



## ***FINDINGS OF CONCERN***

### **Sector Los Angeles/Long Beach**

March 24, 2025  
San Pedro, CA

Findings of Concern 005-25

## **OVERHEATING DIESEL EXHAUST FLUID DOSING MODULES ON TIER 4 ENGINES**

Purpose. The U.S. Coast Guard issues findings of concern to disseminate information related to unsafe conditions that were identified as causal factors in a casualty and could contribute to future incidents. Findings of concern are intended to educate the public, state, or local agencies about the conditions discovered so they may address the findings with an appropriate voluntary action or highlight existing applicable company policies or state/local regulations.

The Incident. On August 21, 2024, an inspected towing vessel in Long Beach, California, sustained an overheated diesel exhaust fluid (DEF) dosing module on its starboard main engine, forcing the engineer to shut down the engine to prevent further damage. These modules, required on Tier 4 engines, inject DEF into the exhaust system to reduce NOx emissions. The overheating occurred due to reduced DEF flow, which normally cools the module housing. Without sufficient cooling, the plastic module—mounted on the exhaust—melted from the heat radiating off the stack. This incident marked the sixth module replacement in nine months due to recurring overheating issues.



*DEF hose with excessive length and loop*



*DEF hose post-repair, loop removed*

Contributing Factors and Analysis. The Coast Guard's investigation identified several factors that contributed to this casualty. The installed DEF hose was excessively long, creating a loop and potential air traps that restricted DEF flow. In addition, the dosing module had not been calibrated to the latest manufacturer's revision. The service technicians who replaced the previous five dosing modules lacked adequate training in marine applications. As a result, they were unable to diagnose the root cause of the overheating issue during each service visit. The problem was only resolved after a marine application engineer was brought in to assess the system.

Findings of Concern. Coast Guard investigators have identified the following voluntary measures owners and operators can take to reduce the likelihood of recurrence:



**UNITED STATES COAST GUARD**  
U.S. Department of Homeland Security

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- Ensure DEF hoses are installed at a length which enables appropriating routing without loops or dips to prevent trapped air or gas from restricting DEF flow.
- Verify that DEF dosing modules are calibrated to the latest manufacturer revisions to ensure proper operation and prevent overheating.
- Ensure service technicians performing maintenance on DEF dosing modules have adequate training in marine applications to accurately diagnose and resolve issues in order to prevent repeated failures.

Closing. These findings of concern are provided for informational purpose only and do not relieve any domestic or international safety, operational, or material requirements. For any questions or comments please contact Sector Los Angeles/Long Beach, Investigations Division by phone at (310) 521-3770 or email at [SECLALB@uscg.mil](mailto:SECLALB@uscg.mil).