69 (Standard, Dual, and Simplified Regulatory Measurement Systems, respectively), and is sometimes referred to as the national measurement system of the United States. Tonnages assigned under this system are expressed in terms of gross register tons (GRT) or net register tons (NRT). Although no longer mandated, various regulations provide for use of this system, which is advantageous for some vessel designs.
- **Remeasurement** – Process by which tonnages or registered dimensions of a vessel that were previously measured are assigned or reassigned to that vessel, or are verified to be correct, as appropriate. This includes assignment of tonnages or registered dimensions under a different measurement system.
- **TEU** – Twenty-foot equivalent unit (e.g. a TEU is approximately 11-14 register tons and a single 250-barrel tank is approximately 14 register tons).

## How do PAMs and independent tanks apply as measurable tonnage?

With limited exceptions, national and international measurement systems dating back to at least the 18th century have not treated deck cargo as part of the vessel, with deck cargo generally taken to mean freight carried on the weather decks for the purpose of its transport between two separate and distinct locations. Under this historical framework, the relatively recent adaptation for shipboard use of portable quarters units, equipment vans and similar portable spaces that all function as part of the vessel, even for periods of short duration are now treated as part of the structure, as opposed to deck cargo ([81 FR 18701](#)).



*PAM being loaded onto a vessel*

## When is remeasurement appropriate/required?

For vessels with a formal tonnage measurement (tonnage certificate), the owner must notify the measurement organization if there are any alterations to the vessel's structure, service, or space use. A full remeasurement is normally required if, among other instances, the vessel undergoes a 'substantial alteration' which results in an increase or decrease by more than 5% in the vessel's gross or net tonnage as determined under the convention measurement system. Where the addition of portable modules has changed the service or the tonnage of the vessel, a complete review of the host vessel may be required by the AMO, in conjunction with the Flag Administration. Tonnage certificates do not have expiration dates; however, tonnage certificates cease to be valid if the vessel has been substantially altered.

## Exemptions

The defining characteristic of registered tonnage is the types of spaces which are exempted from the vessel's gross tonnage. Owners, operators, and marine inspectors are reminded to pay particular attention to the exemptions listed in [46 CFR 69.117](#). The spaces referenced in that section **do not** contribute to the vessel's tonnage.

## Examples

A 499 GRT Subchapter L OSV installs two 20-ft modules on the deck for a two-month contract starting next month,

which is spotted by a marine inspector (MI) while it's being fitted dockside. One is a PAM and the other houses machinery for the job. What should the MI do?

- Instruct the owner/operator to contact their Authorized Measurement Organization (AMO) for remeasurement determination in accordance with [46 CFR 69.19](#), and [CG-ENG Policy Letter 01-16](#), based on the assessment that there is a potential change in the vessel's tonnage greater than 1%.
- The AMO may issue a letter for the tonnage adjustment, but will probably not reissue the certificate because it's likely to be under the 5% threshold.

**Note (1):** A TEU is potentially 1% of 1,600 GT ITC; therefore, adding anything to a vessel under the 1,600 GT ITC threshold is a good reference point for tonnage implications.

**Note (2):** A TEU is potentially 5% of a 280 GT ITC vessel, and an AMO may need to reissue the Tonnage Certificate with notation on the back identifying PAM tonnage.

A 5,999 GT ITC OSV drops a single 250-barrel tank on the back deck to support backload operations for their next voyage. Does it matter?

- This addition would be less than 1%, but from a regulatory perspective, this places the vessel over their 6,000 GT ITC subchapter limitation and would initiate a discussion with [CG-CVC](#) and [CG-ENG](#).

A 99 GRT OSV-T intends to place a single PAM (1 TEU, >5%) during their next voyage. Is this acceptable?

- Probably not. The vessel may no longer fall under the tonnage limitations for [46 CFR Subchapter T](#). In addition, this could have a direct regulatory implication on the operating thresholds for a Master that holds a Merchant Mariner Credential (MMC) of a vessel of less than 100 GRT. The AMO should be consulted for tonnage determination.

## References/Resources

- [46 U.S.C. Subtitle II, Part J](#), Measurement of Vessels
- [46 CFR Part 69](#), Measurement of Vessels
- [46 CFR Subchapter L, Part 125](#)
- Marine Safety Center [MTN 01-99](#) and [MTN 01-98](#)
- [COMDTINST 16000.76](#), Marine Safety: Outer Continental Shelf Activities
- [NVIC 11-93, CH-3](#), Applicability of Tonnage Measurement Systems to U.S. Flag Vessels
- [CG-ENG Policy Letter 01-16](#), Portable Accommodation Module (PAM) Guidance