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COMDTINST M9000.6E
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COMMANDANT INSTRUCTION M9000.6E

Subj: **NAVAL ENGINEERING MANUAL**

1. PURPOSE. This Manual promulgates Coast Guard Naval Engineering policy and selected procedures.
2. ACTION. Area and district commanders, commanders of maintenance and logistics commands, commanding officers of headquarters units, assistant commandants for directorates, Chief Counsel, and special staff at Headquarters shall comply with the provisions of this Manual. Internet release authorized.
3. DIRECTIVES AFFECTED. Naval Engineering Manual, COMDTINST M9000.6D is canceled.
4. SUMMARY OF CHANGES. This Notice incorporates all changes to previous editions of the Naval Engineering Manual and the following significant new changes:
 - a. Chapter 001:
 Changed information in Section B “**CHANGE PROCESS**” to reflect new NEM change process.
 - b. Chapter 041:
 This chapter was re-worded to define the CCB process. Updated List of Standard Boats.
 - c. Chapter 042:
 Changed Sect A. “Hierarchy of Guidance” for Naval Engineering publications and directives. Providing new guidance for referenced specification usage.

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subjected to both the NPD MGO contract requirement tests and (for informational purposes) the more numerous and strenuous F-76 standards, including storage stability, particulate, carbon residue, and trace metal content. The participating cutters will get fuel quality testing far beyond what could ever be accomplished onboard ship and recommendations for corrective actions (should a problem be identified). Knowing the fuel properties allows appropriate actions to be taken to minimize or prevent a shipboard problem. It is important the samples be shipped to the analysis laboratory as soon as possible, preferably directly from the bunkering port. This is the only way to ensure that results are available before the fuel is burned and to minimize risk to equipment and personnel. In addition, ELC will initiate a customer complaint for any approved DESC bunker product that does not meet the NPD MGO contract requirements. Fuel quality has improved at a number of ports through this process. Contact ELC 026 for additional information.

- c. Tank Stripping. Timely and periodic tank stripping of bottoms water and particulate contaminants is the single most effective procedure for maintaining fuel quality. Storage and service tanks are to be tested for free water content using bottom soundings and water indicating paste. Testing for free water shall be performed:

- (1) Prior to receiving fuel (if the receiving tank had been ballasted),
- (2) 24 hours after receiving fuel,
- (3) And on a monthly basis.

To the best of your cutter's ability, strip the tank if free water is detected. It is recognized that many cutters do not have effective stripping systems.

- d. Use of Biocides. This section states the requirements for biocide treatment of all diesel fuel oil and JP-5 fuel carried for shipboard use. The 400-foot WAGB, 378-foot WHEC, 210-foot WMEC classes, and CGC HEALY shall comply with the following fuel treatment provisions. All other cutters that regularly ballast their fuel oil storage tanks (manually or automatically), shall also comply. MLC's may, at their discretion, require participation of other cutters in the program.

Note: The provisions of this section DO NOT apply to fuels carried on board cutters for use in aircraft.

- (1) Biocides. Biocides are commercially available products which are toxic to microorganisms. The most useful biocides for treating fuels are soluble in the fuel but have sufficient water solubility that they can partition into any present free water. Biocides prevent growth and proliferation of microorganisms but will **not** reduce the amount of microbial particulates taken in from a fuel supply source, or which may have developed in a tank before biocide treatment. To be effective for shipboard use, biocides must not alter the

characteristics of the fuel. Biocides must also be compatible with fuel storage, handling, transfer, and delivery systems for equipment that uses fuel. Multiple biocide products were approved for Coast Guard use in the past. However, due to recent changes in the MIL-S-53021A and its associated qualified products list (QPL-53021-9), and concerns with toxicity, compatibility, and other technical issues, only Biobor JF or Nalfleet 9-303 are currently approved for use. Cutters that are currently using another biocide product may use up existing stock. In addition, due to compatibility concerns, cutters shall run two complete tank fillings without any biocide product before transitioning to either Biobor JF or Nalfleet 9-303. Note: earlier information that stated compatibility problems existed between Biobor and Nalfleet were investigated by the Naval Research Laboratory and found to be in error. If a cutter should decide to switch from Biobor to Nalfleet (or vice versa) the new biocide may be directly added to a partially filled tank that had been previously been treated with the original biocide without compatibility concerns. There remains a general compatibility concern with fuel that has been treated with different additive products. For that reason, no additives (other than Biobor JF or Nalfleet 9-303) shall be used onboard Coast Guard vessels.

- (2) Restrictions on Offloading Additized Fuel. Recent Naval Operational Logistics Support Center (NOLSC) (formally the Naval Petroleum Office) policies prevent offloading of additized fuel (fuel with biocides added) at Navy bulk storage facilities except under very special conditions. These policies can be obtained from www.navpetoff.navy.mil, under technical advisories. Unless other arrangements are made, additized fuel offloaded at Navy bulk storage facilities will be treated as waste oil and a disposal fee imposed. The only exception to this policy is for FISC, Seattle. Coast Guard additized fuel, provided it was treated only with Biobor JF and/or Nalfleet 9-303, may be offloaded without penalty or restriction.
 - (3) Storage and Handling of Fuel Treatments. Containers of fuel treatment chemicals must be kept closed to the atmosphere and possible water contamination. These fuel treatment chemicals are toxic. Follow Material Safety Data Sheets guidance on first aid, handling, stowage, and disposal.
 - (4) Use of Fuel Treatments. Use in accordance with manufacturer's instructions.
 - (5) Magnetic Fuel Treatments. Magnetic fuel treatments are **not** authorized for use in place of biocides.
- e. Stock Rotation. In order to counter the concerns with storage stability and microbial contamination, it is critical to keep track of the fuel product in each onboard storage tank, and when it was received. Approved DESC bunker fuel products and emergency substitute fuels should be burned as quickly as possible after being taken onboard. In general, onboard fuel stocks should be rotated so that older fuels are used first. Continually drawing fuel in the same tank order,