National Marine Manufacturers Association

October 24, 2011

**VIA ELECTRONIC MAIL**

Administrator Lisa P. Jackson
U.S. Environmental Protection Agency
Ariel Rios Building Room 300
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
(jackson.lisa@epa.gov)

Assistant Administrator Gina McCarthy
Office of Air & Radiation
U.S. Environmental Protection Agency
Ariel Rios Building, Mail Code 6101A
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460
(mccarthy.gina@epa.gov)

**NATIONAL MARINE MANUFACTURERS ASSOCIATION PETITION FOR RECONSIDERATION**

**RE: Docket ID No. EPA-HQ-OAR-2010-0448 -- U.S. Environmental Protection Agency Final Rule: "Regulation to Mitigate the Misfueling of Vehicles and Engines with Gasoline Containing Greater than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs – 76 Fed. Reg. 44,406 (July 25, 2011)**

Dear Administrator Jackson and Assistant Administrator McCarthy:

Pursuant to 42 U.S.C. § 7607(d)(7)(B), National Marine Manufacturers Association ("NMMA") requests that the U.S. Environmental Protection Agency ("EPA") reconsider its regulations to mitigate the misfueling of vehicles and engines with gasoline containing greater than ten volume percent ethanol in light of the following two studies released on October 20, 2011 by National Renewable Energy Laboratory ("NREL") --

***Volvo Penta 4.3 GL E15 Emissions and Durability Test***

http://www.nrel.gov/docs/fy12osti/52577.pdf (PDF 1.0 MB)
Authors: George Zoubul, Mel Cahoon, and Richard Kolb (Volvo Penta of the Americas, Inc.)
NREL Technical Monitor: Keith Knoll



444 North Capitol Street, NW, Suite 645
Washington, D.C. 20001
202.737.9750 Fax 202.628.4716
nmma.org

A new Volvo Penta carbureted 4.3 GL engine underwent emissions and dynamometer durability testing from break-in to expected end of life using an accelerated ICOMIA marine emissions cycle and E15 fuel. Only ethanol content was controlled. All aging used splash-blended E15 fuel. Exhaust emissions, exhaust gas temperature, torque, power, barometric pressure, air temperature, and fuel flow were measured at five intervals using site-blended E15 aging fuel and certification fuel (E0). The durability test cycle showed no noticeable impact on mechanical durability or engine power. Emissions performance degraded beyond the certification limit for this engine family, mostly occurring by 28% of expected life. Such degradation is inconsistent with prior experience. Comparisons showed that E15 resulted in lower CO and HC, but increased NOX, as expected for non-feedback-controlled carbureted engines with increased oxygen in the fuel. Fuel consumption also increased with E15 compared with E0. Throughout testing, poor starting characteristics were exhibited on E15 fuel for hot re-start and cold-start. Cranking time to start and smooth idle was roughly doubled compared with typical E0 operation. The carburetor was factory-set for lean operation to ensure emissions compliance. Test protocols did not include carburetor adjustment to account for increased oxygen in the E15 fuel.

***High Ethanol Fuel Endurance: A Study of the Effects of Running Gasoline with 15% Ethanol Concentration in Current Production Outboard Four-Stroke Engines and Conventional Two-Stroke Outboard Marine Engines***

http://www.nrel.gov/docs/fy12osti/52909.pdf (PDF 2.1 MB)
Author: David Hilbert (Mercury Marine)
NREL Technical Monitor: Keith Knoll

Three Mercury Marine outboard marine engines were evaluated for durability using E15 fuel - gasoline blended with 15% ethanol. Direct comparison was made to operation on E0 (ethanol-free gasoline) to determine the effects of increased ethanol on engine durability. Testing was conducted using a 300-hour wide-open throttle (WOT) test protocol, a typical durability cycle used by the outboard marine industry. Use of E15 resulted in reduced CO emissions, as expected for open-loop, non-feedback control engines. HC emissions effects were variable. Exhaust gas and engine operating temperatures increased as a consequence of leaner operation. Each E15 test engine exhibited some deterioration that may have been related to the test fuel. The 9.9 HP, four-stroke E15 engine exhibited variable hydrocarbon emissions at 300 hours - an indication of lean misfire. The 300HP, four-stroke, supercharged Verado engine and the 200HP, two-stroke legacy engine tested with E15 fuel failed to complete the durability test. The Verado engine failed three exhaust valves at 285 endurance hours while the 200HP legacy engine failed a main crank bearing at 256 endurance hours. All E0-dedicated engines completed the durability cycle without incident. Additional testing is necessary to link the observed engine failures to ethanol in the test fuel."

In light of the damage caused by E15 to the tested marine engines in these studies and the resulting increase in fuel consumption and $NO_x$ emissions, the only prudent measure for EPA to take would be to strengthen substantially its current misfueling controls to protect the public from damage to marine engines and their air pollution control devices. As you know, the National Petrochemical and Refiners Association filed two petitions for reconsideration of the final misfueling rule. Accordingly, this petition for reconsideration is timely. In addition, it is

timely since it is being submitted as soon as practicable after the release of the two NREL studies described above. EPA's labeling strategy is simply inadequate to prevent misfueling. There was substantial misfueling (at least 13.5 percent) with leaded gasoline in 1982, six years after introduction of unleaded gasoline (and despite technological barriers to prevent misfueling). EPA also denied the petition for rulemaking to assure an adequate supply of E10 so that those seeking to avoid misfueling will have the ability to do so. [1] Thus, if a retail station only sold E15 a consumer would have no choice but to misfuel. Misfueling will, therefore, occur, despite EPA's attempts to prevent it.

NMMA continues to oppose EPA's October 13, 2010 Notice of Partial Waiver decision (as supplemented by EPA's January 21, 2011 Notice) ("Decision") relating to Growth Energy's ("Petitioners") application filed under Clean Air Act Sec. 211(f)(4) on March 6, 2009 requesting a waiver for ethanol-gasoline blends of up to 15 percent ethanol by volume ("E15"). NMMA continues to oppose the granting of a "partial" or "conditional" waiver for E15 or any other ethanol blend level over ten percent ethanol ("E10") because it will substantially increase public confusion and lead to persistent misfueling and consequent engine performance failures, emissions control failures, and consumer safety concerns.

Currently, there are nearly 13 million registered recreational boats in operation in the U.S. No gasoline marine engine—or any other marine equipment including gasoline generators—currently in the field was designed, calibrated, certified or is warranted to run on anything over 10 percent ethanol. EPA's own "engineering judgment," as well as all available data (supported by these two new studies), strongly suggests that all of the 12.8 million registered boats on the water today (with the exception of approximately 260,000 diesel-powered boats and the roughly 430,000 registered non-motorized craft) may be negatively impacted by any gasoline with more than a 10 percent ethanol blend. While EPA's denial of the waiver for marine applications was appropriate, its secondary final rule to mitigate misfueling is deficient and counteracts the express purpose of the waiver denial for nonroad engines and equipment.

These new studies provide striking evidence that misfueling has a high cost on marine engines. As the overwhelming majority of recreational boats are towable and refueled at regular automotive gas stations—95 percent of recreational boats are less than 26 feet in length. Boaters typically avoid fueling at marina or on-water fuel docks because the premium paid for fueling at a marina can run between seventy five cents and one dollar and fifty cents. Marina fuel docks are also relatively rare in terms of overall fuel stations. Additionally, many boaters utilize portable fuel tanks to fill up their secondary marine equipment, such as generators, small-horsepower motors that power small vessels such as Jon boats, or personal watercraft ("PWC").

[1] NMMA has, along with other members of the Engine Products Group, sought judicial review of the final misfueling rule in Case No. 11-1334 (D.C. Cir.). In that litigation, the Engine Products Group has filed a motion to hold all challenges to the final misfueling rule in abeyance pending the outcome of the separate challenges to EPA's partial waiver for E15. In response to that motion, EPA stated its support for holding the new cases in abeyance, and pointed out that the National Petrochemical and Refiners Association has filed two petitions for reconsideration of the final misfueling rule.

Ultimately, boaters put the same gasoline in their boats as they put in their cars, trucks, and outdoor power equipment. EPA's current policy pathway to "bifurcate" the fuel supply will, in our judgment, substantially confuse consumers and as this new evidence shows will jeopardize the performance of their products, and potentially their safety.

NMMA is the nation's leading recreational marine industry association, representing nearly 1,300 boat builders, engine manufacturers, and marine accessory manufacturers. NMMA members collectively produce more than 80 percent of all recreational marine products made in the United States. With nearly 13 million registered boats (and nearly 16 million boats in the field) and 70 million boaters nationwide, the recreational marine industry is a major consumer goods and services industry that contributed $30.5 billion in new retail sales and services to the U.S. economy in 2009 and generates nearly 340,000 jobs nationwide.

If you have any questions, please contact me at csquires@nmma.org; (202) 737-9766.

Respectfully submitted,

Cindy L. Squires, Esq.
Chief Counsel and Director of Regulatory Affairs
Government Relations

CC: Margo Oge
Bryon Bunker