

Considerations in Cases Involving Engine Damage Caused by Contaminated Bunkers

By Christopher Raleigh – July 27, 2018

There have been reports, primarily from the Gulf region, of vessel engine failures caused by defective bunkers. Clogged fuel oil filters, jammed purifiers, and sticking/seized fuel pump plungers have resulted in engine shut-downs, with the cause being attributed to quality issues with the bunkers being burned at the time of the failures. The preliminary cause which is publicly available relates to the presence of phenolic compounds, specifically 4-cumyl-phenol, which are found in petrochemicals used in the production of resins and other products that require adhesive characteristics.

The sale of fuel oils and bunker fuels are typically accompanied by certificates of analysis conducted by independent laboratories that test these fuel oil products pursuant to a protocol promulgated by the International Standards Organization known as ISO 8217. The latter standard is periodically upgraded, but the tests generally quantify fuel oil characteristics such as flashpoint, viscosity, pour point, Sulphur content, water content, etc. However, no one routinely tests for phenol because it is expected that waste oil and by-products from petrochemical processes will not be blended with or otherwise “passed off” as fuel oil. Unfortunately, that is exactly what appears to be happening: Contaminated product is being represented as bunkers, typically IFO 380 cst (Intermediate Fuel Oil, 380 centistokes) which, when burned by the vessel, can affect its fuel pumps, filters, and purifiers and result in an engine shutdown. Aside from the engine damage, and the loss of hire necessitated by repairs, an event of this nature could have potentially disastrous consequences if engines shut down during a critical maneuver while the vessel is under navigation.

This type of contamination can have other consequences, not only for vessel and barge owners but also for entities that store, blend, and trade in fuel oil products. Blending the contaminated product can extend the damage to what would otherwise be a sound, on-spec quantity of fuel oil; storage tanks in which the contaminated product is loaded may require extensive cleaning operations; and the tanks, pumps and lines of vessels or barges on which the contaminated product is transported are potentially subject to extensive cleaning costs and concomitant “down time.”

Determining the existence of phenols and other contaminants requires the use of advanced testing methods such as GCMS (Gas Chromatography Mass Spectrometry), a forensic

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methodology that is time consuming and expensive, and which can only be performed by a limited number of laboratories in the U.S.

Steps that a vessel owner and manager can take include the following:

- Prior to purchase/sale: the adage “know your seller” is critical. However, a reputable bunkers broker, and even major traders or oil producers, may themselves have been “duped” and unwittingly blended contaminated product with their own stock. Accordingly, insist that the contract contain language contain a warranty that the bunkers do not contain petrochemical by-products, waste, residues or spent chemicals, including caustics and acids. Also, consider asking for documents which reference the source of the bunkers. Finally, require proof of insurance from the seller for product defects related to its bunkers.
- If an engine failure occurs: It is critical to swiftly and thoroughly take steps to (1) prevent further engine damage; and (2) preserve physical evidence. A marine engineer, surveyor, forensics laboratory and/or chemical engineer who specializes in petroleum products should be promptly retained; damaged parts should be identified and preserved; samples of residues should be taken from the filters, purifiers, and other engine components that were affected; and, bunker tanks and settling tanks in which the suspect bunkers were loaded, stored, and held should be sampled by the surveyor under the direction of the marine engineer and chemical engineer. Records documenting the purchase, storage, and use of bunkers from other sources should be preserved. Related to this, particular attention should be paid to bunkers aboard the vessel that may have been cross-contaminated through blending with or exposure to the contaminated material. Finally, all physical evidence should be handled pursuant to a strict chain of custody protocol.
- Any suspect third parties should be invited to attend and participate in the inspection, sampling and preservation process. All third parties should also be given a litigation “hold” notice and directed to preserve documentary and physical evidence. Product in the custody of any third party should also be sampled. If there is concern that physical evidence will be destroyed by a potentially culpable party or otherwise not preserved, and/or the third party does not permit sampling, a court order should be obtained under Rule 27 of the Federal Rules of Civil Procedure to preserve such evidence or compel sampling. Rule 27 provides a legal mechanism which allows the filing of a law suit for the limited purpose of compelling a recalcitrant party to cooperate in the preservation of physical evidence.

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- After physical evidence has been gathered, a protocol should be established for testing. If cooperation of any third party is required, it should be asked to consent to the testing and to have its own expert(s) attend and provide input on the protocol which will be followed. Absent cooperation, a further order from the court should be sought. Typically, a court that has compelled the production and preservation of physical evidence will also compel testing, provided that the samples are not exhausted or destroyed.

Adopting these steps may be time-consuming, but ultimately they are designed to protect the interests of the vessel owner, whose equipment and livelihood are at risk. It is possible the culpable party may be several steps “downstream” from the vessel owner’s seller. Obtaining and preserving physical evidence and the results of forensic testing should enable the affected parties to identify the “culprit” and obtain redress, through the courts if necessary.

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