

# LNG Tugs

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Quoddy Pilots USA

# Presentation Outline

- 1. Types of LNG Tugs**
- 2. Tug Construction**
- 3. Crew Requirements**
- 4. Crew Training**
- 5. Tug Information**

# 1. Types of LNG Tugs

- LNG Tugs are generally **“Tractor”** type tugs.
- **“Tractor”** tugs do not use conventional shaft and propeller arrangements. Instead, for much greater **effective** use of horsepower the tugs use either a **cycloidal propeller** or **twin Z drive** arrangements.
- LNG Tugs are usually built as either **escort** or **docking** tugs with extensive firefighting capability.

# Typical Cycloidal Tractor Tug



Cycloidal Drive

# Typical Z Drive Tractor Tug

Twin Z Drives



# Escort “Tractor” Tug



## 2. Tug Construction

- Tugs are generally 200+ Gross tons
- 90 tons bollard pull is typical
- Construction (in Maine) takes 70 people 9 months for each tug. 4 tugs could be built in about 24 months.
- Tug cost is \$8 - 10 million US **each**.
- Firefighting gear is about \$900,000 of that cost. Deck winches are about \$1,000,000

## 2. Tug Construction

- Escort Tugs are about 6,500 HP
- Docking Tugs are about 5,500 HP
- Tugs are 92 to 98 feet long, 32 feet wide
- Tugs draft is about 15 feet
- 13 of the 21 “LNG” capable tugs in the US have been **built in Maine**
- Each tug can pump **12,000** gallons of firefighting seawater up to **400** feet each minute

# Maine Built LNG Tug under construction



# Firefighting Capability



# LNG Tug Under construction in Maine



# 3. Crew Requirements

- Crew usually consists of 5 or 6 persons
  - 1. Tug Master
  - 2. Tug Mate
  - 3. Tug Engineer
  - 4. Tug Able Bodied Seaman – Deckhand
  - 5. Tug Ordinary Seaman – Deckhand
  - 6. Cook/Utility Deckhand/Engine Utility

# General Qualifications

## All crew members

- 1. U.S. Citizen (License) or hold a green card (Crew)
- 2. Subject to random drug and alcohol testing
- 3. Pass annual physical
- 4. Hold U.S. Merchant Mariners Document
- 5. Renew License and/or MMD every 5 years
- 6. Additional requirements from USCG CTOP

# Masters and Mates License

- The license required will be a minimum of “Master or Mate of Towing Vessel license: It's limited to "uninspected towing vessels of not more than 300 GRT". The experience is not based on Tonnage, but on being on a Towing Vessel over 26 feet in length. The Captain of the Port may require a higher license, training, and experience.

# USCG Master's & Pilotage License

DEPT. OF TRANSP., U.S. COAST GUARD, CG-5206 (4-79)

FILE NO.

SERIAL NUMBER

088047

ISSUE NO.

-9-

UNITED STATES COAST GUARD



MASTER  
LICENSE

This is to certify that \*\*\* ROBERT JAMES PEACOCK, II \*\*\*  
having been duly examined and found competent by the  
undersigned, is licensed to serve as Master of United States  
Steam or Motor Vessels of any Gross Tons upon Oceans

ALSO, RADAR OBSERVER - UNLIMITED (EXPIRES JANUARY 2006) ALSO, FIRST CLASS PILOT OF

VESSELS OF ANY GROSS TONS UPON THE GREAT LAKES, CONNECTING TRIBUTARY WATERS BETWEEN

(SEE REVERSE)

for the term of five years from this date

Given under my hand this 8TH day of JANUARY, 2001

BOSTON, MASSACHUSETTS

*Post*

A.A. HAMMOND, BY DIRECTION

*Officer in Charge of Marine Inspection*

# Tug Engineers

- “Engineer licenses are "limited" in Tonnage (1600 GRT) for Chief/Asst. Engineer (limited oceans or near coastal) and horsepower depending on experience. For someone to qualify for Chief or Assistant Engineer based on service on a Tug, we do take into account the horsepower of the Tug.” (From USCG)

# Able Bodied Seaman / Deckhand

- If the Tug is over 100 Gross Tons, 65% of the deck crew must be an AB. For a vessel on a two watch system, that can be reduced to 50% of the crew. If you have two deck hands on board the vessel, one of them must hold the rating of AB.

# Ordinary Seaman / Cook

- Ordinary Seaman is an entry level rating given to all applicants for an entry level Merchant Mariners Documents.
- Cook/Utilities - all vessels over 100 Gross Tons are required to have mariners who hold an MMD, employed as crew.

# Minimum Time Requirements

- **OS: No sea time requirement for this entry level rating**
- **AB: Minimum of 360 days of "service on deck" for AB-Special.**
- **Apprentice Mate (steersman) of Towing Vessels: 18 months total service; 12 months on towing vessels**
- **Mate (pilot) of Towing Vessels: 30 months total service; 12 months on towing vessels as Apprentice Mate; 90 days on particular area (near coastal, inland, etc.); completion of Towing Officer Assessment Record (TOAR)**
- **Master of Towing Vessels: 48 months total service: 18 months as Mate of Towing Vessels; 12 months as Mate not in "harbor assist work"; 90 days on particular route**
- **Sea time should be "underway" on board the vessel as a crew member on that vessel. A "day" is 8 hours of service.**

## 4. Crew Training

- Firefighting: Required for ALL engineer licenses and Deck licenses authorizing service on vessel on a vessel over 200 Gross Tons or Towing vessels on Oceans.
- Lifeboatman: For mariners to obtain the rating of Officer or AB, they must qualify for a rating as "Lifeboatman" or "Proficient in the use of survival craft" (non-lifeboat equipped vessels).

# Tug Master Training

- MITAGS (Maritime Institute of Training and Graduate Studies)
- 360 degree Full Simulator for LNG Tug Handling



# Tug Master Training

