



## MARINE SAFETY ALERT 11-01

July 11, 2011

U.S. Coast Guard District Eleven  
Department of Homeland Security



### Fuel Switching Safety

The purpose of this Marine Safety Alert is to increase awareness and reiterate general guidance on fuel systems and fuel switching safety in an effort to prevent propulsion losses. After a noted decrease, there has been a recent increase in the number of reported loss of propulsion incidents on deep draft vessels within the Eleventh Coast Guard District. Coast Guard studies and review of marine casualties indicate that lack of maintenance and testing of certain systems, including fuel oil systems, is one of the leading causes of propulsion failures. Advanced planning and careful fuel system management are critical to safely switching fuels. This is especially important if fuel switching is not routine practice. Proper procedures, training, and maintenance are essential for vessels to safely switch between heavy/intermediate fuel oils and marine distillates. Additionally, vessel operators need to have a good understanding of their system requirements and limitations, and determine if any modifications may be necessary to safely switch between intended fuels.

### **Managing Risk**

Extensive analysis of propulsion losses has revealed certain trends among vessels operating on marine distillates. In order to manage risk and improve safety, vessel owners and operators should:

- Consult engine and boiler manufacturers for fuel switching guidance;
- Consult manufacturers to determine if system modifications or additional safeguards are necessary for intended fuels;
- Develop detailed fuel switching procedures;
- Establish a fuel system inspection and maintenance schedule;
- Ensure system pressure and temperature alarms, flow indicators, filter differential pressure transmitters, etc., are all operational;
- Ensure system seals, gaskets, flanges, fittings, brackets and supports are maintained and in serviceable condition;
- Ensure a detailed system diagram is available;
- Conduct initial and periodic crew training;
- Exercise tight control when possible over the quality of the fuel oils received;
- Complete fuel switching well offshore prior to entering restricted waters or traffic lanes; and
- Test main propulsion machinery, ahead and astern, while on marine distillates.

Additionally, the following guidance may assist vessel owners and operators in preventing propulsion losses when operating on marine distillates:

- Monitor for accelerated wear of engine/fuel system components and evaluate maintenance period intervals;
- Ensure fuel viscosity does not drop below engine manufacturer's specifications;
- Ensure proper heat management of fuel systems to maintain minimum viscosity values;
- Make appropriate fuel rack adjustments to account for potential fuel pressure differentials between residual fuel oils and marine distillates;
- Determine speed limitations for stopping the engine ahead and ordering an astern bell to ensure timely engine response; and
- Ensure start air supply is sufficient and fully charged prior to maneuvering.

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