UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

MAR 0 6 2018

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Ms. Kelli O'Brien
Lab Manager
ClearStak
99 Canal Street
Putnam, CT 06260

Dear Ms. O'Brien,

I am writing in response to your letter dated March 4, 2018, regarding certification testing of the Nova model wood stove, a prototype single burn rate wood stove manufactured by MF Fire. You are requesting to use alternative test procedures for recovery and preparation of the particulate matter (PM) samples from the front half filter and probe assembly. In particular, you propose use of the acetone probe rinse and filter sample recovery and preparation procedures described in sections 8.7 and 11.0 of Method 5, Determination of Particulate Matter Emissions from Stationary Sources (40 CFR 60, Appendix A), in lieu of the procedures in section 10.2.2 of ASTM E2515-11, Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel which is required under 40 CFR 60, Subparts AAA and QQQQ.

The difference between the sample recovery and preparation procedures of Method 5 and ASTM E2515-11 is that Method 5 determines PM in the probe and filter assembly by (1) collecting PM in the probe through acetone rinses of the probe, drying down the rinse in beakers, dessication, followed by weighing and (2) removal of the filter, dessicating, and then weighing, as opposed to ASTM E2515-11 where the entire 100+ gram probe assembly is weighed before and after a test run. We understand that ClearStak typically performs gravimetric analysis of their PM samples (acetone rinses and filters) at an offsite location and not in the wood heater emission testing laboratory to ensure quality low mass (e.g., milligram) measurements uninfluenced by ground vibrations caused by daily operations of testing facilities.

You state that through past experience, you have found that probe PM collected through acetone rinses which are then transported in sample jars offer far less possible sample contamination than handling the front half probe and filter assembly. You propose to collect the acetone rinses after testing according to section 8.7 of Method 5, transport them to your laboratory, then transfer the rinses from the jars to clean and desiccated pre-weighed 100 mL beakers where they are dried down and desiccated according to section 11.2.2 of Method 5, and finally weighed according ASTM E2515-11 in 6-hour intervals until two consecutive weights are achieved within 0.2mg. Likewise, the filters (which were pre-weighed before testing as required in section 8.1.3 of Method 5) are recovered according to section 8.7 of Method 5, transported to the laboratory, dessicated according to section 11.2.1 of Method 5, and weighed according ASTM E2515-11.

We understand ClearStak is requesting to use these alternative procedures for PM recovery, dry down, and desiccation of the front half probe and filter assembly samples for ASTM E2515-11 testing of MF Fire's prototype single burn rate stove, Nova, and for all future ASTM E2515-11 emissions testing of residential wood heaters, hydronic heaters, and forced-air furnaces per 40 CFR Part 60 Subparts AAA and QQQQ.

With this letter, we are approving your alternative test procedures detailed above in conjunction with ASTM E2515-11 for certification testing of the MF Fire's prototype single burn rate stove, Nova, as well as all wood heaters, hydronic heaters, and forced-air furnaces subject to 40 CFR Part 60 Subpart AAA and QQQQ. A copy of this letter must be included in each certification test report where this alternative test method is utilized.

It is reasonable that this alternative test method approval be broadly applicable to certification testing of all wood heaters, hydronic heaters, and forced-air furnaces subject to the requirements of 40 CFR part 60, Subparts AAA and QQQQ. For this reason, we will post this letter as ALT-126 on our website at *http://www3.epa.gov/ttn/emc/approalt.html* for use by other interested parties. This alternative method approval is valid until such time that Subparts AAA and QQQQ are revised or replaced to require a different certification method, and at such time, this alternative will be reconsidered and possibly withdrawn.

If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or toney.mike@epa.gov.

Sincerely,

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc: Amanda Aldridge, EPA/OAQPS/OID
Adam Baumgart-Getz, EPA/OAQPS/OID
Rafael Sanchez, EPA/OECA
Michael Toney, EPA/OAQPS/AQAD