

MARAD/SNAME STUDENT DESIGN COMPETITION

Background

The Maritime Administration (the Agency) is the recognized experienced advocate and catalyst within the government for public/private sector commercial partnerships in the maritime arena. Research partnerships are formed with government agencies, industry and others to evaluate and demonstrate the effectiveness of advanced performance technologies and processes to operate in a safe, secure and environmentally responsible manner. In this context, the described project complements the agency's strategic vision and is permitted by the provisions as set forth in the Merchant Marine Act of 1936, Section 209 (Authorization of Appropriations).

The purpose of the Marad/SNAME Student Design Competition is both to challenge college student team and to reward them for their development of superior vessel designs or transportation systems. The specific technical design challenge presented to students will vary from year-to-year.

The 2009-10 Student Design Competition

For the 2009-10 academic year the focus will be on the design and operation of a salvage tug with some commercial application.

Statement of Work

The Agency, in concert with the Society of Naval Architects and Marine Engineers (SNAME), shall conduct a design competition for a salvage tug, a vessel/system with commercial applications to operate in the Aleutian Islands, that is economically competitive and energy efficient with low emissions. This student competition will be open to international student teams. Judging of entries will be conducted by a select team of Agency personnel, SNAME members and members of the Arctic Council.

The designs should be innovative, using cutting-edge technology concepts that employ air emissions and energy reduction. Each design effort should assess the influence of weight, space, cost and operational performance.

Factors to be considered in the evaluation process include:

- Rationale for selecting the vessel type and operational system,
- Selected commercial and salvage operational systems,
- Propulsion system analysis,
- Environmental benefits and
- Economic analysis including required freight rate or equivalent.

Although no limits are placed on the size of the student design team, the judges will take into consideration the size of the team in judging the scope and outcome of the student

design entry. Timeliness of the reporting requirements will also be a consideration. In addition, the duration of the project, or the number of semesters, will be considered.

Design Parameters: A salvage tug with commercial applications. The tug must have propulsive power of over 10000 BHP/7500 KW.

Background: During various seminars and meetings we have found that the industry has a pressing need for a salvage tug with at least a 10,000 BHP/7500 kW capacity to be based at a strategic location in the Aleutian Islands. It is estimated that 3000 vessels traverse the Pacific Ocean within close proximity of the Aleutian Islands. Numerous high profile as well as near-miss incidents have occurred over the past several years resulting in a demand by the industry for adequate salvage response and capacity in that part of the Pacific Ocean.

The costs of acquisition and operating such a sole-purpose tug are high, and as such the thinking is that a student design for a combination salvage tug/commercial carrier would be of immense value to the industry.

Criteria:

The salvage vessel must be at least 10000BHP/7500 kW with all the internationally mandated requirements of a salvage vessel. In addition, the tug must be ice strengthened so that it can operate in Arctic waters on an as-needed basis.

The vessel must be capable of performing a commercially viable operation when not actively engaged in a salvage or search-and-rescue mission. The commercial operation must ensure, or be as close as possible to, break even on the vessel's operating costs, and amortize the acquisition cost over a period of 15 years.

The vessel's home port or sphere of operation must be such that it can quickly disengage from the commercial operation and conduct its primary salvage operation. Additionally, it must be designed to operate, safely, securely and in an environmentally responsible manner.

Students must analyze the need for conducting salvage operations in consistent stormy seas in that part of the world, and they must address the bollard pull and power needs of the tug. Students must assess if one large tug is sufficient, or whether two tugs will be required for safe towing and salvage.

Consider the possibility of the economic benefit of having a fleet of such vessels, homeported along the islands.

Judging criteria:

- Thoroughness of design including accuracy of calculations,

- Cost and practicality of the design,
- Energy efficiency and reduced emissions,
- The presentation and
- A business plan and economic analysis.

Deliverables:

1. Notification of Intent to Participate: January 31, 2009
2. Progress reports:
 - Mid-point of each semester of student involvement
 - End of each semester of student involvement
 - Final report at termination of project
3. All submittals shall be electronic.

Completion Date: June 30, 2010

Competition Awards:

The competition awards will be presented at the

**SNAME 2010 Annual Meeting
Location and Dates TBD**

The winning design teams will be awarded cash prizes as noted:

First Place	\$4000
Second Place	\$2000
Third Place	\$1000

The winning design team faculty advisors will be awarded cash prizes as noted:

First Place	\$1000
Second Place	\$ 500
Third Place	\$ 500

Panel of Judges:

1. Administrator, U.S. Maritime Administration,
2. Capt. Lawson Brigham, USCG (Ret), PhD, Deputy Director, U.S. Arctic Research Commission
3. Mr. R. Keith Michel, President, Society of Naval Architects and Marine Engineers
4. Mr. Ronald Kiss, Past President, Webb Institute

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