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OFFICE OF THE LIEUTENANT GOVERNOR
ALASKA

MEMORANDUM

TO: Gary Mendivil
Department of Environmental Conservation

FROM: April Simpson, Office of the Lieutenant Governor
465.4081

DATE: December 9, 2019

RE: Filed Permanent Regulations: Department of Environmental Conservation

Department of Environmental Conservation: Air Quality Control: PM 2.5 Serious SIP Regulations (18 AAC 50)

Attorney General File:	2018200888
Regulation Filed:	12/9/2019
Effective Date:	1/8/2020
Print:	233, April 2020

cc with enclosures: Harry Hale, Department of Law
Judy Herndon, LexisNexis

ORDER ADOPTING CHANGES TO
REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The attached twenty three pages of regulations, dealing with Fine Particulate Matter (PM2.5) and amendments to the State Implementation Plan (SIP) are hereby adopted and certified to be a correct copy of the regulation changes that the Department of Environmental Conservation adopts under the authority of AS 46.03 and AS 46.14 and after compliance with the Administrative Procedure Act (AS 44.62), specifically including notice under AS 44.62.190 and 44.62.200 and opportunity for public comment under AS 44.62.210.

This action is not expected to require an increased appropriation.

In considering public comments, the Department of Environmental Conservation paid special attention to the cost to private persons of the regulatory action being taken. The Department of Environmental Conservation also gave special attention to alternate practical methods in this regulatory action, as required by AS 46.03.024.

The regulation changes adopted under this order take effect on the 30th day after they have been filed by the lieutenant governor as provided in AS 44.62.180.

DATE: November 19, 2019
Anchorage, Alaska

Jason W. Brune, Commissioner
Department of Environmental Conservation

FILING CERTIFICATION

Josh Applebee for

I, Kevin Meyer, Lieutenant Governor for the State of Alaska, certify that on Dec 9, 2019, at 2:21 pm. I filed the attached regulations according to the provisions of AS 44.62.040 – 44.62.120.

for Kevin Meyer, Lieutenant Governor

Effective: January 8, 2020.

Register: 233, April 2020.

FOR DELEGATION OF THE LIEUTENANT GOVERNOR'S AUTHORITY

I, KEVIN MEYER, LIEUTENANT GOVERNOR OF THE STATE OF ALASKA, designate the following state employees to perform the Administrative Procedures Act filing functions of the Office of the Lieutenant Governor:

Josh Applebee, Chief of Staff
Kady Levale, Notary Administrator
April Simpson, Regulations and Initiatives Specialist

IN TESTIMONY WHEREOF, I have signed and affixed the Seal of the State of Alaska, in Juneau, on December 11th, 2018.

KEVIN MEYER
LIEUTENANT GOVERNOR

The introductory language of 18 AAC 50.030(a) is amended to read:

~~**18 AAC 50.030. State air quality control plan**~~ (a) Volumes II and III of the *State Air Quality Control Plan* for implementing and enforcing the provisions of AS 46.14 and this chapter, **revised as of** [AS AMENDED THROUGH] {~~*adoption date of the regulations*~~} November 19, 2019 [AUGUST 10, 2018], are adopted by reference. The plan includes the following documents that are also adopted by reference: (((Publisher: No changes to 18 AAC 50.030(a)(1)-(8)))

• • •

(Eff. 1/18/97, Register 141; am 6/21/98, Register 146; am 9/4/98, Register 147; am 1/1/2000, Register 152; am 12/30/2000, Register 156; am 9/21/2001, Register 159; am 1/27/2002, Register 161; am 3/27/2002, Register 161; am 5/3/2002, Register 162; am 2/20/2004, Register 169; am 6/24/2004, Register 170; am 10/1/2004, Register 171; am 12/14/2006, Register 180; am 12/30/2007, Register 184; am 5/17/2008, Register 186; am 7/25/2008, Register 187; am 11/9/2008, Register 188; am 5/6/2009, Register 190; am 11/4/2009, Register 192; am 4/1/2010, Register 193; am 10/29/2010, Register 196; am 4/13/2011, Register 198; am 9/17/2011, Register 199; am 8/1/2012, Register 203; am 5/8/2013, Register 206; am 2/5/2015, Register 213; am 4/17/2015, Register 214; am 3/2/2016, Register 217; am 11/26/2016, Register 220; am 12/29/2016, Register 220; am 1/12/2018, Register 225; am 9/15/2018, Register 227; am 1/8/2020, Register 233)

Authority: AS 46.03.020 AS 46.14.030 Sec. 30, ch. 74, SLA 1993
AS 46.14.020 AS 46.14.140

18 AAC 50.030 is amended by adding a new Editor's Note to read:

Editor's note: The documents adopted by reference in 18 AAC 50.030 may be reviewed at the department's Anchorage, Fairbanks, or Juneau office, or on the internet on the Department

of Environmental Conservation, Division of Air Quality's Reference Materials for 18 AAC 50 web page at: http://dec.alaska.gov/air/anpms/sip/18AAC50-reference-materials/.

18 AAC 50.075(e) is amended to read:

(e) The department may prohibit operation of a solid fuel-fired heating device in **a nonattainment or maintenance** [AN] area for which the department has declared a PM-2.5 air quality episode under emergency episode provisions **of** [INCLUDED IN] a local air quality plan **that has been** incorporated in the *State Air Quality Control Plan*. **The declaration must specify** [, ADOPTED BY REFERENCE IN 18 AAC 50.030, ONLY IF THE ANNOUNCEMENT IDENTIFIES]

(1) the air quality control zone affected by the prohibition; [AND]

(2) any **applicable** exceptions **to the prohibition** [AS IDENTIFIED IN THE *STATE AIR QUALITY CONTROL PLAN*, ADOPTED BY REFERENCE IN 18 AAC 50.030.]; **and**

(3) **that operators shall withhold fuel from non-exempt devices and ensure that combustion, as evidenced by visible smoke from a chimney, has ceased within three hours of the effective time of the declaration.**

18 AAC 50.075(f) is amended to read:

(f) [A SOLID FUEL-FIRED HEATING DEVICE LOCATED IN] **In** an area identified in 18 AAC 50.015(b)(3), **a person may not operate a solid fuel-fired heating device in a manner that causes**

(1) **visible emissions, measured as set out in (a)(2) of this section, that exceed 20 percent opacity for more than six minutes in any one hour except during the first 15**

minutes after initial firing of the device, when the opacity limit must be less than 50 percent; and

(2) visible emissions, as observed using 40 C.F.R. Part 60, Appendix A, Method 22, adopted by reference in 18 AAC 50.035, to cross property lines. [SHALL BE OPERATED SO THAT THE VISIBLE EMISSIONS OR OPACITY DO NOT EXCEED 20 PERCENT OPACITY FOR MORE THAN SIX MINUTES IN ANY ONE HOUR, EXCEPT DURING THE FIRST 15 MINUTES AFTER INITIAL FIRING OF THE DEVICE WHEN THE OPACITY LIMIT MUST BE LESS THAN 50 PERCENT. VISIBLE EMISSIONS ARE MEASURED AS SET OUT IN (a)(2) OF THIS SECTION.]

(Eff. 1/18/97, Register 141; am 5/6/2009, Register 190; am 2/28/2015, Register 213; am 11/26/2016, Register 220; 1/12/2018, Register 225; am 1/8/2020, Register 233)

Authority: AS 46.03.020 AS 46.14.020 Sec. 30, ch. 74, SLA 1993
AS 46.14.010 AS 46.14.030

The section heading for 18 AAC 50.076 is amended to read:

18 AAC 50.076. Solid fuel-fired heating device fuel requirements; requirements for [REGISTRATION OF COMMERCIAL] **wood sellers.**

18 AAC 50.076(d) is amended to read:

(d) A commercial wood seller **shall** [MUST] register under (e) of this section with the department to sell or provide wood to a person **who is** located in **or intends to burn the wood in** an area identified in 18 AAC 50.015(b)(3) [, IF

(1) UNDER 42 U.S.C. 7513 AND 7602, EPA HAS DESIGNATED THE AREA AS A "SERIOUS" NONATTAINMENT AREA WITH RESPECT TO PM-2.5;

(2) THE DEPARTMENT ISSUES A FINDING THAT WOOD SMOKE IS A SIGNIFICANT COMPONENT OF THE PM-2.5 AMOUNT THAT RESULTED IN DESIGNATION OF THE AREA IDENTIFIED IN 18 AAC 50.015(b)(3) AS "NONATTAINMENT"; AND

(3) NOT LATER THAN 60 DAYS BEFORE THE DATE ON WHICH THE REQUIREMENTS OF THIS SUBSECTION AND (e) – (g) OF THIS SECTION ARE TO APPLY, THE DEPARTMENT

(A) PREPARES A NOTICE IDENTIFYING THE NEED FOR APPLYING THE REQUIREMENTS OF THIS SUBSECTION AND (e) – (g) OF THIS SECTION WITH REGARD TO THE SALE OR PROVISION OF WOOD TO A PERSON LOCATED IN THE AREA; AND

(B) ISSUES THE NOTICE DESCRIBED IN (A) OF THIS PARAGRAPH BY

(i) PUBLICATION IN A NEWSPAPER OF GENERAL CIRCULATION;

(ii) POSTING IN THE OFFICE OF THE LOCAL AIR POLLUTION CONTROL PROGRAM; AND

(iii) POSTING ON THE ALASKA ONLINE PUBLIC NOTICE SYSTEM (AS 44.62.175)].

18 AAC 50.076(e) is amended to read:

(e) [BEFORE SELLING OR PROVIDING WOOD TO A PERSON LOCATED IN THE AREAS THAT IS IDENTIFIED IN 18 AAC 50.015(b)(3), A] **A** commercial wood seller **who is** subject to (d) [~~(g)~~] of this section **shall** [MUST]

(1) submit a registration application in a format provided by the department;

(2) have available for use a moisture content meter **of a type approved by** [THAT] the department [HAS APPROVED] under (g)(1) **or (j)(2)** of this section;

(3) have a valid business license issued under AS 43.70; and

(4) renew the registration every three years by submitting, at least 30 days before the expiration date of the existing registration, an application for renewal to the department in a format provided by the department.

The introductory language of 18 AAC 50.076(g) is amended to read:

(g) **Before October 1, 2021, and for any sales of wet wood under (j)(1) on or after October 1, 2021, a** [A] commercial wood seller who is [REGISTERED AS] required **to register** under (d) [~~(f)~~] of this section (((Publisher: No changes to 18 AAC 50.076(g)(1)-(12)))).

...

18 AAC 50.076 is amended by adding new subsections to read:

(j) On and after October 1, 2021, a commercial wood seller who is required to register with the department under (d) of this section may sell wet wood only if

(1) the wood seller meets all requirements of (g) of this section;

(2) the wood sold is in round logs eight feet or more in length; and

(3) the seller confirms in writing the buyer's ability to properly dry the wood for use in the next winter season or beyond and that the wood will be burned in accordance with (a) - (c) of this section.

(k) Except as permitted under (j) of this section, on and after October 1, 2021, a commercial wood seller required to register with the department under (d) of this section

(1) may only sell dry wood that is

(A) seasoned, split, and stored covered for at least 9 months unless otherwise confirmed dry;

(B) mechanically dried, where the drying process has been inspected and approved by the department to ensure consistency and reliability; or

(C) harvested from an inspected fire killed source that has been split, stacked, stored covered, and confirmed dry prior to freezing;

(2) may not market sales of wood that do not comply with this section;

(3) shall periodically measure, using a type of commercially available moisture test meter ~~of a type~~ that is approved by the department for accuracy, the moisture content of a representative sample of the wood to ensure the stock is dry prior to selling;

(4) shall document the measured moisture content, keep a record of the measurements over the seasoning period, and sign an affidavit in a form that the department provides attesting the wood is dry prior to sale;

(5) shall obtain the consumer's signature on the dry wood affidavit, or if the consumer is unavailable, shall mark on the form that the consumer is unavailable;

(6) shall provide the consumer with a copy of the signed dry wood affidavit;

(7) shall submit to the department, not later than the 15th day of each month, the department's copy of each dry wood affidavit completed during the previous month;

(8) shall retain the seller's own copy of each affidavit form for two years after the date of the sale, provision, or delivery;

(9) shall account for each affidavit form received from the department; when making a monthly submission under (7) of this subsection, the commercial wood seller shall:

(A) submit any affidavit form not given to a consumer due to damage or errors; and

(B) report the unique number of any affidavit form that is lost;

(10) shall return any unused affidavit forms if the commercial wood seller's registration expires or is revoked;

(11) is subject to a compliance or enforcement action by the department for failing to comply with a provision of this subsection, including

(A) remedial training on the requirements of (d) – (f) of this section and this subsection;

(B) a notice of violation;

(C) until the department determines that the commercial wood seller is in compliance, removal of the seller from the list that the department maintains under (f)(3) of this section;

(D) revocation of registration;

(E) enforcement under AS 46.03.020, 46.03.760, or 46.03.790; and

(12) may request an informal or adjudicatory hearing as prescribed in 18 AAC 15.185 and 18 AAC 15.195 – 18 AAC 15.340 if the department denies registration, denies renewal of a registration, or takes an action under (11)(A) – (D) of this subsection.

(*l*) Non-commercial wood sellers may not sell wet wood in an area identified in 18 AAC 50.015(b)(3).

(Eff. 2/28/2015, Register 213; am 3/2/2016, Register 217; am 11/26/2016, Register 220; am 1/8/2020, Register 233)

Authority: AS 46.03.020 AS 46.14.020 Sec. 30, ch. 74, SLA 1993
AS 46.14.010 AS 46.14.030

18 AAC 50.077 is repealed and readopted to read:

18 AAC 50.077. Standards for wood-fired heating devices. (a) Except as provided in this section, a person may not install, reinstall, sell, lease, distribute, or convey the following devices for use in an area identified in 18 AAC 50.015(b)(3):

(1) a wood-fired hydronic heater;

(2) a woodstove;

(3) a wood-fired heating device with a manufacturer-rated heat output capacity of 350,000 Btu per hour or more.

(b) Notwithstanding (a) of this section, the department will approve models of pellet fueled wood-fired hydronic heaters for use in an area identified in 18 AAC 50.015(b)(3) that

(1) have a manufacturer-rated heat output capacity under 350,000 Btu per hour;

(2) have a valid certification from EPA under 40 C.F.R. 60.5474(a) and (b), revised as of July 1, 2019, and adopted by reference, for which the department has reviewed and accepted the underlying certification test results; and

(3) meet an average particulate matter emission level of 0.10 pounds per million Btu of heat output for each individual burn rate as tested by a laboratory with current EPA accreditation under 40 C.F.R. 60.5477, revised as of July 1, 2019, and adopted by reference; the laboratory test results must be

(A) obtained using one of the following test methods that is applicable to the specific device:

(i) ASTM International E 2618-13, *Standard Test Method for Measurement of Particulate Emissions and Heating Efficiency of Outdoor Solid Fuel-Fired Hydronic Heating Appliances*, approved by EPA September 1, 2013, and adopted by reference, subject to conditions in 40 C.F.R. Part 60, Subpart QQQQ, revised as of July 1, 2019, and adopted by reference;

(ii) 40 C.F.R. Part 60, Appendix A-8, Method 28WHH-PTS, revised as of July 1, 2019, and adopted by reference;

(iii) alternative test methods, including broadly applicable test methods, if approved by both EPA and the department; and

(B) obtained using one of the following emission concentration measurements that is applicable to the specific device:

(i) ASTM International E 2515-11, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel* approved by EPA on November 1, 2011, and adopted by reference;

(ii) 40 C.F.R. Part 60, Appendix A, Method 5G, revised as of July 1, 2019, and adopted by reference; and

(C) approved by the department together with the supporting data.

(c) Notwithstanding (a) of this section, the department may approve specific models of woodstoves and pellet stoves for operation in an area identified in 18 AAC 50.015(b)(3). The department will approve models that

(1) have a manufacturer-rated heat output capacity of less than 350,000 Btu per hour;

(2) have a valid certification from EPA under 40 C.F.R. 60.533, revised as of July 1, 2019, and adopted by reference, for which the department has reviewed and accepted the underlying certification test results; and

(3) meets a particulate matter annual average emission limit of 2.0 grams per hour as tested by a laboratory with current EPA accreditation under 40 C.F.R. 60.535 revised as of July 1, 2019, and adopted by reference; the test results must be

(A) obtained using one of the following test methods applicable to the specific device:

(i) 40 C.F.R. Part 60, Appendix A, Methods 28, 28 A, or 28R, revised as of July 1, 2017, and adopted by reference;

(ii) alternative test methods, including broadly applicable test methods, if approved by both EPA and the department; and

(B) obtained using one of the following emission concentration measurements, as applicable to the specific device:

(i) 40 C.F.R. Part 60, Appendix A-3, Methods 5G or 5H, revised as of July 1, 2017, and adopted by reference; and

(ii) after September 1, 2020, with either a tapered element oscillating microbalance (TEOM) or 1-hour filter data from the EPA certification report for the device; TEOM data must be obtained following the procedures set out in the Northeast States for Coordinated Air Use Management (NESCAUM) Standard Operating Procedures for use of Thermo 1405 TEOM® for use in a dilution tunnel using Option 2 in Section 6 and excluding Section 7, revised as of May 17, 2019, and adopted by reference; if using TEOM data, the department may approve devices only if the TEOM data indicates that no rolling 60-minute period exceeds 4.0 grams per hour; if using the 1- hour filter data, the department may approve devices only if no reported valid test run measurement exceeds 6.0 grams per hour;

(C) calculated in grams per hour, to a tenth of a gram; and

(D) approved by the department together with the supporting data.

(d) Notwithstanding (a) of this section, the department may approve specific models of wood-fired heating devices with a manufacturer-rated heat output capacity of 350,000 Btu per hour or more for operation in an area identified in 18 AAC 50.015(b)(3) if a laboratory with current EPA accreditation under 40 C.F.R. 60.535 or 40 C.F.R. 60.5477 has tested the model to meet a particulate matter emission limit of 2.0 grams per hour; the test results must be

(1) obtained using one of the following test methods applicable to the specific device:

(A) ASTM International E 2618-13, *Standard Test Method for Measurement of Particulate Emissions and Heating Efficiency of Outdoor Solid Fuel-Fired Hydronic Heating Appliances,* adopted by reference in (b)(3)(A)(i) of this section;

(B) 40 C.F.R. Part 60, Appendix A-8, Method 28WHH, revised as of July 1, 2019, and adopted by reference;

(C) Canadian Standards Association (CSA) Method B415.1-10, *Performance Testing of Solid-Fuel-Burning Heating Appliances*, dated March 2010, reaffirmed 2015, and adopted by reference, as referenced in 40 C.F.R. Part 60, Subpart QQQQ, revised as of July 1, 2019, and adopted by reference;

(D) alternative test methods, including broadly applicable test methods, if approved by both EPA and the department; and

(2) obtained using ASTM International E 2515-11, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel*, adopted by reference in (b)(3)(B)(i) of this section; and

(3) approved by the department together with the supporting data.

(e) The department will publish a list devices that meet the criteria in ~~subparagraphs~~ of this section (b) – (d) and that the department has approved for operation in an area identified in 18 AAC 50.015(b)(3). The department may review laboratory test data with or without submission by a manufacturer.

(f) Notwithstanding (a) of this section, a person may sell, lease, distribute, convey, or install a new wood-fired heating device if the buyer or operator of the device confirms in writing that the device will be installed in an area other than an area identified in 18 AAC 50.015(b)(3).

(g) In response to a request from the owner or operator of a wood-fired heating device, the department or local air quality program may temporarily waive the requirements of (a) and (*l*) – (n) of this section after considering

(1) financial hardship information provided by the owner or operator;

(2) technical feasibility information provided by the owner or operator; and

(3) potential impact to locations with populations sensitive to PM-2.5 exposure including hospitals, schools, child care facilities, health clinics, long-term care facilities, assisted living homes, and senior centers.

(h) As applicable, the owner, vendor, or dealer of a wood-fired heating device shall register the device, using a form or method provided by the department, in the following circumstances

(1) upon the sale or conveyance of a device;

(2) ~~prior to~~ before closing, if the device is being sold, leased, or conveyed as part of an existing building or other property;

(3) when applying for a waiver described in the local air quality control plan incorporated in the *State Air Quality Control Plan*;

(4) to participate in the Burn Right Program;

(5) to participate in a woodstove change-out or conversion program in the local air quality control plan incorporated in the *State Air Quality Control Plan*; and

(6) ~~prior to~~ before closeout of any compliance or enforcement action.

(i) The owner or operator of a wood-fired heating device shall ensure that a device and any retrofit control devices are properly sized and professionally installed. Following each installation of a wood-fired heating device or retrofit control device in an area identified in

18 AAC 50.015(b)(3), the installer shall provide confirmation to the department that the device was installed correctly on a form provided by the department. Installers must meet the following requirements

(1) for a woodstove, pellet stove, or pellet-fired hydronic heater, the certification criteria in The National Fireplace Institute Policy Handbook, revised as of {~~adoption date of the regulations~~ November 19, 2019} and adopted by reference, or demonstrate equivalent training and qualification approved by the department;

(2) for new masonry heaters, the certification criteria in The Masonry Heater Association of North America Reference Manual, revised as of January 2019 and adopted by reference, or demonstrate equivalent training and qualification approved by the department;

(3) for retrofit control devices, such as electronic precipitators, certification as described in (1) – (2) of this subsection or be representatives trained by the manufacturer.

(j) A person may not install

(1) a pellet fueled wood-fired hydronic heater within 330 feet from the closest property line or within 660 feet from a school, clinic, hospital, or senior housing unit;

(2) a wood-fired heating device as the primary or only heat source in

(A) new construction, except new construction of a dry cabin located on a two acre parcel or larger; or

(B) a structure used as a rental unit, unless the structure has been used as a rental prior to {~~effective date of regulations~~ January 8, 2020} and qualifies for a No Other Adequate Heat Source waiver, as identified in a local air quality plan incorporated in the State Air Quality Control Plan. italics

(k) Vendors of wood-fired heating devices

(1) may not advertise devices prohibited by this section for sale within an area identified in 18 AAC 50.015(b)(3); and

(2) shall provide a buyer with curtailment information and proper operating instructions at the time of sale.

(*l*) In an area identified in 18 AAC 50.015(b)(3), a person who owns a woodstove or pellet stove that does not have a valid certification from EPA under 40 C.F.R. 60.533 or a non-pellet fueled wood-fired outdoor hydronic heater shall render the device inoperable before December 31, 2024; or before ~~it~~ the device is sold, leased, or conveyed as part of an existing structure, whichever is earlier.

(m) In an area identified in 18 AAC 50.015(b)(3), a person who owns a device that, under this section, may not be reinstalled within the area shall ensure the device is rendered inoperable when it is removed.

(((Replace em dash with " - ")))

(n) If EPA publishes a finding under 40 C.F.R. 51.1014(a)(1)~~-(4)~~ related to the local air quality control plan incorporated in the *State Air Quality Control Plan* for an area identified in 18 AAC 50.015(b)(3), the owner of a wood-fired heating device other than a masonry heater in an area identified in 18 AAC 50.015(b)(3) that has a particulate matter emission rating of greater than 2.0 grams per hour shall render the device inoperable, notwithstanding a valid EPA certification by the following deadlines:

(1) for a device manufactured 25 years or more before the effective date of the EPA finding, before December 31, 2024, or before the device is sold, leased, or conveyed as part of an existing building, whichever is earlier;

(2) for a device manufactured less than 25 years before the effective date of the EPA finding, before 25 years from the date of manufacture.

(o) A person who disputes a decision by the department under this section may request review under 18 AAC 15.185 or 18 AAC 15.195 – 18 AAC 15.340.

(p) In this section, "dry cabin" means a residential structure 1,000 square feet or less that does not have a well or water provided by a direct public utility.

(q) In this section, "TEOM" means tapered element oscillating mircobalance.

(Eff. 2/28/2015, Register 213; am 11/26/2016, Register 220; am 1/12/2018, Register 225; am 1/8/2020, Register 233)

Authority: AS 46.03.020 AS 46.14.020 Sec. 30, ch. 74, SLA 1993
AS 46.14.010 AS 46.14.030

The Editor's note for 18 AAC 50.077 is repealed and ~~readopted~~ changed to read:

Editor's note: For the convenience of consumers, the United States Environmental Protection Agency (EPA) keeps a list of wood heaters certified under 40 C.F.R. 60.533. The list can be found on the internet at: https://www.epa.gov/compliance/list-epa-certified-wood-stoves. For additional information whether a heater appearing on that list is in compliance with 18 AAC 50.077, please contact the Department of Environmental Conservation, Division of Air Quality, P.O. Box 111800, Juneau, AK 99811-1800; telephone (907) 465-5100.

The test methods adopted by reference in 18 AAC 50.077 may be reviewed at the department's Anchorage, Fairbanks, or Juneau office. For information on how to purchase a copy of the ASTM International documents adopted by reference in 18 AAC 50.077, contact ASTM International, Publications Department, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania, 19428-2959; telephone (877) 909-2786; fax (610) 832-9555, or http://www.astem.org. For information on how to obtain a copy of the Canadian Standards Association document adopted by reference in 18 AAC 50.077, contact the Canadian Standards

Association (CSA), 178 Rexdale Boulevard, Etobicoke, ON, M9W 1R3, Canada; telephone (416) 747-4139; fax (416) 401-6621.

The list of wood-fired heating devices maintained under 18 AAC 50.077(e) is available at the department's offices in Anchorage, Fairbanks, and Juneau; is available on the Internet at https://dec.alaska.gov/air/burnwise/; or can be obtained by contacting the Department of Environmental Conservation, Division of Air Quality, P.O. Box 111800, Juneau, AK 99811-1800; telephone (907) 465-5100.

The following documents adopted by reference are available at the Division of Air Quality's Reference Materials for 18 AAC 50 web page at https://dec.alaska.gov/air/anpms/sip/18AAC50-reference-materials/:

- The Northeast States for Coordinated Air Use Management (NESCAUM) Standard Operating Procedures for use of Thermo 1405 TEOM® for use in a dilution tunnel, May 17, 2019;
- The National Fireplace Institute Policy Handbook, revised as of ~~{adoption date of the regulations}~~ November 19, 2019; and
- The Masonry Heater Association of North America Reference Manual, revised as of January 2019.

18 AAC 50 is amended by adding a new section to read:

18 AAC 50.078. Additional Control Measures for a Serious PM-2.5 Nonattainment Area. (a) This section applies to individuals or businesses whose activities emit PM-2.5 or PM-2.5 precursor pollutants within an area identified in 18 AAC 50.015(b)(3).

(b) After September 1, 2022, only fuel oil, containing no more than 1,000 parts per million sulfur, may be sold or purchased for use in fuel oil-fired equipment, including space heating devices. This subsection does not apply to major stationary sources subject to a Best Available Control Technology determination or to diesel-fired equipment or vehicles subject to more stringent federal diesel fuel sulfur requirements.

(c) Small area sources of PM-2.5 listed below shall provide the following information to the department by March 15, 2020, or 60 days after commencing operations:

(1) commercial charbroilers shall identify the

(A) name and location of the commercial cooking operation;

(B) operation type – chain-driven or under-fired;

(C) number and size, in cooking surface square feet, of each charbroiler at the commercial cooking operation;

(D) type of fuel used to heat each charbroiler;

(E) type and quantity, in pounds, of meat cooked on the each charbroiler on a weekly basis for the previous 12-month period;

(F) daily operating hours of the commercial cooking operation;

(G) air flow rate, measured in cubic feet per minute, of hood or exhaust system serving each charbroiler; and

(H) ~~the~~ manufacturer and model of any installed pollution control devices designed to reduce particulates, kitchen smoke, or odor;

(2) commercial incinerators shall identify the

(A) owner name and physical address;

(B) source type, ~~such as~~ including medical, liquid, or solid waste, ~~etc.~~;

(C) process description;

(D) fuel used;

(E) throughput of waste stream, expressed in pounds per hour;

(F) daily hours of operation;

(G) applicable emission limits and regulatory authorities that govern their operation; and

(H) manufacturer and model of any installed pollution control devices designed to control or limit particulates, smoke, or odor.

(3) commercial used oil burners shall identify the

(A) owner name, facility name, and physical address of the facility;

(B) the purpose of the burner, for example, space heating or boiler operation;

(C) number and type of burners;

(D) fuel type, for example, lubricants, heat transfer fluids, solvents, cleaning agents, mixtures, or cooking oil;

(E) fuel source, for example, if it is purchased, self-generated, or disposal;

(F) fuel quality, including whether it is raw or processed and, if processed whether it is processed to specifications;

(G) ~~the~~ amount of fuel, measured in gallons, consumed by each burner in an hour;

(H) daily operating hours for each burner;

(I) applicable emission limits and regulatory authorities that govern their operation;

(J) manufacturer and model of each waste burner; and

(K) manufacturer and model of any installed pollution control devices designed to control or limit particulates, smoke, or odor.

(d) Commercial coffee roasters within an area identified in 18 AAC 50.015(b)(3) ~~must~~ shall install a pollution control device, such as a catalytic oxidizer or thermal oxidizer, on any unit that emits 24 pounds or more of particulate matter in a 12-month period. The pollution control device must be appropriate to the unit and approved by the department. The device must be installed not later than one year from {*effective date of regulations*} or before commencing operation, whichever is later. The department may waive the requirements of this subsection if the facility provides information demonstrating that control technology is technically or economically infeasible.

(Eff. 1/8/2020, Register 233)

Authority: AS 46.03.020 AS 46.14.020 Sec. 30, ch. 74, SLA 1993
AS 46.14.010 AS 46.14.030

18 AAC 50.079(b) is amended to read:

(b) A person may not install or reinstall a coal-fired heating device and may not supply, sell, lease, distribute, or convey a coal-fired heating device for operation **in an area identified in 18 AAC 50.015(b)(3)** [OR INSTALLATION UNLESS IT IS A LISTED DEVICE WITH THE LOCAL GOVERNMENT'S AIR QUALITY PROGRAM OR CERTIFIED BY EPA].

18 AAC 50.079(c) is amended to read:

(c) Except as provided under (d) or (e) of this section, a person may not sell, lease, or convey a coal-fired heating device as part of an existing building or other property located in an

area identified in 18 AAC 50.015(b)(3) [UNLESS THE DEVICE IS LISTED WITH THE LOCAL GOVERNMENT'S AIR QUALITY PROGRAM OR CERTIFIED BY EPA].

The introductory language of

18 AAC 50.079(d) is amended to read:

(d) **Subsections** [SUBSECTION] (c) **and (f)** of this section **do** [DOES] not apply to an installed coal-fired heating device that has undergone, during wintertime operation, an emission source test. (((Publisher: 18 AAC 50.079(d)(1)-(3) are unchanged.)))

...

The introductory language of

18 AAC 50.079(e) is amended to read:

(e) **Subsections** [SUBSECTION] (c) **and (f)** of this section **do** [DOES] not apply to the conveyance of a coal-fired heating device in an area identified in 18 AAC 50.015(b)(3) if the owner requests and receives a temporary waiver from the department or a local air quality program. The department or local air quality program may grant a temporary waiver after considering: (((Publisher: 18 AAC 50.079(e)(1)-(3) are unchanged.)))

...

18 AAC 50.079 is amended by adding new subsections to read:

(f) Except as provided under (d) or (e) of this section, the owner of an existing coal-fired heating device shall render the device inoperable by the earlier of December 31, 2024, or before the device is sold, leased, or conveyed as part of an existing building.

(g) Coal-fired heating devices not meeting the requirements of ~~subsections~~ (b), ~~(c), and~~ (d) of this section may not be advertised for sale within an area identified in 18 AAC 50.015(b)(3).

(Eff. 1/12/2018, Register 225; am 9/15/2018, Register 227; am 1/8/2020, Register 233)

Authority: AS 46.03.020 AS 46.14.020 Sec. 30, ch. 74, SLA 1993
AS 46.14.010 AS 46.14.030

18 AAC 50.990 is amended by adding new paragraphs to read:

(152) "catalytic oxidizer" means an emission control device that employs a catalyst fixed onto a substrate to oxidize air pollutants in an exhaust stream;

(153) "charbroiler" means a cooking device composed of a grated grill and a heat source, where food resting on the grated grill cooks as the food receives direct heat from the heat source or a radiant surface;

(154) "chain-driven charbroiler" means a semi-enclosed charbroiler designed to mechanically move food on a grated grill through the broiler;

(155) "used oil" means any petroleum product that has been refined from crude oil, in whole or in part, or any synthetic oil that is contaminated by physical or chemical impurities as the result of use; used oil is a free-flowing liquid at standard temperature and pressure and has a flash point of greater than 100 degrees Fahrenheit; used oil includes oils used as lubricants, heat transfer fluids, hydraulic fluids; used oil does not include materials derived from crude or synthetic oils that are fuels, such as gasoline, jet fuel, or diesel fuel, or cleaning agents or solvents, such as naphtha or mineral spirits.

(Eff. 1/18/97, Register 141; am 6/14/98, Register 146; am 6/21/98, Register 146; am 9/4/98, Register 147; am 11/4/99, Register 152; am 1/1/2000, Register 152; am 2/2/2002, Register 161; am 5/3/2002, Register 162; am 11/15/2002, Register 164; am 8/8/2003, Register 167; am 10/1/2004, Register 171; am 12/3/2005, Register 176; am 12/30/2007, Register 184; am

7/25/2008, Register 187; am 4/1/2010, Register 193; am 12/9/2010, Register 196; am 9/17/2011, Register 199; am 9/14/2012, Register 203; am 10/6/2013, Register 208; am 11/9/2014, Register 212; am 2/28/2015, Register 213; am 4/17/2015, Register 214; am 3/2/2016, Register 217; 1/12/2018, Register 225; am 9/15/2018, Register 227; am 1/8/2020, Register 233)

Authority:

AS 44.46.025	AS 46.14.140	AS 46.14.250
AS 46.03.020	AS 46.14.150	AS 46.14.255
AS 46.03.710	AS 46.14.160	AS 46.14.280
AS 46.14.010	AS 46.14.170	AS 46.14.285
AS 46.14.020	AS 46.14.180	AS 46.14.290
AS 46.14.030	AS 46.14.210	AS 46.14.300
AS 46.14.120	AS 46.14.230	AS 46.14.560
AS 46.14.130	AS 46.14.240	Sec. 30, ch. 74, SLA 1993

MEMORANDUM

State of Alaska
Department of Law

To: The Honorable Kevin Meyer
Lieutenant Governor

Date: December 4, 2019

File No.: 2018200888

Tel. No.: 465-3600

From: Susan R. Pollard SRP
Chief Assistant Attorney General
and Regulations Attorney
Legislation and Regulations Section

Re: Department of Environmental Conservation : 18 AAC 50: Air Quality Control: PM 2.5 Serious SIP Regulations

The Department of Law has reviewed the attached regulations of the Department of Environmental Conservation against the statutory standards of the Administrative Procedure Act. Based upon our review, we find no legal problems. This memorandum constitutes the written statement of approval under AS 44.62.060(b) and (c) that authorizes your office to file the attached regulations. The regulations implement the department's authority to adopt regulations under AS 46.03.020 to control, prevent, and abate air pollution and to implement the state policy articulated in AS 46.03.010. The department also has authority for these regulations under AS 46.14.030, which authorizes the department to negotiate and implement the State Air Quality Control Plan (SAQCP). Among several other statutes, the regulations implement the state policy articulated in AS 46.03.010 with respect to air pollution and protecting the health, safety, and welfare, as well as the overall economic and social well-being of Alaskans.

The department requests that these regulations be filed as soon as possible (and definitely by December 9, 2019) in order for the department to demonstrate compliance with the requirement to adopt a serious area attainment plan to improve air quality under the federal Clean Air Act.

On page 15, for 18 AAC 50.077, please notate the *effective date of the regulations* in (j)(2)(B) and on page 21, for 18 AAC 50.078 (d).

Process. The department properly distributed public notices, which contained all of the required elements, and followed the correct procedures for soliciting public comment. This included publication of public notices on May 14 and 22, 2019 in the Fairbanks Daily News Miner and the Alaska Online Public Notice System. Agency staff held an open house and an oral hearing in Fairbanks on June 25 and June 26, respectively. The public comment period remained open for over two months, closing on July 26, 2019. DEC properly reviewed and considered public comments in developing

the final regulations.

Adoption. The department followed correct procedure in adopting these regulations. The adoption order correctly identifies 23 pages of regulations, not including the cover page.

Substance. In short, the regulations adopt by reference an updated *State Air Quality Control Plan* in 18 AAC 50.030. Generally, the regulations and plan amendments address air quality by regulating the sale, installation, and operation of solid-fuel fired heating devices; restricting the sale of high sulfur content fuel oil after September 2022; and requiring emission control measures for other emission sources including industrial facilities. Many of the measures to control emissions are "best available control measures" required under federal law in order for the United States Environmental Protection Agency (EPA) to approve the plan. *See,* 40 C.F.R. 51.010.

Amendments to 18 AAC 50.076, regulation of solid fuel-fired heating device fuel requirements, prohibit sale of wet wood in the nonattainment area after October 1, 2021 (except for eight-foot logs if other regulatory requirements are met).

The department makes a number of changes to 15 AAC 50.077, relating to wood-fired heating devices, including prohibiting the sale and installation of pellet fueled wood-fired hydronic heaters, wood stoves, and large devices that cannot meet specified emission limits and all non-pellet fueled hydronic heaters. The revisions also refine the provisions for waivers; require registration of devices in certain circumstances; require professional installation of devices; prohibit installation of pellet fueled wood-fired hydronic heaters in proximity to vulnerable populations; and prohibit installation of a wood-fired heating device as the primary heat source in most new construction and rental units. This section also requires that certain existing devices – devices that are not EPA-certified and devices that are more than 25 years old – must be rendered inoperable by December 31, 2024. Detailed editor's notes point the reader to consumer-oriented information on federally certified wood heaters and test methods approved by reference in 18 AAC 50.077.

A new regulation, 18 AAC 50.078, and revisions to 18 AAC 50.079 address additional control measures for a serious fine particulate matter nonattainment area; changes include restrictions on fuel oil with sulfur content over 1,000 ppm, requiring certain small commercial sources of PM2.5 to provide information to DEC, and requiring commercial coffee roasters with units emitting more than 24 pounds of particulate matter in a year to install pollution control devices. With narrow exceptions, revisions to 18 AAC 50.079 will prohibit the sale or installation of any coal-fired heating device in the nonattainment area and require removal of existing coal-fired heating devices by December 31, 2024.

Materials adopted by reference. The regulations adopt several documents by reference, including revisions to the *State Air Quality Control Plan*, specifically sections 7.01 through 7.15, to address new requirements following EPA's reclassification of the FNSB $PM_{2.5}$ nonattainment area from "moderate" to "serious"; a handful of relevant federal regulations; The National Fireplace Institute Policy Handbook; and The Masonry Heater Association of North America Reference Manual.

The requirement elements for adoption by reference are present for these materials.

In summary, the regulations are in some respects detailed and technical, but are appropriately clear and understandable for the intended purpose. We find that the changes are within the department's statutory authority, and that the regulations are consistent with applicable statutes and reasonably necessary to carry out the Department of Environmental Conservation's statutory duties.

We have made some technical corrections to conform the regulations in accordance with AS 44.62.125. The corrections are shown on the attached copy of the regulations.

SRP:nlw

cc: Honorable Jason Brune, Commissioner
Department of Environmental Conservation
Gary Mendivil, Regulations Contact
Department of Environmental Conservation
Alice Edwards, Director
Division of Air Quality
Department of Environmental Conservation
Cynthia Heil, Program Manager
Division of Air Quality
Department of Environmental Conservation
Emma Pokon, Assistant Attorney General
Department of Law

MEMORANDUM

State of Alaska

Department of Environmental Conservation
Office of the Commissioner

TO: Kevin Meyer
Lieutenant Governor

DATE: November 19, 2019

FILE NO:

PHONE NO: 465-5066

FROM: Jason W. Brune
Commissioner

SUBJECT: 18 AAC 50 Amendments – State Air Quality Control Plan

I have signed the adoption order for the above referenced changes to the Air Quality regulations dealing with the adoption by reference of the *State Air Quality Control Plan* to include the Fairbanks North Star Borough fine particulate matter (PM2.5) air quality plan as required by federal law.

The primary change to the Air Quality regulations is the addition to the *State Air Quality Control Plan* of a chapter containing the new PM2.5 air quality control plan for the Fairbanks North Star Borough air quality nonattainment area as well as regulatory amendments developed to meet federal Best Available Control Measure requirements. The goal of the plan and its associated adopted regulations are to protect human health and air quality as required by federal law by implementing measures that will bring the area into attainment and promoting the appropriate use of efficient and effective wood heating sources, while also preserving the ability of residents to affordably heat their homes.

Significant comments were received on the proposed regulation package and the *State Air Quality Control Plan*. After reviewing the public comments adjustments were made to the regulations and plan where substantive new information was made available and where changes could be made and still meet the Clean Air Act and federal regulations. Most of the regulations and air quality control plan remain the same as released initially for the public comment period. Technical edits were made to the *State Air Quality Control Plan* to address a number of comments received by the Environmental Protection Agency and public, which included incorporating information from updated emission estimations and modeling.

Please let me know if you have any questions or require additional information. In addition, your staff may contact Alice Edwards, Air Quality Division Director at (907) 465-5109 or at Alice.Edwards@alaska.gov.

AIR QUALITY CONTROL: NOTICE OF PROPOSED CHANGES IN THE REGULATIONS OF THE ALASKA DEPARMENT OF ENVIRONMENTAL CONSERVATION

BRIEF DESCRIPTION

The Alaska Department of Environmental Conservation proposes to adopt regulation changes relating to fine particulate matter (PM-2.5) including new and revised air quality controls and a new State Implementation Plan that is comprised of 15 sections covering monitoring, modeling, control measures, emission inventory, attainment demonstration and episode plan, which are intended to meet federal requirements for the serious nonattainment area within the Fairbanks North Star Borough (FNSB).

The Alaska Department of Environmental Conservation (ADEC) proposes to adopt regulation changes in 18 AAC 50 of the Alaska Administrative Code, dealing with air quality and unhealthy concentrations of particulate matter pollution, including the following:

(1) 18 AAC 50.030 is proposed to be amended to adopt revisions to the *State Air Quality Control Plan*. Those revisions include
   a. a new section in Volume II, Section III.D.7: Fairbanks North Star Borough (FNSB) Fine Particulate Matter (PM-2.5) Serious State Implementation Plan (SIP);
   b. amending Volume III Appendix to Volume II Section II to incorporate the proposed regulations after public review and comment. This appendix within the *State Air Quality Control Plan* contains the state's air quality regulations.

(2) 18 AAC 50.075 is proposed to be amended to add requirements regarding visible emissions.

(3) 18 AAC 50.076 is proposed to be amended to add requirements for wood sellers.

(4) 18 AAC 50.077 is proposed to be amended to add requirements for wood-fired heating devices within the serious nonattainment area.

(5) The proposed addition of 18 AAC 50.078 includes new control measures related to diesel fuel use and smaller commercial sources of PM-2.5 within the serious nonattainment area.

(6) 18 AAC 50.079 is proposed to be amended to add requirements for coal-fired heating devices.

(7) 18 AAC 50.990 is proposed to be amended to add definitions.

The Department will be issuing a Supplemental Public Notice to publish an additional technical appendix document for the Emission Inventory Section and technical modeling results that are currently underway. The results will be incorporated as updates to 5 figures in Section 6; 1 table and associated discussion in Section 10; and 2 tables and associated discussion in Section 14 of the Serious SIP. All areas that will be updated are currently highlighted in yellow. The supplemental notice is not anticipated to change the hearing schedule or comment period end date contained in this notice.

Posting
The above list of proposed changes to the regulations only provides a summary of their subject matter. Copies of the proposed regulation changes and SIP amendments are available at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/. Materials not feasible to post, such as those that are copyrighted, may be viewed at the ADEC offices at the following locations: ADEC Anchorage Building, 555 Cordova St., Anchorage; ADEC Fairbanks Office Building, 610 University Avenue, Fairbanks; and ADEC Juneau Office Building, 410 Willoughby Ave., Second Floor. To arrange to view the materials, contact Adeyemi Alimi at 907-269-6953 or Adeyemi.alimi@alaska.gov

Questions
You may submit written questions relevant to the proposed action to ADEC using the electronic question form link found on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/; by electronic mail to dec.air.comment@alaska.gov; or by mail to Adeyemi Alimi, Division of Air Quality, 555 Cordova St. Anchorage, Alaska 99501. Questions may also be submitted verbally in testimony at one of the public hearings. The Department will aggregate its response to substantially similar questions and make the questions and responses available on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-questions-answers/. The questions must be received at least 10 days before the end of the public comment period, Friday, July 26, 2019. The Department may, but is not required to, answer written questions received after Tuesday, July 16, 2019, the 10-day cut-off date.

Comments
You may comment on the proposed regulation changes, including the potential costs to private persons of complying with the proposed changes, by submitting written comments to Cindy Heil, Division of Air Quality, ADEC, 555 Cordova St, Anchorage AK 99501; or by facsimile at (907) 269-7508; or by e-mail to dec.air.comment@alaska.gov; or by the electronic comment form at https://dec.alaska.gov/Applications/Air/airtoolsweb/FormalComments. The comments must be received not later than 5:00 p.m. on Friday, July 26, 2019. Comments received after this date will not be considered in final action on these rules and the air quality plan.

Open House
The Department will hold a public presentation and open house regarding the proposed regulation changes. The public presentation and open house will be held in Fairbanks on Tuesday, June 25, 2019, from 6:00 p.m. – 8:00 p.m. at the Westmark Fairbanks Hotel & Conference Center, 813 Noble Street, Fairbanks, Alaska. The Department will give a short presentation at the beginning of the open house. Formal oral testimony will not be taken at the open house, but written comments and questions may be submitted to Department staff.

Hearings
The Department will also hold public hearings on this proposal. Fairbanks public hearings will be held as follows: on Wednesday, June 26, 2019, from 12:00 p.m. – 1:30 p.m. at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers; and on June 26, 2019, from 5:00 p.m. – 8:00 p.m. at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers. Formal oral or written comments also may be submitted at the hearings. The hearings will be

extended to accommodate those present before 1:30 p.m. or 8:00 p.m., respectively, who did not have an opportunity to comment prior to that time.

If you are a person with a disability who needs a special accommodation in order to participate in this process, please contact Theresa Zimmerman at (907) 465-6171 or theresa.zimmerman@alaska.gov not later than June 18, 2019, to ensure that any necessary accommodations can be provided.

After the public comment period ends, ADEC will either adopt the proposed regulation changes or other provisions dealing with the same subject, without further notice, or decide to take no action. The language of the final regulation may be different from that of the proposed regulation. YOU SHOULD COMMENT DURING THE TIME ALLOWED IF YOUR INTERESTS COULD BE AFFECTED. Written comments received are public records and are subject to public inspection.

Statutory authority: AS 46.03.020; AS 46.14.030

Statutes being implemented, interpreted, or made specific: AS 46.03.010; AS 46.14.020; AS 46.14.030; AS 46.14.400

Fiscal information: The proposed regulation changes are not expected to require an increased appropriation.

ADEC, Division of Air Quality keeps a list of individuals and organizations interested in its regulations. Those on the list will automatically be sent a copy of all of the Division of Air Quality notices of proposed regulation changes. To be added to or removed from the list, you may sign up on the Air Online Services (AOS) page at: http://dec.alaska.gov/Applications/Air/airtoolsweb/Home/Index/. A myAlaska account is required to use the AOS system.

Date: May 10, 2019

Jason W. Brune, Commissioner

AIR QUALITY CONTROL: SUPPLEMENTAL NOTICE OF PROPOSED CHANGES IN THE REGULATIONS OF THE ALASKA DEPARMENT OF ENVIRONMENTAL CONSERVATION

BRIEF DESCRIPTION

The Alaska Department of Environmental Conservation proposes to adopt regulation changes relating to fine particulate matter (PM-2.5) including new and revised air quality controls and a new State Implementation Plan that is comprised of 15 sections covering monitoring, modeling, control measures, emission inventory, attainment demonstration and episode plan, which are intended to meet federal requirements for the serious nonattainment area within the Fairbanks North Star Borough (FNSB).

The Alaska Department of Environmental Conservation (ADEC) proposes to adopt regulation changes in 18 AAC 50 of the Alaska Administrative Code, dealing with air quality and unhealthy concentrations of particulate matter pollution, including the following:

(1) 18 AAC 50.030 is proposed to be amended to adopt revisions to the *State Air Quality Control Plan*. Those revisions include
   a. a new section in Volume II, Section III.D.7: Fairbanks North Star Borough (FNSB) Fine Particulate Matter (PM-2.5) Serious State Implementation Plan (SIP);
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(4) 18 AAC 50.077 is proposed to be amended to add requirements for wood-fired heating devices within the serious nonattainment area.

(5) The proposed addition of 18 AAC 50.078 includes new control measures related to diesel fuel use and smaller commercial sources of PM-2.5 within the serious nonattainment area.

(6) 18 AAC 50.079 is proposed to be amended to add requirements for coal-fired heating devices.

(7) 18 AAC 50.990 is proposed to be amended to add definitions.

This is a SUPPLEMENTAL PUBLIC NOTICE adding to the NOTICE OF PROPOSED CHANGES that was issued on May 10, 2019, concerning these proposed regulation revisions contained in the Department of Law file number JU2018200888. This SUPPLEMENTAL NOTICE is being issued to add on an additional technical appendix document for the Emission Inventory Section and technical modeling results. The results are incorporated as updates to 5 figures in Section 6; 1 table and associated discussion in Section 10; and 2 tables and associated discussion in Section 14 of the Serious SIP. The supplemental notice does not change the hearing schedule or comment period end date contained in this notice.

Posting
The above list of proposed changes to the regulations only provides a summary of their subject matter. Copies of the proposed regulation changes and SIP amendments are available at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/. Materials not feasible to post, such as those that are copyrighted, may be viewed at the ADEC offices at the following locations: ADEC Anchorage Building, 555 Cordova St., Anchorage; ADEC Fairbanks Office Building, 610 University Avenue, Fairbanks; and ADEC Juneau Office Building, 410 Willoughby Ave., Second Floor. To arrange to view the materials, contact Adeyemi Alimi at 907-269-6953 or Adeyemi.alimi@alaska.gov

Questions
You may submit written questions relevant to the proposed action to ADEC using the electronic question form link found on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/; by electronic mail to dec.air.comment@alaska.gov; or by mail to Adeyemi Alimi, Division of Air Quality, 555 Cordova St. Anchorage, Alaska 99501. Questions may also be submitted verbally in testimony at one of the public hearings. The Department will aggregate its response to substantially similar questions and make the questions and responses available on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-questions-answers/. The questions must be received at least 10 days before the end of the public comment period, Friday, July 26, 2019. The Department may, but is not required to, answer written questions received after Tuesday, July 16, 2019, the 10-day cut-off date.

Comments
You may comment on the proposed regulation changes, including the potential costs to private persons of complying with the proposed changes, by submitting written comments to Cindy Heil, Division of Air Quality, ADEC, 555 Cordova St, Anchorage AK 99501; or by facsimile at (907) 269-7508; or by e-mail to dec.air.comment@alaska.gov; or by the electronic comment form at https://dec.alaska.gov/Applications/Air/airtoolsweb/FormalComments. The comments must be received not later than 5:00 p.m. on Friday, July 26, 2019. Comments received after this date will not be considered in final action on these rules and the air quality plan.

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The Department will hold a public presentation and open house regarding the proposed regulation changes. The public presentation and open house will be held in Fairbanks on Tuesday, June 25, 2019, from 6:00 p.m. – 8:00 p.m. at the Westmark Fairbanks Hotel & Conference Center, 813 Noble Street, Fairbanks, Alaska. The Department will give a short presentation at the beginning of the open house. Formal oral testimony will not be taken at the open house, but written comments and questions may be submitted to Department staff.

Hearings
The Department will also hold public hearings on this proposal. Fairbanks public hearings will be held as follows: on Wednesday, June 26, 2019, from 12:00 p.m. – 1:30 p.m. at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers; and on June 26, 2019, from 5:00 p.m. – 8:00 p.m. at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers. Formal oral or written comments also may be submitted at the hearings. The hearings will be

extended to accommodate those present before 1:30 p.m. or 8:00 p.m., respectively, who did not have an opportunity to comment prior to that time.

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After the public comment period ends, ADEC will either adopt the proposed regulation changes or other provisions dealing with the same subject, without further notice, or decide to take no action. The language of the final regulation may be different from that of the proposed regulation. YOU SHOULD COMMENT DURING THE TIME ALLOWED IF YOUR INTERESTS COULD BE AFFECTED. Written comments received are public records and are subject to public inspection.

Statutory authority: AS 46.03.020; AS 46.14.030

Statutes being implemented, interpreted, or made specific: AS 46.03.010; AS 46.14.020; AS 46.14.030; AS 46.14.400

Fiscal information: The proposed regulation changes are not expected to require an increased appropriation.

ADEC, Division of Air Quality keeps a list of individuals and organizations interested in its regulations. Those on the list will automatically be sent a copy of all of the Division of Air Quality notices of proposed regulation changes. To be added to or removed from the list, you may sign up on the Air Online Services (AOS) page at: http://dec.alaska.gov/Applications/Air/airtoolsweb/Home/Index/. A myAlaska account is required to use the AOS system.

Date: May 21, 2019

Jason W. Brune, Commissioner

ADDITIONAL REGULATION NOTICE INFORMATION
(AS 44.62.190(d))

1. Adopting agency: Department of Environmental Conservation
2. General subject of regulation: 18 AAC 50 is being amended to: 1) adopt regulations regarding air quality statewide and in the FNSB PM-2.5 Nonattainment Area; 2) adopt various federally required amendments to the State Air Quality Plan; and 3) add new definitions.
3. Citation of regulation (may be grouped): 18 AAC 50.030, 18 AAC 50.075, 18 AAC 50.076, 18 AAC 50.077, 18 AAC 50.078, 18 AAC 50.079, 18 AAC 50.990
4. Department of Law file number, if any: JU2018200888
5. Reason for the proposed action:
   - (X) Compliance with federal law or action: The proposed regulations are intended to meet the requirements of Section 110 (Title 42 U.S.C. Chapter 85 §7410), Sections 171-179 (Title 42, U.S.C. Chapter 85 §7501-7509), and Section 189 (Title 42 U.S.C. Chapter 85 §7513) of the Clean Air Act and, once adopted, will be submitted to the U.S. Environmental Protection Agency for approval.
   - ( ) Compliance with new or changed state statute
   - ( ) Compliance with federal or state court decision
   - ( ) Development of program standards
   - ( ) Other (identify)
6. Appropriation/Allocation: Air Quality/Non-Point and Mobile Sources
7. Estimated annual cost to comply with the proposed action to: There are both costs and benefits associated with the proposed measures, to the Fairbanks North Star Borough (FNSB) PM2.5 Nonattainment Area, that will stem from this updated State Air Quality Control Plan. Where it is possible the major potential compliance cost impacts are described below in plain language for the public. The Alaska Department of Environmental Conservation (ADEC), Air Quality Division has opted for pursuing the most flexible approach by including multiple Best Available Control Measures to allow for further discussion and evaluation, there is a possibility that some measures may be proven technologically or economically infeasible through the evaluation process. However, through provision of a suite of measures, there is a greater likelihood that the most efficient and effective measures can be pursued thereby lowering the overall regulatory costs to address the PM2.5 issue. It should be noted that there is a real direct cost if the state does not take action. This cost is estimated to be between $91-$197 million dollars in sanctioned federal highway funds and costs associated with a Federal Implementation Plan. Should there be concern from private persons about the potential compliance costs of these proposed changes the ADEC encourages the submission of public comments which reference these costs and provide specific cost information. We assure any such comments are evaluated and considered.

A private person: Residents and businesses that use high sulfur diesel #2 for space heating will experience an increase in fuel costs, as they will be required to shift to diesel #1. This increased expense is expected to be approximately $0.07 per gallon of diesel #2 consumed, this results in an annual increase of $68.31 per year for a typical household. There are potential one-time costs regarding the removal of heating devices, including removal of non-EPA certified heating devices that are older than 25 years, as well as coal-fired devices, which must be removed by December 31, 2024. The associated costs are estimated to be between $3,500 and $7,800 per unit replaced, but can vary dependent on the type of system being removed. It is likely that many residents may be able to be reimbursed for a wood stove change out or the conversion to natural gas heating with grant funding that has been obtained for conversions. Some residents may experience a net cost savings through participating in the change out program, particularly ones with older inefficient heating devices. It is estimated that the lower curtailment thresholds measure will result in 7 to 12 additional Stage 2 or 10 to 12 additional stage one days. The resulting cost to a household that is not eligible for a stage wavier is $4.90-$5.65 per day to use heating oil/gas rather than wood or coal on these days. The approximate annual cost of this measure to a typical household is $34.30 to $67.80 per year. There is a potential for additional compliance costs for wood selling and coffee roaster businesses, as they will be required to follow specific practices, which may involve purchasing new capital and or applying more time intensive production practices. These costs will vary business to business dependent on the size of the business and current production practices.

Another state agency: No identified additional compliance costs to other state agencies. State agencies could have increased costs due to switching to Diesel #1 fuel from Diesel #2 fuel for diesel-fires space heating.

A municipality: The proposed Best Available Control Measures relating to device removal identified above will likely result in an increase in the number of applications and the participation rate of local residents in the wood stove change out program, the Air Quality Improvement Program (AQIP), which is operated by the FNSB. Municipal government agencies could have increased costs due to switching to Diesel #1 fuel from Diesel #2 fuel for diesel-fires space heating.

8. Cost of implementation to the state agency and available funding (in thousands of dollars):

	Initial Year FY20	Subsequent Years
Operating Cost	$0	$0
Capital Cost	$0	$0
1002 Federal receipts	$0	$0

1003 General fund match	$0	$0
1004 General fund	$0	$0
1005 General fund/ program	$0	$0
Other (identify)	$0	$0

9. The name of the contact person for the regulation:

Name: Cindy Heil
Title: Program Manager
Address: 555 Cordova St.
Anchorage, AK 99501
Telephone: 907 269 7579
E-mail address: _____

10. The origin of the proposed action:

X Staff of state agency
Federal government
General public
Petition for regulation change
Other (identify):_____

11. Date: May 10, 2019 Prepared by: _____

Name: Rebecca Tyson Smith
Title: Environmental Program Specialist
Telephone: 907-465-5121

AFFIDAVIT OF NOTICE OF PROPOSED REGULATION
AND FURNISHING OF ADDITIONAL INFORMATION

I, Rebecca Tyson Smith, Environmental Program Specialist, of the Department of Environmental Conservation, being sworn, state the following:

As required by AS 44.62.190, notice of the proposed adoption of changes to 18 AAC 50, Air Quality Control, revising and adopting language relating to fine particulate matter (PM-2.5) including new and revised air quality controls and a new State Implementation Plan that is comprised of 15 sections covering monitoring, modeling, control measures, emission inventory, attainment demonstration and episode plan, which are intended to meet federal requirements for the serious nonattainment area within the Fairbanks North Star Borough (FNSB). has been given by being

(1) published in a newspaper or trade publication;
(2) furnished to every person who has filed a request for notice of proposed action with the state agency;
(3) furnished to appropriate state officials;
(4) furnished to interested persons;
(5) furnished to the Department of Law, along with a copy of the proposed regulation;
(6) furnished electronically to incumbent State of Alaska legislators;
(7) posted on the Alaska Online Public Notice System as required by AS 44.62.175(a)(1) and (b) and 44.62.190(a)(1).

As required by AS 44.62.190, additional regulation notice information regarding the proposed adoption of the regulation changes described above has been furnished to interested persons and those in (2), (4) and (6) of the list above. The additional regulation notice information also has been posted on the Alaska Online Public Notice System.

Date: 19 Nov '19

Rebecca Tyson Smith, Environmental Program Specialist

Subscribed and sworn to before me at Juneau on 11/19/19.

(date)

Notary Public in and for the State of Alaska

[NOTARY SEAL]

STATE OF ALASKA
OFFICIAL SEAL
Claire Fishwick
NOTARY PUBLIC
My Commission Expires With Office

AFFIDAVIT OF ORAL HEARINGS

I, Cynthia Heil, Environmental Program Manager of the Department of Environmental Conservation, being sworn, state the following:

On June 26, 2019, at 1200-1331, Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers, Fairbanks, AK; and 1700-2000 at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers, Fairbanks, AK, I presided over public hearings held under AS 44.62.210 for the purpose of taking testimony in connection with the adoption of changes to 18 AAC 50, Air Quality Control to:

(1) Amend 18 AAC 50.030 to adopt revisions to the *State Air Quality Control Plan*. Those revisions include
   a. a new section in Volume II, Section III.D.7: Fairbanks North Star Borough (FNSB) Fine Particulate Matter (PM-2.5) Serious State Implementation Plan (SIP);
   b. amending Volume III Appendix to Volume II Section II to incorporate the proposed regulations after public review and comment. This appendix within the *State Air Quality Control Plan* contains the state's air quality regulations.

(2) Amend 18 AAC 50.075 to add requirements regarding visible emissions.

(3) Amend 18 AAC 50.076 to add requirements for wood sellers.

(4) Amend 18 AAC 50.077 to add requirements for wood-fired heating devices within the serious nonattainment area.

(5) Amend 18 AAC 50.078 to include new control measures related to diesel fuel use and smaller commercial sources of PM-2.5 within the serious nonattainment area.

(6) Amend 18 AAC 50.079 to add requirements for coal-fired heating devices.

(7) Amend 18 AAC 50.990 to add definitions.

Date: July 12, 2019

Cynthia Heil, Environmental Program Manager

Subscribed and sworn to before me at Anchorage, AK on July 12, 2019.
(date)

Notary Public in and for the State of Alaska

[NOTARY SEAL]

AFFIDAVIT OF AGENCY RECORD OF PUBLIC COMMENT

I, Alice Edwards, Director of the Division of Air Quality for the Department of Environmental Conservation, being duly sworn, state the following:

In compliance with AS 44.62.215, the Department of Environmental Conservation has kept a record of its use or rejection of factual or other substantive information that was submitted in writing and orally as public comment and that was relevant to the accuracy, coverage, or other aspect of the Department of Environmental Conservation regulation relating to fine particulate matter (PM-2.5) including a new State Implementation Plan intended to meet federal requirements for the serious nonattainment area within the Fairbanks North Star Borough (FNSB).

Date: 11/19/2019

Alice Edwards, Director, Air Quality

Subscribed and sworn to before me at Juneau on 11/19/2019.

Notary Public in and for the State of Alaska

[NOTARY SEAL]

STATE OF ALASKA
OFFICIAL SEAL
Claire Fishwick
NOTARY PUBLIC
My Commission Expires With Office

AFFIDAVIT OF PUBLICATION

UNITED STATES OF AMERICA
STATE OF ALASKA } SS.
FOURTH DISTRICT

Before me, the undersigned, a notary public, this day personally appeared Crystal Wise, who, being first duly sworn, according to law, says that she/he is an Advertising Clerk of the Fairbanks Daily News-Miner, a newspaper (i) published in newspaper format, (ii) distributed daily more than 50 weeks per year, (iii) with a total circulation of more than 500 and more than 10% of the population of the Fourth Judicial District, (iv) holding a second class mailing permit from the United States Postal Service, (v) not published primarily to distribute advertising, and (vi) not intended for a particular professional or occupational group. The advertisement which is attached is a true copy of the advertisement published in said paper on the following day(s):

05/14/2019

and that the rate charged theron is not excess of the rate charged private individuals, with the usual discounts.

Advertising Clerk

Subscribed and sworn to me this 14th day of May, 2019.

Marena Burnell, Notary Public in and for the State of Alaska.
My commission expires December 7th, 2021.

STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

541510 AIR QUALITY CONTROL:
NOTICE OF PROPOSED CHANGES IN THE REGULATIONS OF THE ALASKA DEPARMENT OF ENVIRONMENTAL CONSERVATION

BRIEF DESCRIPTION
The Alaska Department of Environmental Conservation proposes to adopt regulation changes relating to fine particulate matter (PM-2.5) including new and revised air quality controls and a new State Implementation Plan that is comprised of 15 sections covering monitoring, modeling, control measures, emission inventory, attainment demonstration and episode plan, which are intended to meet federal requirements for the serious nonattainment area within the Fairbanks North Star Borough (FNSB).

The Alaska Department of Environmental Conservation (ADEC) proposes to adopt regulation changes in 18 AAC 50 of the Alaska Administrative Code, dealing with air quality and unhealthy concentrations of particulate matter pollution, including the following:

(1) 18 AAC 50.030 is proposed to be amended to adopt revisions to the State Air Quality Control Plan. Those revisions include
  a. a new section in Volume II, Section III.D.7: Fairbanks North Star Borough (FNSB) Fine Particulate Matter (PM-2.5) Serious State Implementation Plan (SIP);
  b. amending Volume III Appendix to Volume II Section II to incorporate the proposed regulations after public review and comment. This appendix within the State Air Quality Control Plan contains the state's air quality regulations.

(2) 18 AAC 50.075 is proposed to be amended to add requirements regarding visible emissions.

(3) 18 AAC 50.076 is proposed to be amended to add requirements for wood sellers.

(4) 18 AAC 50.077 is proposed to be amended to add requirements for wood-fired heating devices within the serious nonattainment area.

(5) The proposed addition of 18 AAC 50.078 includes new control measures related to diesel fuel use and smaller commercial sources of PM-2.5 within the serious nonattainment area.

(6) 18 AAC 50.079 is proposed to be amended to add requirements for coal-fired heating devices.

(7) 18 AAC 50.990 is proposed to be amended to add

ATTN: Terra Ollila
ST OF AK (ADEC)
PO BOX 111800
JUNEAU, AK 99811

Sort: ADEC Regulation Changes 2019
Reference: AO AN-7030-19
AD #: 541510
ACCT #: 202834

Prepared by **The Fairbanks Daily News-Miner** **PH:** (907) 459-7566 **EM:** legals@newsminer.com

definitions.

The Department will be issuing a Supplemental Public Notice to publish an additional technical appendix document for the Emission Inventory Section and technical modeling results that are currently underway. The results will be incorporated as updates to 5 figures in Section 6; 1 table and associated discussion in Section 10; and 2 tables and associated discussion in Section 14 of the Serious SIP. All areas that will be updated are currently highlighted in yellow. The supplemental notice is not anticipated to change the hearing schedule or comment period end date contained in this notice.

Posting
The above list of proposed changes to the regulations only provides a summary of their subject matter. Copies of the proposed regulation changes and SIP amendments are available at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/. Materials not feasible to post, such as those that are copyrighted, may be viewed at the ADEC offices at the following locations: ADEC Anchorage Building, 555 Cordova St., Anchorage; ADEC Fairbanks Office Building, 610 University Avenue, Fairbanks; and ADEC Juneau Office Building, 410 Willoughby Ave., Second Floor. To arrange to view the materials, contact Adeyemi Alimi at 907-269-6953 or Adeyemi.alimi@alaska.gov

Questions
You may submit written questions relevant to the proposed action to ADEC using the electronic question form link found on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/; by electronic mail to dec.air.comment@alaska.gov; or by mail to Adeyemi Alimi, Division of Air Quality, 555 Cordova St. Anchorage, Alaska 99501. Questions may also be submitted verbally in testimony at one of the public hearings. The Department will aggregate its response to substantially similar questions and make the questions and responses available on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-questions-answers/. The questions must be received at least 10 days before the end of the public comment period, Friday, July 26, 2019. The Department may, but is not required to, answer written questions received after Tuesday, July 16, 2019, the 10-day cut-off date.

Comments
You may comment on the proposed regulation changes, including the potential costs to private persons of

STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

ATTN: Terra Ollila
ST OF AK (ADEC)
PO BOX 111800
JUNEAU, AK 99811

Sort: ADEC Regulation Changes 2019
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ACCT #: 202834

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complying with the proposed changes, by submitting written comments to Cindy Heil, Division of Air Quality, ADEC, 555 Cordova St, Anchorage AK 99501; or by facsimile at (907) 269-7508; or by e-mail to dec.air.comment@alaska.gov; or by the electronic comment form at https://dec.alaska.gov/Applications/Air/airtoolsweb/FormalComments. The comments must be received not later than 5:00 p.m. on Friday, July 26, 2019. Comments received after this date will not be considered in final action on these rules and the air quality plan.

Open House
The Department will hold a public presentation and open house regarding the proposed regulation changes. The public presentation and open house will be held in Fairbanks on Tuesday, June 25, 2019, from 6:00 p.m. – 8:00 p.m. at the Westmark Fairbanks Hotel & Conference Center, 813 Noble Street, Fairbanks, Alaska. The Department will give a short presentation at the beginning of the open house. Formal oral testimony will not be taken at the open house, but written comments and questions may be submitted to Department staff.

Hearings
The Department will also hold public hearings on this proposal. Fairbanks public hearings will be held as follows: on Wednesday, June 26, 2019, from 12:00 p.m. – 1:30 p.m. at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers; and on June 26, 2019, from 5:00 p.m. – 8:00 p.m. at the Fairbanks North Star Borough, 907 Terminal St., Assembly Chambers. Formal oral or written comments also may be submitted at the hearings. The hearings will be extended to accommodate those present before 1:30 p.m. or 8:00 p.m., respectively, who did not have an opportunity to comment prior to that time.

If you are a person with a disability who needs a special accommodation in order to participate in this process, please contact Theresa Zimmerman at (907) 465-6171 or theresa.zimmerman@alaska.gov not later than June 18, 2019, to ensure that any necessary accommodations can be provided.

After the public comment period ends, ADEC will either adopt the proposed regulation changes or other provisions dealing with the same subject, without further notice, or decide to take no action. The language of the final regulation may be different from that of the proposed regulation. YOU SHOULD COMMENT DURING THE TIME ALLOWED IF YOUR INTERESTS COULD BE AFFECTED. Written comments received are public records and are subject to public

STATE OF ALASKA
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inspection.

Statutory authority: AS 46.03.020; AS 46.14.030

Statutes being implemented, interpreted, or made specific:
AS 46.03.010; AS 46.14.020; AS 46.14.030; AS 46.14.400

Fiscal information: The proposed regulation changes are not expected to require an increased appropriation.

ADEC, Division of Air Quality keeps a list of individuals and organizations interested in its regulations. Those on the list will automatically be sent a copy of all of the Division of Air Quality notices of proposed regulation changes. To be added to or removed from the list, you may sign up on the Air Online Services (AOS) page at: http://dec.alaska.gov/Applications/Air/airtoolsweb/Home/Index/. A myAlaska account is required to use the AOS system.

Date: May 10, 2019
_____/s/_____
Jason Brune, Commissioner

Publish: May 14, 2019

STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

ATTN: Terra Ollila
ST OF AK (ADEC)
PO BOX 111800
JUNEAU, AK 99811

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Prepared by **The Fairbanks Daily News-Miner** **PH:** (907) 459-7566 **EM:** legals@newsminer.com

AFFIDAVIT OF PUBLICATION

UNITED STATES OF AMERICA
STATE OF ALASKA } SS.
FOURTH DISTRICT

Before me, the undersigned, a notary public, this day personally appeared Crystal Wise, who, being first duly sworn, according to law, says that she/he is an Advertising Clerk of the Fairbanks Daily News-Miner, a newspaper (i) published in newspaper format, (ii) distributed daily more than 50 weeks per year, (iii) with a total circulation of more than 500 and more than 10% of the population of the Fourth Judicial District, (iv) holding a second class mailing permit from the United States Postal Service, (v) not published primarily to distribute advertising, and (vi) not intended for a particular professional or occupational group. The advertisement which is attached is a true copy of the advertisement published in said paper on the following day(s):

May 22, 2019

and that the rate charged theron is not excess of the rate charged private individuals, with the usual discounts.

Advertising Clerk

Subscribed and sworn to me this 2nd day of May, 2019.

Marena Burnell, Notary Public in and for the State of Alaska.
My commission expires December 7th, 2021.

STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

542027 AIR QUALITY CONTROL:
SUPPLEMENTAL NOTICE OF PROPOSED CHANGES IN THE REGULATIONS OF THE ALASKA DEPARMENT OF ENVIRONMENTAL CONSERVATION

BRIEF DESCRIPTION
The Alaska Department of Environmental Conservation proposes to adopt regulation changes relating to fine particulate matter (PM-2.5) including new and revised air quality controls and a new State Implementation Plan that is comprised of 15 sections covering monitoring, modeling, control measures, emission inventory, attainment demonstration and episode plan, which are intended to meet federal requirements for the serious nonattainment area within the Fairbanks North Star Borough (FNSB).

The Alaska Department of Environmental Conservation (ADEC) proposes to adopt regulation changes in 18 AAC 50 of the Alaska Administrative Code, dealing with air quality and unhealthy concentrations of particulate matter pollution, including the following:

(1) 18 AAC 50.030 is proposed to be amended to adopt revisions to the State Air Quality Control Plan. Those revisions include
   a. a new section in Volume II, Section III.D.7: Fairbanks North Star Borough (FNSB) Fine Particulate Matter (PM-2.5) Serious State Implementation Plan (SIP);
   b. amending Volume III Appendix to Volume II Section II to incorporate the proposed regulations after public review and comment. This appendix within the State Air Quality Control Plan contains the state's air quality regulations.
(2) 18 AAC 50.075 is proposed to be amended to add requirements regarding visible emissions.
(3) 18 AAC 50.076 is proposed to be amended to add requirements for wood sellers.
(4) 18 AAC 50.077 is proposed to be amended to add requirements for wood-fired heating devices within the serious nonattainment area.
(5) The proposed addition of 18 AAC 50.078 includes new control measures related to diesel fuel use and smaller commercial sources of PM-2.5 within the serious nonattainment area.
(6) 18 AAC 50.079 is proposed to be amended to add requirements for coal-fired heating devices.
(7) 18 AAC 50.990 is proposed to be amended to add

Dept. of Environmental Conservations
Div. of Air Quality
PO BOX 111800
JUNEAU, AK 99811
ATTN: Tera Ollila

Ad #: 542027
Acct #: 105768
Reference: AO AN-7045-19
ADEC Reg. Changes Extra Info

Prepared by **The Fairbanks Daily News-Miner** **PH:** (907)459-7566 **EM:** legals@newsminer.com

definitions.

This is a SUPPLEMENTAL PUBLIC NOTICE adding to the NOTICE OF PROPOSED CHANGES that was issued on May 10, 2019, concerning these proposed regulation revisions contained in the Department of Law file number JU2018200888. This SUPPLEMENTAL NOTICE is being issued to add on an additional technical appendix document for the Emission Inventory Section and technical modeling results. The results are incorporated as updates to 5 figures in Section 6; 1 table and associated discussion in Section 10; and 2 tables and associated discussion in Section 14 of the Serious SIP. The supplemental notice does not change the hearing schedule or comment period end date contained in this notice.

Posting
The above list of proposed changes to the regulations only provides a summary of their subject matter. Copies of the proposed regulation changes and SIP amendments are available at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/. Materials not feasible to post, such as those that are copyrighted, may be viewed at the ADEC offices at the following locations:
ADEC Anchorage Building, 555 Cordova St., Anchorage; ADEC Fairbanks Office Building, 610 University Avenue, Fairbanks; and ADEC Juneau Office Building, 410 Willoughby Ave., Second Floor. To arrange to view the materials, contact Adeyemi Alimi at 907-269-6953 or Adeyemi.alimi@alaska.gov

Questions
You may submit written questions relevant to the proposed action to ADEC using the electronic question form link found on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-proposed-regulations/; by electronic mail to dec.air.comment@alaska.gov; or by mail to Adeyemi Alimi, Division of Air Quality, 555 Cordova St. Anchorage, Alaska 99501. Questions may also be submitted verbally in testimony at one of the public hearings. The Department will aggregate its response to substantially similar questions and make the questions and responses available on http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-questions-answers/. The questions must be received at least 10 days before the end of the public comment period, Friday, July 26, 2019. The Department may, but is not required to, answer written questions received after Tuesday, July 16, 2019, the 10-day cut-off date.

Comments

STATE OF ALASKA
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Dept. of Environmental Conservations
Div. of Air Quality
PO BOX 111800
JUNEAU, AK 99811
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ADEC Reg. Changes Extra Info

Prepared by **The Fairbanks Daily News-Miner** **PH:** (907)459-7566 **EM:** legals@newsminer.com

You may comment on the proposed regulation changes, including the potential costs to private persons of complying with the proposed changes, by submitting written comments to Cindy Heil, Division of Air Quality, ADEC, 555 Cordova St, Anchorage AK 99501; or by facsimile at (907) 269-7508; or by e-mail to dec.air.comment@alaska.gov; or by the electronic comment form at https://dec.alaska.gov/Applications/Air/airtoolsweb/FormalComments. The comments must be received not later than 5:00 p.m. on Friday, July 26, 2019. Comments received after this date will not be considered in final action on these rules and the air quality plan.

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Hearings
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If you are a person with a disability who needs a special accommodation in order to participate in this process, please contact Theresa Zimmerman at (907) 465-6171 or theresa.zimmerman@alaska.gov not later than June 18, 2019, to ensure that any necessary accommodations can be provided.

After the public comment period ends, ADEC will either adopt the proposed regulation changes or other provisions dealing with the same subject, without further notice, or decide to take no action. The language of the final regulation may be different from that of the proposed regulation. YOU SHOULD COMMENT DURING THE TIME ALLOWED IF YOUR INTERESTS

STATE OF ALASKA
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Prepared by **The Fairbanks Daily News-Miner** **PH:** (907)459-7566 **EM:** legals@newsminer.com

COULD BE AFFECTED. Written comments received are public records and are subject to public inspection.

Statutory authority: AS 46.03.020; AS 46.14.030
Statutes being implemented, interpreted, or made specific: AS 46.03.010; AS 46.14.020; AS 46.14.030; AS 46.14.400
Fiscal information: The proposed regulation changes are not expected to require an increased appropriation.

ADEC, Division of Air Quality keeps a list of individuals and organizations interested in its regulations. Those on the list will automatically be sent a copy of all of the Division of Air Quality notices of proposed regulation changes. To be added to or removed from the list, you may sign up on the Air Online Services (AOS) page at: http://dec.alaska.gov/Applications/Air/airtoolsweb/Home/Index/. A myAlaska account is required to use the AOS system.

Date: May 21, 2019
_____/s/_____
Jason Brune, Commissioner
Publish: May 22, 2019

STATE OF ALASKA
NOTARY PUBLIC
M. Burnell
My Commission Ends December 7, 2021

Dept. of Environmental Conservations
Div. of Air Quality
PO BOX 111800
JUNEAU, AK 99811
ATTN: Tera Ollila

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Reference: AO AN-7045-19
ADEC Reg. Changes Extra Info

Prepared by **The Fairbanks Daily News-Miner** **PH:** (907)459-7566 **EM:** legals@newsminer.com

Standard Operation Procedures for Thermo 1405 TEOM® for use in a dilution tunnel
Version 1.0, May 17, 2019

Section 1. Introduction

This document covers operation concepts and procedures for use of the TEOM model 1405 to measure and report continuous particulate matter (PM) measurements in EPA Method 5G dilution tunnel or equivalent dilution method. The Thermo-Scientific model 1405 TEOM is designed for ambient real-time PM measurements. It is an inertial microbalance - a true continuous mass measurement method with resolution of 0.01 µg (0.00001 mg). The TEOM is highly configurable, allowing the instrument to be "tuned" to best meet the needs of a specific application. The version of the TEOM used here is the simplest, without any sample conditioning options such as "SES" or "FDMS". For dilution tunnel PM measurements, the TEOM flows, temperatures, and timing settings are changed from the normal ambient settings. There are no hardware modifications needed. Instrument manuals, software, and related support information are available from the NESCAUM TEOM document collection.[1]

Flow Setting
Recommended flow setting is 0.5 liters per minute (lpm) at EPA STP. If very low tunnel PM concentrations consistently less than 5 mg/m^3 are expected, higher settings of 1 to 3 lpm can be used. Higher flow gives better sensitivity but shorter filter life. The flow settings should be set to provide the needed sensitivity but also ensure reasonable filter life. For appliances where heavy loading is anticipated, a setting of 0.5 lpm shall be used. Appliances with lighter PM loading can use a setting of 1 or 2 lpm depending on the intended use of the data; high time resolution (10 seconds instead of 1 minute) requires higher flows to achieve the same sensitivity. The TEOM flow must be constant during a test run – it can not be changed while sampling.

Filter Temperature Zones Settings
The three TEOM filter temperature zones are normally set to 30 C (86 F). Temperatures can be set somewhat higher if laboratory temperature is expected to be over 80 F, but no higher than 33C (91F). Temperatures can not be changed during a sampling run. The TEOM filter temperature setting is always a trade-off between stability during highly dynamic burn conditions, minimizing loss of semi-volatile organic carbon mass, and avoiding condensing conditions at the filter temperature. Water is considered a semi-volatile mass (SVM) component, but standard practice is to minimize the amount of water measured as part of the PM. Based on current data, 30 C represents an appropriate setting assuming the dilution tunnel air dewpoint is controlled within reasonable limits (less than 30C).

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1 The TEOM manual is referenced in this SOP, and is available here:
https://www.thermofisher.com/order/catalog/product/TEOM1405
Additional support documents are at https://drive.google.com/open?id=0B4duMIfroHVUENk9uemxsbHRJczA

TEOM Filter Dynamics

Rapid changes in the sample matrix (PM, gases, water vapor) may result in transient TEOM PM (positive or negative) concentration excursions. This is not an instrument malfunction; it is a result of the mass dynamics occurring on both the TEOM and filter pull filters. The TEOM filter material (Emfab TX40), temperature (30 C), and filter loading are similar to the gravimetric sample train rate (the TEOM filter face velocity is 6.3 cm/sec at 0.5 lpm). Thus, the filter pull PM and TEOM PM measurements should be in agreement and highly correlated if both sampling systems are working properly.

While TEOM PM transients from filter dynamics are usually no longer than 1 or 2 minutes, there can be situations where these filter dynamics can result in data quality issues for an extended period of time. One example is a very rapid transition (a few minutes) from a very dirty burn (as much as 300 mg/m^3 in the tunnel) to a very clean burn (a few mg/m^3 or less), as experienced with some devices during startup or fuel reloads. For that scenario, it may be necessary to change the TEOM filter after a high loading phase to avoid a prolonged period of a large negative bias to the TEOM PM due to loss of SVM off of the filter from the high loading phase. See Section 6 for more information on when to do pre-emptive filter changes (filter changes done to prevent or minimize negative TEOM data).

The TEOM configuration used here allows for fast filter changes with minimal data loss (typically a few minutes) and does not require flows and temperatures to be within predefined instrument limits for valid data for PM concentrations to be reported. Critical instrument parameters are stored with the concentration data and can be used to invalidate data during review and processing as needed.

Instrument Software

RPComm (serial port interface) is the legacy TEOM program and can be used to display the last 15 minutes of data on a graph, download data, and read all key operating parameters easily. The ePort program (ethernet interface) is used to control the instrument remotely and to download data. Both programs can be used at the same time.

Section 2. Overview of Routine Operation Procedures for Thermo 1405 TEOM

This section is a summary of routine operating procedures.

A. Quality Assurance checks to be completed after initial installation, and routinely every 6 months:

1. Modify system settings as detailed in Section 10
2. Perform KO check detailed in Section 5
3. Perform leak check detailed in Section 5

B. Routine procedures before every test run to be conducted 2-3 hours prior to testing.

1. Set TEOM filter temperature for the run. Changing this setting requires at least one hour before valid data can be collected. Detailed instructions on this element can be found in Section 3.
    a. The TEOM filter temperature must be at least 1 C above the hottest lab temperature expected during the test. The normal setting is 30 C (84 F) but may be set as high as 33 C (91 F).
    b. All three (3) temperatures zones - cap, air, case – must be set to the same value.

2. Set TEOM flow settings for the run. Changing this setting requires at least one hour before valid data can be collected. Detailed instructions on this element can be found in Section 4. TEOM flow can only be changed before a test run – it can not be changed during a run when the TEOM is sampling.
    a. Set flow
        i. Anticipated tunnel concentrations >5 mg/m^3: 0.5 lpm
        ii. Anticipated tunnel concentrations <5 mg/m^3: 1-3 lpm
    b. Calibrate TEOM flows. This step must be completed whenever the flow is changed. An external mass flow meter such as the TSI 4140 is used for flow calibrations.

3. Check the TEOM time and set as needed.
    Changing the time causes an instrument reboot and loss of up to an hour of data. See note below.

4. Initial filter change
    a. Install a clean filter before each run.
    b. Use the "Advanced" filter change mode.
    c. Perform an external flow check with the clean filter or before the start of a run.
    d. The net flow reading shall be within 2% of the TEOM flow setpoint.

C. *One hour before testing*

Check TEOM settings for appropriate temperature, flow and time settings. Perform an external flow check as detailed in Section 4 and record the results. For valid results the flow check should be within 2% of the TEOM flow setpoint.

D. *Testing Operations*

1. Before initiating the test, run the TEOM while sampling dilution tunnel air for at least 5 minutes. The change of pressure in the tunnel can cause a transient TEOM response.

2. Filter Changes are done pre-emptively as described in Section 6 and whenever the TEOM filter loading reaches 130%, as reported on the TEOM, or when the sample flow starts to drop. The 1405 does NOT have any clear visual warning that the filter needs changing, but it is possible to use the TEOM digital outputs (relay contact closures) to trigger an external alarm at any desired filter loading.

   The "Advanced" filter change wizard mode shall be used to eliminate long equilibration period after the change; this stops the tapered element oscillation, resets the filter mass measurement, and simplifies filter changes. Detailed information on performing filter changes during testing is provided in Section 6 of this document.

3. At the end of the test perform an external flow check as detailed in Section 4 and record the result. For valid results flow check should be within 2% of the TEOM flow setpoint.

4. Download the test data using either the Thermo ePort software (preferred), RPComm, or to a USB thumb drive. Note: the data format may be different depending on how the data is downloaded.

Notes:

- It is normal for there to be "Warnings" present for the ambient T/RH sensors (not used). This is the only allowable warning once the system is warmed up and is in use for testing.

- When the TEOM is first turned on or rebooted, no data are recorded until the top of the next hour. If TEOM is not rebooted, data will be recorded regardless of instrument status.

- When the time is changed, the instrument reboots (after many seconds of being hung, with no information on the screen). When it reboots, no data are recorded until after the top of the next hour (see above).

- TEOM PM concentrations are in micrograms per cubic meter, at EPA STP (25C and 1 atmosphere) unless the instrument configuration is changed. Filter mass loading is reported in micrograms, with a resolution of 0.01 micrograms (10^{-8} grams).

Section 3. Filter Temperature Adjustment SOP for 1405 TEOM

The TEOM filter temperature has the capacity to be set between 30 and 55 degrees C, however for testing purposes the filter temperature should be set to between 30 and 33 C. If the temperature is too low (less than 1 C above room temperature), the instrument may not be able to maintain the temperature set-point, possibly resulting in loss of data. Temperatures higher than necessary may result in excessive loss of semi-volatile PM during sampling. There are three temperature settings - cap, air, case – that shall all be set to the same value.

Temperature Change Procedure.
The TEOM temperatures are set in the Instrument Conditions, Temperatures menu. Temperatures can not be changed during a sampling run.

Note: The **T-Air** temperature zone may take a very long time (30 minutes or more) to stabilize, especially when the temperature is higher than the setpoint. If the "Case" temperature is within 0.1 C of the setpoint, data are usually valid.

Section 4. Sample Flow Check and Adjustment for the Thermo 1405 TEOM

Checking the Sample Flow.
The TEOM should be warmed up for at least 30 minutes before checking or adjusting the sample flow. The sample flow can not be changed during a test run. The sample flow should be checked at the sensor inlet with an external mass flow meter that reads in STP; that flow should be within 2 % of the flow on the TEOM display. Flow checks must be done:

A. at the start of every sampling day (with a clean filter),
B. at the end of the run (with the dirty filter), and
C. whenever the flow setting is changed.

Record the external flowmeter reading without flow as the zero and subtract that value from the flowmeter reading with flow to get the measured flow value.

If the post-test flow check (with a loaded filter) is lower than the initial flow check (with a clean filter), that is an indication of a possible leak. A leak test should also be performed whenever the flow check difference (between the TEOM display flow and the external flow meter flow) changes.

If the external flow (at EPA STP, with zero offset correction) is more than 5% off from the TEOM display flow, measure the flow without a filter in the TEOM. If the external flow check result is low with a filter but higher or correct without a filter, that is an indication of a leak.

If the flow is the same with and without a filter and out of spec, the flow calibration routine should be performed. This routine should also be performed whenever the sample flow setting is changed.

Flow settings.
The TEOM sample flow can be set to between 0.5 and 3.0 LPM (all flows are at EPA STP of 1 atm. and 25 C). Lower flow gives longer filter lifetime and less sensitivity. Higher flow gives

shorter filter lifetime and more sensitivity. The flow should be set to provide reasonable filter lifetime (typically at least 30 minutes) for any given test scenario, since about 4 minutes of data are lost when the filter is changed.

For most cases when sampling off a dilution tunnel, the flow should be set to 0.5 LPM. If a high loading burn (tunnel PM greater than 20 mg/m^3) is anticipated, the flow must be set to 0.5 LPM. Flows higher than 1 LPM shall only be used when very light loading is expected (tunnel PM consistently below 2 to 3 mg/m^3).

The sample flow is set in Instrument Conditions, Flows, Flow Rates. Flow is calibrated using the wizard at Service, Calibration, Flow Calibration (page 5-39 of the TEOM manual).

NOTE: The TEOM sample flow cannot be changed during a test run.

Section 5. Leak Test and KO Check Procedure for 1405 TEOM

The Leak Test and K0 Checks described here do not need to be done on a routine basis. They should be done at least every 6 months, or as needed for troubleshooting.

Leak Check
A leak test measures the flow as reported by the TEOM's flow sensor with the inlet closed off. The TEOM leak test flow measurement must be corrected for the TEOM flowmeter's zero offset. To conduct a flow check, follow the procedures below:

1. With the TEOM warmed up for at least 30 minutes, read the TEOM reported flow with the pump turned off. This is the flowmeter zero reading.
2. Close off the inlet to the TEOM with a brass swage cap.
3. Turn on the TEOM pump.
4. Wait one minute and read the TEOM flow.
5. The leak test value is the difference between the reading without and with the pump on.
6. The leak test should be no greater than 0.05 lpm (net value).
7. Turn the pump off and remove the brass swage cap from the TEOM inlet.

K0 Check
In addition to routine pre- and post-sampling flow checks, a K0 check is another test that shall be completed to validate proper operation of the TEOM. K0 checks confirm the calibration factor for the tapered element mass transducer. It is done once per year and as needed. See page 5-50 of the manual.

Section 6. Filter Change Procedure for 1405 TEOM

The TEOM measures the pressure drop across the filter as % of maximum (~ 100 to 130 %), shown on the instrument's display. A clean filter has a loading of about 5% at 0.5 LPM and ~ 7% at 1 LPM. Filter lifetime will vary widely depending on the PM concentrations being sampled. At very high PM concentrations (several hundred mg/m^3), filter lifetime may be only 10 to 15 minutes. Under typical sampling conditions, lifetime is at least 30 minutes and up to an hour or

more with concentrations in the 20 to 50 mg/m3 range. With care, filter changes can be done such that only a few minutes of data are lost.

The TEOM filter must always be changed before the filter mass loading becomes too high and the filter plugs and the sample flow drops. TEOM filters can also be changed before they overload to minimize negative data.

There are three TEOM filter change scenarios for different applications:

1. EPA Method 5G or ASTM E2515 is the primary data source [the regulatory methods]. Teom data are used to parse the emission profile in the context of % attribution of full run regulatory filter data as described in Section 9. TEOM filters are normally only changed to prevent plugging. For this purpose, negative Teom data should be set to 0 in the final data set.

2. TEOM data are the primary data source.
The Teom filter gets changed whenever ANY of the following conditions are met. This minimizes negative or negatively biased Teom PM measurements.
2a. Filter plugs
2b. Filter mass loading exceeds 1000 ug AND the filter has been in use for at least 30 minutes. [both conditions have to be met]
2c. Persistent (at least several minutes) negative data of at least -2 mg/m^3 is observed that is not due to instrument noise when concentrations are very clean.
For this purpose, negative Teom data should be set to 0 in the final data set.

3. Validation of Teom PM against the regulatory filter PM methods under carefully controlled conditions.
This is a special case for method validation only, and is covered in Section 7. This is not for routine sampling.

Filter change procedure.

The following are filter handling procedures that shall be followed:

A. Unused clean filters should be stored in the original box, with the silica gel desiccant.
B. Two clean filters should be stored in the mass transducer.
C. Filters should only be handled with the filter change tool that is stored inside the TEOM cabinet.

The TEOM manual has illustrated procedures for filter changes starting on page 5-6. Try to minimize the time the mass transducer is open to minimize the time needed to re-stabilize after the filter change.

1. The filter change menu can be located by pushing the Service, Maintenance, Replace Filter. Select Advanced option, and then Next to proceed.

2. Open the TEOM cabinet door, open the box of clean filters, and open the mass transducer. Remove the old filter by sliding the filter tool onto the filter and pulling straight out. Do not twist the tool (to prevent damage to the glass tapered element).

3. Pick up a new filter (stored inside the mass transducer) with the tool. Position it directly over the tapered element and push the filter on gently. Once the filter is on, remove the tool from the filter and fully seat the filter by pushing firmly straight down on the filter with the bottom of the tool (see section 3 of the manual for more information). Store another new filter in the mass transducer.

4. Close the mass transducer, replace the filter box cover, and close the cabinet. Restart the TEOM by completing the filter change wizard.

5. If the PM concentration as read on the RPComm graph hasn't stabilized within 5 minutes, or if the Frequency is close to 0 (~10 instead of a few hundred Hz) the filter may need to be reseated or is defective, or the sensor latch is not closed properly. Repeat the filter change "advanced" procedure and take the filter off and re-seat it. Push it on firmly with the back of the filter tool and make sure the sensor is properly closed and latched. After two attempts, restart the procedure with another new filter.

Note: the PM concentration on the TEOM display will read 0 after a filter change until the top of the next hour. When valid data are being collected, the RPComm graph will indicate the concentration, and the "Total Mass" on the TEOM display will read something other than "0.00".

► There is one exception to this: after an instrument reboot for any reason (including setting the time), data are not stored until after the top of the next hour, even if the RPComm graph is showing data and the Total Mass is not 0.

Section 7. Filter Change Protocol for Method Validation: Matching Filter Pull and TEOM Filter Face Velocities and Mass Loadings for Control of semi-volatile mass loss.

This is a special case for method validation only, and is not used for routine sampling or regulatory testing. For this use, the filter pull and Teom filter face velocity, filter temperature, and filter mass loading are all closely matched to control for loss of semi-volatile PM components (SVOC and water). Since the filter media for both the filter pull and the Teom are the same (EMFAB TX40), if the filter face velocities and temperatures are properly matched, the mass loading should also be matched. Mass loading on the TEOM filter should not exceed 2.0 mg. The filter pull filter must be changed when the TEOM filter is changed. Start and end times of sampling on a filter must also be matched. This means that sample probes are put into and taken out of the dilution tunnel at the same time. The TEOM data must have stabilized after a filter change before sample probes are put into the tunnel. Filter pull filters must be weighed soon (< 2 hours) after each filter is finished sampling, and again after equilibration per the regulatory method.

Section 8: Data Storage and Download

The TEOM shall be set to store data every 10 seconds. There is storage for several days of data at this storage interval. Data can be downloaded while the TEOM is running.

Data are usually downloaded with the ePort software but if needed can also be downloaded to a USB thumb drive or with the RPComm TEOM software. The data file is in .CSV format for importing into a spreadsheet.

Data parameters are saved as follows:

1. Date, Time
2. PM-2.5 raw MC
3. PM-2.5 MC
4. PM-2.5 total mass
5. PM-2.5 30-Min MC
6. Operating mode
7. System status
8. PM-2.5 flow rate
9. PM-2.5 TEOM filter load
10. PM-2.5 TEOM filter pressure
11. Case temperature
12. Cap temperature
13. PM-2.5 air tube temperature
14. Enclosure temperature (temperature on the main TEOM circuit board)
15. PM-2.5 TEOM noise
16. PM-2.5 TEOM frequency
17. Vacuum pump pressure

The key parameters for data validation and analysis are:

1. Date and Time – reported as the end of the average interval
2. PM2.5 raw - PM2.5 raw is the same as PM2.5 MC except it is always reported even when the instrument status is invalid. This minimizes loss of data but also requires manual editing of the data file to remove invalid PM concentrations based on review of the data and critical parameters such as flow and temperatures. Concentration is in $\mu g/m^3$. A zero value for Mass Conc indicates no data.
3. PM2.5 total mass - the mass loading on the TEOM filter in µg.
4. PM2.5 flow rate - Flow is SLPM unless something else is used in the instrument configuration.
5. PM2.5 TEOM filter load - filter loading as % of maximum.
6. Case temperature, in degrees C.
7. Noise is a data stability metric and should normally be less than 0.10 when pm concentrations are low or zero.

Section 9. Data Validation and Calculations

TEOM data are recorded every 10 seconds to minimize data loss during filter changes. Data validation is performed on the 10 second data and then usually averaged up to 1-minute intervals for reporting use.

TEOM data are valid when all flows and temperatures are within the defined operating ranges specified below.

1. "Case" temperature is stable and within 0.1 deg C of set-point. Other temperatures can be off as long as the Case temperature is stable and close to the set-point.
2. Flow reported by the instrument should be within 5% of the flow setpoint.

Because of the way the Teom is run here [with a wait time of 0], it never invalidates any data. Thus the data must always be reviewed and cleaned up manually. The wait time is set to 0 to minimize data loss during a filter change, or when the "Cap" temperature is out of range but the data are ok. The Teom reports a concentration of 0 or repeating values when there are no valid data.

The "Raw MC" PM concentration parameter is reported regardless of instrument conditions and thus includes invalid data that need to be removed during data validation. Normally the only data that need to be removed are during a filter change that occurs during a run. When a filter is changed, the last valid concentration value is repeated until new valid data are available. These repeating data are removed manually during validation and considered as "missing" data.

Note: For cumulative PM emission measurements (total grams of PM emitted during a burn phase or run), missing data shall be filled in with best-estimates based on the 1-minute PM concentrations immediately before and after the filter change. Otherwise, the effective emissions for the period with missing data are zero, creating a negative bias in the measurement.

It is common for the TEOM PM concentration to be somewhat negative during some burn phases. This happens when the TEOM filter mass loading is large and PM emissions are relatively low (e.g., for a clean burn phase that follows a dirty burn phase), and the TEOM filter loses mass. This can be controlled by pre-emptive filter changes as described in Section 6. Small negative concentration up to a few mg/m^3 can still occur however. To minimize measurement bias, these small negative concentrations should always be set to 0 during data processing. Large and rapid negative data swings in concentration may indicate a problem with the instrument and should normally be considered invalid or missing data (not set to 0).

The output of the TEOM is PM concentration in the dilution tunnel, in $\mu g/m^3$ at 25 C and 1 Atmosphere (29.92 inches Hg) pressure. To correct TEOM data to the test or reporting conditions use the following:

$$\text{PM at local T and P} = \text{PM at STP} * (298/T) * (P/29.92)$$

The 1-minute TEOM PM concentration is converted into grams/hour using the tunnel flow as follows:

$$g/h = 0.000001699 * \text{tunnel flow (in CFM)} * \text{PM concentration (in } \mu g/m^3)$$

The values used for tunnel flow shall be the actual measured values, at intervals of no greater than 10 minutes. If the range of 10 minute tunnel flow measurements [100*(Max - Min) / average] is no greater than 5% of the run-average tunnel flow, the run average tunnel flow can be used for these calculations.

TEOM data can be used to apportion the PM emission rate (g/h) measured by a Method 5G or E2515 regulatory sample train to multiple burn phases by applying a correction factor to the 1-minute Teom data. The correction factor is the ratio of filter pull full run g/h to TEOM full run g/h. The 1-minute TEOM data is then adjusted by this correction factor.

Note: since actual measured tunnel flows are used to convert TEOM data into g/h, tunnel flow does not need to be controlled other than what is necessary to maintain proportionality between tunnel flows and regulatory method filter flows.

For calculation of lbs/mmbtu, total grams PM emitted is calculated by multiplying the average g/h rate for the test period of interest times the number of hours of that test period. Grams are converted to lbs by multiplying grams by 453.6.

Section 10: TEOM Configuration Changes for Fast Response and High PM Concentrations, and List of TEOM Parameter Configuration Values.

These settings are for the 1405 TEOM as used in this application that are different from instrument default settings. See the 1405 manual for detailed information on how to change these values.

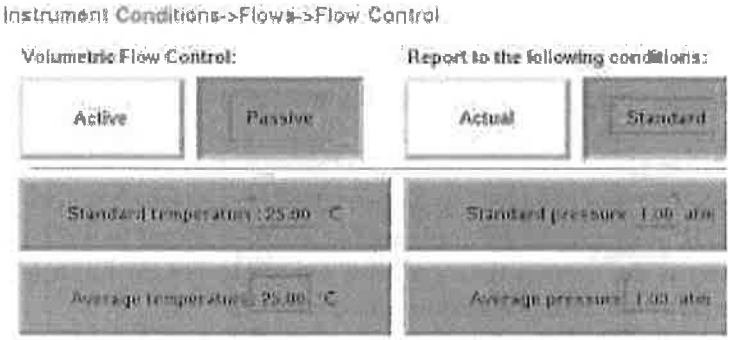
1. Remove the A and B factors [+3 and x1.03] that are used for PM10 FEM status. "Mass Constant A" is set to zero, and "Mass Constant B" is set to 1.00.

2. Change system filtering and wait time settings:
TM (Total Mass Avg time) from 300 to 15 seconds
MR-MC (Mass Rate/Mass Conc Avg time) from 300 to 15 seconds
Wait Time from 1800 to 0 seconds (disabled)

3. Change the sample flow from 3.0 to 0.5 lpm. The bypass flow is set to 0.

4. Change all 3 temperature zones [Case, Air, Cap] to 30 C.

5. Set both the "Avg" and "Std" T/P to 25 C / 1 atm - this is the default for systems without the external temperature sensor. Select Passive and Standard as shown below.



6. Change the Data Storage interval to 10 seconds.

A complete list of 1405 TEOM Settings that are modified from instrument defaults are listed below:

PRC	Description	Config Value	Unit		
12	storage interval	10	sec		
28	system wait time	0	sec		
35	mass average time	15	sec	See also PRC392 -- MRMC	
48	case temperature set point	30	Deg C or higher as needed to maintain a stable case T		See also PRC 115 -- air tube T
59	cap temperature set point	30	Deg C or higher as needed to maintain a stable case T		
74	average temperature set point	25	C	These are for reporting PM at EPA STP	
75	standard temperature set point	25	C	These are for reporting PM at FPA STP	
76	average pressure set point	1	atm	These are for reporting PM at EPA STP	
77	standard pressure set point	1	atm	These are for reporting PM at EPA STP	
91	bypass flow mass set point	0		Can be used as a baseline param for rpcomm plots.	
115	TEOMA air tube set point	30	Deg C, or higher as needed to maintain a stable filter T; see also PRC 48 and 59.		
136	analog output1 minimum	-5000	optional -- ug/m3 as needed for RPComm plot scaling		
144	analog output1 maximum	50000	optional -- ug/m3 as needed for RPComm plot scaling		
227	TEOMA flow set point	1	lpm; or 0.5 to 2 lpm as needed; flow must be recalibrated if changed!		
392	MRMC average time	15	sec		
407	TEOMA mass constant A	0			
408	TEOMA mass constant B	1			
	Note: all 3 temperatures must be set to the same value.				

Data Logging Parameters.

prc	description	var name in data file	Unit
244	raw mass conc	TEOMAMCRaw	ug/m3
245	mass conc	TEOMAMC	ug/m3
243	total filter mass loading	TEOMATotalMass	ug/m3
7	operating mode	OperatingMode	#
8	system status	StatusCondition	#
225	flow rate (STP)	TEOMAFlowMass	lpm
241	filter pressure	TEOMAFilterPressure	raw
242	filter load %	TEOMAFilterLoad	% of max
47	case temperature	CaseHeatTemp	C
58	cap temperature	CapHeatTemp	C
237	air tube temperature	TEOMAAirTubeHeatTemp	C
258	noise	TEOMANoise	ug
257	frequency	TEOMAFrequency	Hz

NATIONAL FIREPLACE INSTITUTE®
A CERTIFICATION AGENCY

National Fireplace Institute® (NFI)
Policy Handbook

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NATIONAL FIREPLACE INSTITUTE®
A CERTIFICATION AGENCY

National Fireplace Institute® (NFI)
Policy Handbook

The National Fireplace Institute® is the professional certification division of the Hearth, Patio & Barbecue Education Foundation (HPBEF), a 501(c)3 non-profit educational organization. HPBEF is ruled by a Board of Governors that includes representatives from the industry, public safety, and the allied service industry.

The goal of the National Fireplace Institute® is to improve public safety by certifying that hearth installers / planners have successfully passed a rigorous examination of knowledge identified by hearth industry experts and practitioners as fundamental to competent planning and installation of hearth systems. Certification is offered for three hearth products specializations: Gas, Woodburning, and Pellet. Participation in the certification process should be a challenging and rewarding professional experience that can increase knowledge, confidence, and public recognition.

The information provided here reflects the policies and procedures that directly affect examination candidates and NFI Specialists pursuing certification renewal, including:

- exam characteristics
- pre-exam information and procedures
- exam results and appeals
- options and requirements for renewing certification.

Policy and procedures are subject to change. Check the NFI website http://www.nficertified.org or contact NFI for the latest version.

I. Exam Characteristics

A. Purpose and Limitations

The National Fireplace Institute® is a voluntary, nationally administered certification program. NFI certifications are awarded to candidates who attain a passing score on exams that test subject matter recognized as fundamentally important to the planning and installation of different types of hearth systems. NFI certifies that candidates have successfully passed an exam or exams. While the certification is a recognized indicator of commitment to professional accomplishment, it does not guarantee competence. Certification may be recognized as a requirement for licensing to perform installation in some jurisdictions, but certification in itself is not a license.

Certification is a mark of accomplishment that is widely recognized as an indication of professional status and commitment. In a growing number of local and state jurisdictions, NFI certification is being considered as an appropriate pre-requisite for hearth products installation. NFI accordingly provides identification and promotional materials to successful candidates.

B. Basis of Exams

In order to ensure fairness, job relevance, and effectiveness of the certification process, examinations are based on a formal job analysis and recognized procedures for exam reliability and validity. These recognized, formal processes include participation of industry experts, survey of practitioners, and

collaboration with testing consultants. The resulting exam blueprints cover industry-identified knowledge and reflect the relative importance of different subject categories.

C. Specializations Offered

Candidates can become NFI Gas, Woodburning, and Pellet Certified Specialists. Each exam covers core knowledge such as combustion and heat transfer as well as information about appliances and venting systems of each specialization:

- Gas: all major gas burning hearth appliances and their venting systems
- Woodburning: both factory-built solid fuel fireplaces and all major types of cordwood burning hearth appliances and their venting systems
- Pellet: all major wood pellet and biomass burning hearth appliances and their venting systems.
- MHP: NFI offers recognition to individuals who have successfully gained all three NFI Certifications as **Master Hearth Professionals**.

*D. Content of Exams**

The following exam blueprints indicate the categories of knowledge identified through formal job analysis.

*A full list of knowledge statements for each category is available at http://www.nficertified.org, in each HEARTH Reference Manual, or by contacting NFI.

NATIONAL FIREPLACE INSTITUTE®
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GAS EXAMINATION

I. Fundamental Knowledge (25% of exam)
1. Combustion
2. Heat/Heat Protection
3. Safety Guidelines/Consequences of Action
4. Construction Fundamentals

II. Installation Knowledge (75% of exam)
5. Regulations and Instructions
6. Fuel Delivery
7. Appliance Requirements
8. Draft and Ventilation Principles
9. Gas Venting Requirements
10. Post Installation Inspection and Service

WOODBURNING EXAMINATION

I. Fundamental Knowledge (25% of exam)
1. Combustion
2. Heat/Heat Protection
3. Safety Guidelines/Consequences of Action
4. Construction Fundamentals

II. Installation Knowledge (75% of exam)
5. Regulations and Instructions
6. Appliance Requirements
7. Draft and Ventilation Principles
8. Woodburning Venting Requirements
9. Post Installation Inspection and Service

PELLET EXAMINATION

I. Fundamental Knowledge (25% of exam)
1. Combustion
2. Heat/Heat Protection
3. Safety Guidelines/Consequences of Action
4. Construction Fundamentals

II. Installation Knowledge (75% of exam)
5. Regulations and Instructions
6. Appliance Requirements
7. Draft and Ventilation Principles
8. Pellet Venting Requirements
9. Post Installation Inspection and Service

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NFI NATIONAL FIREPLACE INSTITUTE®
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II. Pre-Exam Information and Procedures

A. Registration

To take an NFI exam the candidate may either attend a sponsored NFI event (usually offered with a full-day review program) or take the proctored computerized exam at one of the numerous locations operated by NFI's testing partner, PSI Exams Online/LaserGrade. While sponsored testing events may offer the option of review prior to the exam, the PSI Exams Online/LaserGrade testing option is available to allow the candidate to test closer to home at a convenient time.

- Exam candidates must register with NFI or the sponsoring organization. Full payment for the exam and any related study materials must accompany registration.
- If the registration is for individual computer testing, NFI will authorize the computer testing service to administer the exam and provide information to the applicant regarding how to contact the computer testing service to set up a time and location for the exam.
- If study materials are purchased with the exam order, NFI will ship them when the registration form is approved. Expedited shipping can be arranged for an additional fee.

B. Non-discrimination

In accordance with the Americans with Disabilities Act (ADA), NFI will provide reasonable accommodation for those with disabilities, such as providing extra time and/or facilitating having someone to read the exam to the candidate. No accommodation need be offered that fundamentally alters the measurement of the skills or knowledge that the exam is intended to test, or which is an undue burden on NFI, including, but not limited to, offering the exam in any language other than English. In order to request accommodations for disabilities, candidates should contact NFI to obtain an ADA Special Request Form. The Request Form must be submitted sixty (60) days prior to the desired exam date so that special considerations can be provided.

C. Pricing

Pricing for exams and/or study materials is available from NFI or from the sponsoring organization. Visit www.nficertified.org for more information.

D. Time Limits, Rescheduling, Cancellation, and Refunds

For Computerized Testing:

1. Exam Deadlines
- Candidates have 6 months from registration and payment of fees to take examinations.
- An extension of 2 months can be granted if applied for within the 6 month period.

2. Rescheduling Exams
- If necessary, a candidate registered for computerized testing can reschedule an exam within the exam deadlines by contacting PSI/LaserGrade Exams Online.
- There may be an administrative fee for rescheduling.

3. Cancelling Exams

- A candidate may cancel and not take a scheduled exam.
- Within the 6 months after registration, exam registration can be cancelled if requested in writing.
- A refund for the exam, less a $50 administrative fee, will be granted.
- No refunds are made for the exam after the 6 month period.
- Refunds are made for study materials only if they have not been opened and are returned within 6 months of purchase. No refunds are made for related shipping costs.

For Sponsored Events:
All cancellation, refund, and time limit policies for sponsored testing events are the prerogative of the sponsor. To determine these policies, please contact the sponsor directly.

III. Exam Preparation

A. Resource Materials

The primary reference resources for the exams are the most current version of the *Gas Hearth Systems Reference Manual,* the *Woodburning Hearth Systems Reference Manual,* or the *Pellet Hearth Systems Reference Manual,* published by the HPBEF. In addition, job experience, familiarity with manufacturer's installation instruction manuals, and fundamental construction knowledge may be required or helpful.

B. Preparation Methods

Self-study of current HPBEF reference manuals is strongly recommended, even for experienced professionals. In addition, organized exam review sessions are offered at a number of locations at different times. Schedules of such reviews are available at http://www.nficertified.org.

IV. Exam Information

- The examinations consist of 100 multiple choice type questions. The time allowed to complete an exam is 2.5 hours.
- In some exam administrations, extra questions are included to determine their performance and suitability for future exams. New exam questions are selected from these questions based on statistical performance. Extra time is allowed for these over-length exams.
- In group exam settings, the exams are taken on paper test forms to be filled out with provided #2 pencils. These test forms are capable of being scored electronically. Individual exams are offered at proctored computerized testing centers and are taken on provided computers.
- NFI exams are closed book exams. No study materials are allowed in the testing area.
- Only hand held, non-programmable calculators are permitted during testing. Other calculators, including PDA's and cell phones are not permitted. Sharing calculators is not permitted.
- Exam proctors cannot answer questions about the content of the exam.
- Any testing irregularities should be reported to the proctor and/or NFI.

V. Exam Scoring and Results

A. Results and Feedback

- Pencil/paper exams are scored by an authorized testing agency. Results are mailed by NFI to the candidate. Candidate Feedback Reports and other materials are normally received by the candidate four to six weeks after testing.
- Pass/fail results of computer exams are available on completion of the exam.
- Candidate Feedback Reports and other materials are normally received by the Candidate by mail four to six weeks after testing.
- The exam results indicate whether the candidate passed or failed, based on overall performance in all categories of assessed knowledge. An overall numerical score or grade is not reported. The Candidate Feedback Report provides feedback on the percentages of correctly answered questions in each knowledge category. It also provides the identifying numbers of Knowledge Statements associated with missed questions. An index of Knowledge Statements provided in each Hearth Reference Manual facilitates reinforcement and further study by linking each Statement to sections in the manual.
- Candidates who do not pass the exam receive test results, feedback, and information about retesting.

B. Confidentiality and Publication

- The exam Candidate Feedback Report is provided only to the candidate, unless the candidate gives NFI written permission to do otherwise.
- Candidates agree that by registering and taking NFI exams that their names and furnished contact information will be published on the NFI website and in other media if they pass the exam.
- Renewal dates for certifications are considered public information and may be provided to employers, exam sponsoring organizations, and the public.

C. Retesting

- Candidates who fail an exam and wish to retest must register and pay a retesting fee (listed on http://www.nficertified.org).
- Candidates are allowed 2 retests at a discounted fee. In order to qualify for the discounted retesting fee, the first retest must be taken within 12 months of failing the initial exam, and a second retest must be taken within 6 months of failing the retest exam. Testing after these time periods and conditions will be subject to full exam fees.
- Candidates must wait a minimum of 30 days after an unsuccessful examination before retesting.
- Candidates should be aware that exams and reference manuals are revised on a regular basis and should check to see whether their reference manual is the current edition for the exam.
- Retesting can be taken, with advance registration through NFI, at all available computer testing centers (NFI uses PSI Exams Online testing), and at some sponsored testing events.

D. Exam Results Appeals

A candidate who fails an NFI Exam may appeal the results of the exam to the NFI Certification Committee. The appeal must be received by NFI within 30 days of receipt of exam results. The appeal must be in writing and must include the basis or reason for the appeal. The appeal may result in rejection

(exam results stand), rescoring, and/or retesting, or granting of certification. A final appeal can be made to the HPBEF Board of Governors.

E. Certification Recognition

Individual Certifications

- Candidates who successfully pass the NFI Certification exam will be designated NFI Certified Specialists.
- Successful candidates will receive test results and feedback, a wall certificate, an identification card (with photo if provided), Internet listing with company contact information, and recognition materials such as decals and clothing patches. Additional recognition materials, also including tee shirts, hats, and large decals can be purchased through www.nficertified.org.
- The company of the employee or employees who hold the certification(s) can identify their company as having an NFI Certified Specialist on staff as long as an employee or employees holds/hold current NFI certification(s) in good standing.
- Identification includes use of the NFI trademark logo in public relations and advertising materials. The company cannot claim installation or planning by NFI Certified Specialists unless they are carried out or directly supervised (on-site) by a currently certified specialist.
- Although fees related to an individual's certification may have been provided for by a third party (i.e. the employer), the certification earned is the sole property of the candidate, and company identification rights (above) are transferrable upon any changes in employment. The certification holder is responsible for providing NFI with corrections or changes to contact information.

Master Hearth Professional (MHP) Designation

Specialists who hold all three certifications (Gas, Woodburning, Pellet) can apply to be designated as Master Hearth Professionals (MHP) under one of the following two options:

1. Synchronized Renewal Dates
   All three certifications have a new expiration date, which is the median date selected by NFI between the earliest certification's expiration date and the latest certification's expiration date. The NFI Certificate and ID card reflect that expiration date, and standard procedures are followed for renewal. Failure to renew any one of the three certifications by the expiration date result in immediate withdrawal of the MHP designation from the Specialist's NFI website listing, cancellation of the MHP ID card and certificate, and cessation of the Specialist's use of the MHP designation in any media.

2. Unsynchronized Renewal Dates
   The expiration date on the MHP certificate and ID card is the earliest certification's expiration date. If that certification is renewed according to standard procedures and an MHP Unsynchronized Renewal Date fee is paid, the Specialist is issued a new MHP certificate and ID card with the next certification's expiration date. That process continues as long as the Specialist renews each certification properly. If a certification is allowed to expire, the MHP designation is immediately withdrawn from the Specialist's NFI website listing, the MHP ID card and certificate are cancelled, and the Specialist must cease use of the MHP designation in any media. There is a fee for administrative costs associated with unsynchronized renewal dates for the MHP designation.

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A CERTIFICATION AGENCY

VI. Certification Renewal Information

Length of Certification

- Upon passing the exam(s), the specialist will be certified by NFI for a period of three years from the end of the month the exam was passed. For example, if an exam is taken and passed on January 10, 2010, the certification is valid through January 31, 2013.
- Near the end of the certification period, the specialist must renew the certification in order to retain the credentials and their benefits by one of the following methods:
  - Retesting
    or
  - Continuing Education

Failure to Renew Certification

If the specialist does not renew a certification before its expiration date:

- NFI will remove the certification listing, and if appropriate, the specialist's name and contact information from the NFI website. NFI may inform the appropriate individuals, companies and/or organizations (i.e. employer, CSIA, HPBA Affiliate) that the specialist is no longer certified.
- The specialist and employer forfeit the right to any use of NFI Certification recognition materials that are based on the expired certification(s).

If there is evidence of misuse, NFI has the right to take legal action against the specialist and/or the employer. After the certification expires, a former specialist who wishes to reinstate the certification must pay full certification fees instead of discounted renewal fees and must successfully pass the exam.

Option 1. Renewal by Retesting

The Specialist can renew a certification by registering and paying the renewal fee and successfully passing the current NFI exam.

- Candidates should note that NFI exams are revised on a schedule that ensures that the retesting exam is a revised exam based on revised reference materials.
- Retesting opportunities are available at some sponsored events at various times and locations and at the annual Hearth, Patio & Barbecue Expo. Check http://www.nficertified.org or contact NFI at 703-524-8030 for schedules and more information.
- Retesting opportunities are continually available through NFI's proctored computer exam locations across the country. Check http://www.lasergrade.com/psi-locate.shtml for testing locations (be sure to select National Fireplace Institute as the Sponsor). Check http://www.nficertified.org or call NFI at 703-524-8030 for PSI/LaserGrade Exams online exam registration and more information.
- Information regarding requirements for renewing certification by retesting are available below, online at http://www.nficertified.org, or by phone at 703-524-8030.

Requirements for Renewing Certification(s) by Taking an Exam

If a specialist does not have the required number of CEUs to renew a certification, or if the specialist just prefers to pass the new version of the exam to renew the certification, it will be necessary to:

a. Purchase the NFI renewal exam package (available at reduced cost only prior to certification expiration date). Renewal exams can be taken, with advance registration through NFI http://www.nficertified.org and 703-524-8030, at all available computer testing centers, at HPBExpo, and at some sponsored exam administrations.
b. Register for the appropriate NFI exam before the expiration date and successfully complete the exam no later than 30 days after the expiration date of the current NFI certification. The renewal expiration date (month and day) remains the same if the exam is completed successfully within 90 days before or within 30 days after the current expiration date. Note: if the expiring certification was achieved by examination, the renewal exam must be a revised edition of the previously taken exam.
c. Submit a new digital photograph if a new photograph on the new ID card is desired.

Option 2. Renewal by Continuing Education

The NFI Continuing Education Program allows each specialist to renew a certification by attending the required number and type of accredited courses and paying the renewal fee.

Courses approved with NFI Continuing Education Units (CEUs) have been reviewed by the NFI CEU Commission, which is comprised of industry members with varying backgrounds and expertise. Information regarding requirements for renewing certification by CEUs is available online at http://www.nficertified.org and by phone at 703-524-8030.

VII. Requirements for Renewing Certification(s) by Earning CEUs

CEU Requirements

For One Certification

Prior to the expiration of a three-year certification, the specialist must earn and document **24 CEUs** in these specific categories:

- Technical – Wood/Gas/Pellet 12 CEUs
- Safety, Health & Liability (SHL) 4 CEUs
- Professional Development Electives 8 CEUs*

**Note: Extra Technical or SHL CEUs may fulfill Elective CEU requirements*

TOTAL 24 CEUs

For Two or Three Certifications

Prior to the expiration of second or third **three-year** certifications, the specialist must earn and document a total of **32 CEUs** in the specific categories. If the specialist has already renewed the first certification by CEUs (24), the specialist will only need an additional **8 CEUs (minimum 4 Technical; maximum 4 Elective)** by the next certification expiration.

CEUs are valid for 3 years and can be applied to all certifications that expire during that period of validity. For specialists that hold more than one certification, this means that some CEUs can be applied to multiple certifications. After that three year period, CEUs are no long valid for certification renewal.

If a certification is not renewed by testing or CEUs before its expiration, it will be necessary to take the exam in order to hold that certification again.
The requirements for two or three certifications are as follows:

- Technical – Wood/Gas/Pellet 16 CEUs
- Safety, Health & Liability (SHL) 4 CEUs
- Professional Development Electives 12 CEUs*

**Note: Extra Technical or SHL CEUs may fulfill Elective CEU requirements.*

TOTAL 32 CEUs

Upon request, NFI can synchronize expiration dates for 2 or 3 certifications if all fees are paid and all CEU/Exam requirements are met. The dates will be synchronized to a median date between the earliest and latest certification's expiration dates. Note: Specialists who hold all three certifications (Gas, Woodburning, Pellet) and choose either to synchronize expiration dates or to follow unsynchronized expiration date procedures are eligible for designation as Master Hearth Professional (MHP).

Update & Reinforcement Course Requirement

The HPBEF/NFI Board was concerned that certified specialists that renew their certification by CEUs may never know what changes have occurred in the past three years. In June 2009, the Board added a requirement that starting in 2013 a specialist renewing a certification by earning CEUs must also take an "Update & Reinforcement Course" (URC) for each fuel type being renewed. The URC may be taken any time within a year of when the certification expires. The URC is available online, at HPBExpo and/or at some HPBA Affiliate education events. When a specialist renews his or her certification by CEUs and pays the applicable renewal fee, the specialist's CEU record is reviewed by NFI staff to determine if the required URC has been taken. If it has been taken, the specialist's certification is renewed. If the required URC has not been taken, the log in information and a link for the applicable URC will be sent to the specialist. Once NFI staff receives the completion certificate confirming that the URC was taken by the specialist, the renewal process will be finalized. There is no extra charge for the URC, it is included in the renewal fee. Each specialist will be credited with the applicable Technical CEUs for each URC taken.

VIII. CEU Categories

TECHNICAL

Hearth Products Technical Subjects: Planning and installation technical subjects for manufactured residential hearth products that are included in NFI Exam knowledge statements, including:

- Product Knowledge
- Codes and Standards
- Venting Principles and Design
- Ventilation (House Pressure)
- Fuel Knowledge
- Installation Planning
- Installation Guidelines and Techniques
- Tools and Gauges
- Troubleshooting and Repair

SAFETY, HEALTH, & LIABILITY

Workplace Safety and Health
Consumer Health and Safety (Hearth Products Issues) Liability

ELECTIVES*
Additional Technical or Safety, Health & Liability sessions OR Business and Profession Subjects, including:

- Business Management
- Sales & Marketing
- Service Department Organization and Management
- Communication Skills
- Hearth Industry Diversification Products subjects related to:
    - Outdoor Living
    - Outdoor Room
    - Barbecue
    - Patio
    - Portable Spas
    - HVAC
    - Exhaust System Maintenance (e.g., chimney sweeping, dryer vent maintenance)

**Note: Extra Technical or SHL CEUs may fulfill Elective CEU requirements.*

IX. CEU Rules and Regulations

A. General CEU Policy: All Types of Instruction

1. Industry training must be submitted for CEUs 30 days in advance of the event.
    a. Exception: For highly standardized programs such as American Red Cross First Aid or CPR, or standard OSHA training programs, prior and formal CEU approval is not required. Proof of attendance is required.
    b. Applications for courses over 2 hours in length are required to include a timeline that indicates estimated instructional time for major topics and for breaks (refreshment, bathroom, meals, etc.).
    c. The minimum course length for CEU consideration is 30 minutes.
2. Usually, one hour of training/education equals one CEU.
    a. Instructional presentations that have been converted from live, face-to-face courses to recorded online courses without accompanying audio or written instruction similar to that available in the live presentation may result in reduced or denied CEUs.
3. The maximum number of credits that are awarded for a one-day program is six (6).
4. The maximum number of credits that are awarded for a two-day course is twelve (12)
    a. No more than 6 CEUs can be awarded for any single day.
5. The maximum number of credits that are awarded for a multiple day program over two days in length is sixteen (16).
    a. No more than 6 CEUs can be awarded for any single day.
6. If a person attends an education program accredited with CEUs within seven (7) days prior to taking and passing the NFI exam, the person may earn CEUs for that course attendance, which can be applied to that certification. Otherwise, no CEUs are awarded for coursework completed before taking and passing the NFI exam.
7. There are no retroactive CEU credits for courses/events/activities that were not approved for CEUs before attendance or completion. However, if appealed, NFI Staff will review on a case-by-

case basis. The burden of proof for course content and attendance will be with the person making the request and/or the instructor/sponsor.

8. All qualifying CEUs must be earned prior to the expiration date of the certification(s) being renewed.
9. CEUs for a course can only be earned once in a certification period with the following exceptions:
   a. A course with expirations and renewals (eg., CPR) or that are required multiple times within a certification period by an employer or jurisdiction is eligible for CEUs each time.
   b. A course demonstrated and declared by the instructor/sponsor to have at least 30% new content is eligible for CEUs for repeated attendance.
10. Any extra CEUs earned during an initial certification period will not carry over into the next certification period.
11. NFI reserves the right to reject applications for courses that introduce or espouse political or otherwise inappropriate subject matter.
12. For all approved CEU applications submitted on a timely basis, NFI will post upcoming CEU programs at www.nficertified.org.
13. When signing a CEU event attendance form, you must write legibly using the same name that is on the NFI records. NFI ID numbers must also be included for CEUs to be awarded.
14. Once approved for CEUs, courses may be offered for two years[1] after approval.
15. Additional dates and locations may be added if:
    a. The title of the course is exactly the same.
    b. The length of the course is the same.
    c. The content has not significantly changed (less than 30% has changed).
16. To renew an expiring CEU approval, the sponsor must submit a new application
    a. Applications for renewed approval can be submitted no earlier than three months before expiration of the original approval.

B. CEU Training Event Attendance Policy

1. Sign In/Log In

   Participant must indicate presence at or before the beginning of the training session:
   - Sign the Attendance Sheet at **Traditional Classroom** events (instructor delivering content in person to the audience) and **Roundtable Discussion** events (organized, formal discussion group with pre-announced topic and moderator).
   - Log in successfully in advance of scheduled start and answer roll call for **Live Online Training** events (courses/training sessions delivered live by instructor to remote audience via internet).
   - Log in and activate session successfully for **Recorded/OnDemand Training** events (courses/training events pre-recorded or electronically stored and delivered to an individual via the internet).

[1] Online course approval is for two years from the date the application is approved. Traditional course approval is for two years from the first date the course is offered.

Attendance

Participant must attend the entire CEU program from beginning to end, including meeting these requirements:

- For Traditional Classroom, Roundtable Discussion, and Live Online Training
  - Participants must not be later than 5 minutes from the start of the event.
  - Participants must not leave or take any breaks other than those given by the instructor, with the exception of 5 minute bathroom breaks.
- For OnDemand Training events
  - Total time participant spends connected to and using the programs are subject to review and approval/disapproval by the instructor/host.
  - Any test, quiz, exercises must be completed to the satisfaction of the instructor/host.

2. Completion

Participants must complete the CEU program satisfactorily, including these requirements:

- For Traditional Classroom, Roundtable Discussion, and Live Online Training
  - Participants must be present at the end of the event.
  - Participants must successfully complete quizzes and/or exercises that may be required by the sponsor/instructor.
- For OnDemand Training events
  - Participants must successfully complete quizzes and/or exercises that may be required by the sponsor/instructor.
  - Participants must agree to a pledge of attendance at the end of the course.

C. Hearth Industry CEU Education/Training Service

1. Industry Training

Instructors may receive credit for teaching any program approved with NFI CEUs only once within a three year certification period. The instructor is awarded the same number of CEUs that have been accredited for the course. Exception: NFI Review Course instructors may earn five (5) CEUs for teaching a full-day NFI review course ONCE in a three year certification validation period. Five (5) CEUs each for gas, woodburning and pellet can be earned.

2. Industry Publication

Writing and having a hearth industry paper or article published may be eligible for CEUs based on the following requirements.

- The article must:
  - pertain to the hearth industry
  - be published within the certification period
  - be at least 500 words in length.
- The author must
  - submit application for CEUs within 60 days of publication
  - submit a copy of the article with publication name, date of publication, and word count
  - submit the type of CEU category of the article (Technical; Safety, Health & Liability, Professional Development Electives)

An approved article will be awarded 1 CEU for 500-999 words and 2 CEUs for 1000 words or more. Co-authored articles will be eligible for a percentage of the CEUs based on the number of listed authors (eg., .5 CEUs for a 500 word article listed with 2 authors). An article can only be submitted and awarded CEUs

once, regardless of the number of times it is published. The maximum number of CEUs that can be attained through published articles is 6.

3. CEU Education/Training Committee Work
   Participation in face-to-face organized meetings whose purpose is developing hearth industry education/certification programs is eligible for CEUs under the following requirements:
   - Only time spent in face to face meetings qualifies for CEUs.
   - There is a daily limit of 6 CEUs (12 per meeting).
   - The maximum number of CEUs that can be awarded for education/certification program development meetings is 16 in a certification period.

D. Tracking CEUs

1. NFI Certified Specialists are required to keep track of their attendance/progress. To assist in this effort, NFI records and tracks proof of attendance at CEU events that is submitted to NFI by the course sponsor and/or by the Specialist. The history of submitted CEUs is available at http://www.nficertified.org.
2. Should there be a discrepancy between NFI records and individual certified specialist records, the NFI certified specialist must submit proof of attendance to gain any disputed CEUs.

Questions?

Visit the NFI website at http://www.nficertified.org for additional information, exam and review course sites, to purchase NFI Exams and Study Materials, and to renew certifications.

If you need more information please contact NFI:

National Fireplace Institute
1901 N. Moore St.
Suite 600
Arlington, VA 22209

703-524-8030
703-522-0548

info@nficertified.org

14. Certification Policies & Procedures

Of the Masonry Heater Association of North America (Revised /19)

1.Introduction

The MHA is a professional association of masonry heater builders that was formed to advance the technology of masonry heating in North America and to increase the knowledge and skills of professional heater masons. The MHA fulfills its mandate by sponsoring laboratory research into masonry heating technology and by publishing information of interest to practitioners. The MHA also maintains a professional training and certification program to recognize the competency of qualified heater builders.
This manual has been prepared to assist candidates in achieving and maintaining MHA certification, and to guide the administration of the program.
The requirements presented in this manual have been established by the MHA Board of Directors and it is its sole responsibility to apply and interpret them, primarily through its administrative designate. The manual may be amended from time to time to account for changing conditions.

2. Application for Certification

2.1 Application Procedure

To initiate the application procedure, a person must be a full voting MHA member **"in good standing"**, and apply in writing to the MHA administrator and provide:

(a) Completed application form
(b) Purchase a copy of the Masonry Heater Association od North America Reference Manual in the amount of US $150. (rev. 1/19)

2.2 Administration

Upon receipt of a completed application form and fee, the administrator will supply the applicant with: Any additional documentation deemed necessary to prepare the applicant for the certification process. (rev, 1/19)

2.3 Certified Heater Mason Logo.

Any certified heater in good standing is allowed the use of the official Certified Heater Mason logo.
Contact MHA Executive Director to receive an electronic high resolution copy of the Certified Heater Mason logo.
(rev. 1/19).

3. Requirements for Certification

3.1 Professional Credentials Required

A candidate for MHA certification must demonstrate a working knowledge of relevant housing and fuel burning regulations, and sufficient knowledge of masonry work by providing proof* of successful completion of at least **ONE** of the following:

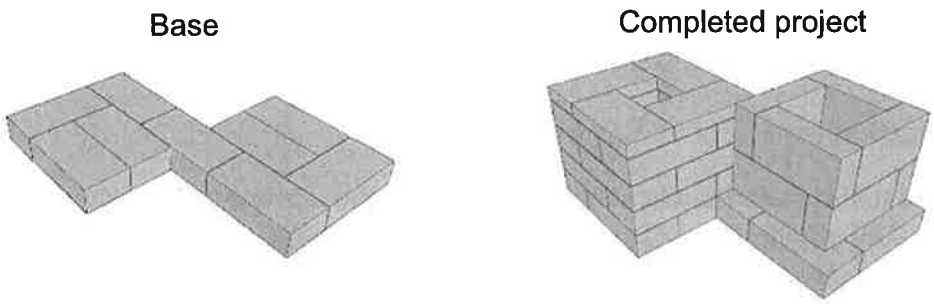
(a) A bricklayer apprenticeship program
(b) Certification issued by the Chimney Safety Institute of America (CSIA) (rev. 3/12)
(c) Certification issued by Wood Energy Technology Transfer Inc.
(d) Successful completion of a Level 1 HMED class or an equivalent professional credential deemed acceptable to the MHA (rev.3/12)

AND at least **ONE** of the following:

(e) 40 hours of work under the direct supervision of an MHA certified heater mason
(f) Successful completion of an MHA Hands-on Test, consisting of setting a combination of 38 full firebrick and 4 firebrick splits, using pre blended refractory mortar. The objective will be to build two adjacent square columns, in a 90 minute time period. Grading will be consistent with industry accepted standards for plumb, level, square, full joints, joint finish, and adherence to the time allotted. (rev. 1/19) *(see figure 26 below)*

Figure 26.

CAD drawing of the hands-on firebrick setting test (rev. 1/19)



** Proof of certification or participation i.e. copy of certificate, diploma, letter of successful completion. Other credentials can be judged for their equivalence.*

3.2 Field Experience

A candidate must provide evidence of a working knowledge of masonry heater design and construction as set out in the MHA Occupational Analysis Manual. The required evidence must consist of verifiable documentation of **THREE** masonry heater construction projects professionally contracted and completed within the **past five ye**ars.
The candidate must have served as the lead mason on at least **TWO** of the required projects.

One of those 2 projects must have a firebrick firebox (rev.3/12) Required documentation for **EACH** of the three projects must consist of the following:

(a) 12 photos of the project: (rev. 3/12)
Photo's required:

- Foundation
- Base pad and first course
- Core at floor level
- Core at firebox level
- Completed core
- Facing with soot doors or 1 foot from floor
- Facing at lintel level
- Downward picture of channels just before capping slab
- Completed heater front
- Completed heater rear
- Chimney connection
- Full post break-in fire through door

(b) a thorough description of the heater including firebox dimensions, overall dimensions, wall thicknesses, main materials used, including scale drawings with plan sectionals.
(c) the name and address of the client, and the date of construction.

3.3 Examination

(a) The candidate must achieve a passing grade on the MHA examination. The passing grade is 80 percent. (rev. 1/19)
(b) The taking of the examination may be administered by the MHA or
(c) The examination may be proctored by an independent agency such as a public library which is deemed acceptable by the administrator. The MHA will pay the proctor for the service. All other costs related to the proctoring of the examination will be paid by the candidate.
(d) The candidate may take the examination before the other certification requirements are met, but certification will not be granted until all requirements are satisfied.

3.4 Summary of Certification Requirements

To achieve certification under the Heater Mason Program, the candidate must:

(a) Purchase a copy of the Masonry Heater Association of North America Reference Manual. (rev. 1/19)		
(b) Supply a completed application form	2.1(a)	(rev. 1/19)
(b) pay the application fee of $150	2.1(b)	(rev. 1/19)
(c) provide proof of relevant professional credentials	3.1	
(d) provide documentation of three heater projects	3.2	
(e) pay the examination fee of $150	3.3(d)	(rev. 1/19)
(f) achieve a passing grade on the MHA examination	3.3(a)	(rev. 1/19)

4. Maintaining MHA Certification

4.1 Annual Certification Renewal

To maintain MHA certification in good standing, a certificate holder must be a MHA full voting member and pay an annual renewal fee of $50. The fee covers administrative costs, validation of renewal and information updates. Failure to pay the annual renewal fee will result in the withdrawal of certification after two payment notices have been sent and no response is received by the administrator within 90 days.

4.2 Continuing Education Requirement

Within each **three year period** after certification, the certificate holder must accrue MHA continuing education workshop points, or other relevant professional credentials deemed equivalent by the MHA. Points accrued must be a minimum of 8 to 9 each year or **25** or more for the **three year period**. (rev. 1/19)

In any **3 year period**, **CEU's** that are accumulated beyond the number needed to re-certify **do not carryover** to be used in the following **3 year period.** (Rev. 1/19)

Continued Education Credits, **(CEU's),** are awarded by the following:

- The instructor of a MHA sponsored workshop would be awarded **1 CEU** per 3 hours of instruction.
- The assistant instructor of a MHA HMED class would be awarded **1 CEU** per 4 hours of instruction.
- Participation in a MHA sponsored workshop would be awarded **1 CEU** per 4 hours of instruction.
- The instructor of a non sponsored MHA workshop would be awarded **1 CEU** per 4 hours of instruction.
- Participation in a non sponsored MHA seminar or workshop would be awarded **1 CEU** per 5 hours of instruction.
- Holding an elected position in MHA warrants **2 CEU's** per year.
- Chairman of a MHA committee warrants **2 CEU's** per year.
- Documentation of a site built masonry heater with written description, firebox plan drawing, owner contact information and at least 9 photo's would be awarded **3 CEU's**

Photos required:

1. Foundation
2. Base pad and first course
3. Core at floor level
4. Core at firebox level
5. Completed core
6. Facing with soot doors or 1 foot from floor
7. Downward picture of channels just before capping slab
8. Completed heater front
9. Chimney connection

- Documentation of a site built masonry heater core with written description, firebox plan drawing, owner contact information and at least 5 photo's would be awarded **2 CEU's**

Photos required:

1. Base pad and first course
2. Core at floor level
3. Core at firebox level
4. Completed core

- A complete 3 dimensional CAD model can be used in lieu of photos 1 – 3. Finished core photo is required

- Documentation of a site built masonry heater core with written description, firebox plan drawing, owner contact information and at least 5 photo's would be awarded **2 CEU's**

Photos required:

1. Base pad and first course
2. Core at floor level
3. Core at firebox level
4. Completed core

- A complete 3 dimensional CAD model can be used in lieu of photos 1 – 3. Finished core photo is required

NOTE: Failure to comply with the continuing education requirement will result in withdrawal of certification after two notices have been sent and no response is received by the administrator within 90 days.

4.3 Leave of Absence

Any Certified Heater Mason leaving North America or becoming inactive as a working mason must remain a paid Associate Member of MHA and keep annual certification fees up to date.