Environmental Protection Agency (EPA) Fiscal Year 2020 Agency Report

1. Please provide a summary of your agency's activities undertaken to carry out the provisions of OMB Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities" and the National Technology Transfer and Advance Act (NTTAA). The summary should contain a link to the agency's standards-specific website(s) where information about your agency's standards and conformity assessment related activities are available.

In FY2020 the United States Environmental Protection Agency (EPA) continued to comprehensively carry out the provisions of OMB Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities" and the National Technology Transfer and Advance Act (NTTAA).

In FY2019 EPA reported on the development of an internal process to approve and manage staff participation in Voluntary Consensus Standards (VCS) and other private sector standards. Consistent with OMB Circular A-119, this internal process helps to ensure that EPA's participation in private sector standards activities is aligned to our mission and strategic priorities, coordinated across the Agency, coordinated with other government agencies, and consistent with related laws and policies. This internal process additionally highlights the importance of Agency participation in standards development, as directed by the National Technology Transfer and Advancement Act (NTTAA) and OMB Circular A-119.

EPA continued implementation of this internal process in FY2020, including extensive outreach to managers and senior leadership responsible for EPA's 100+ staff currently participating in standards development activities. In FY2020 EPA offices continued to prioritize participation in VCS and other private sector standards development activities as an important means to advance EPA's mission.

We highlight the following as examples:

A. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Guidelines for Protecting Building Occupants from Smoke During Wildfire and Prescribed Burn Events Committee (GPC44).

Early in 2020, EPA's Office of Air and Radiation (OAR) and Office of Research and Development (ORD) worked with the National Institute of Standards and Technology (NIST) to propose that ASHRAE develop a guideline for protecting building occupants from smoke during wildfire and prescribed burn events. ASHRAE approved the proposal and a Committee (GP44) was formed in mid-2020. EPA's objectives are to ensure that the developed guideline includes the best technology and science related to monitoring of wildfire smoke and mitigating its health impacts. EPA also wants to ensure that the guideline aligns with current interagency guidance on mitigating the impacts of wildfire smoke. Because of the urgent need to protect building occupants from infiltration of wildfire smoke, a subset of this committee developed interim guidance in the fall of 2020. EPA was an integral part of this group that identified technical information from a range of disciplines (Heating, ventilation, and air conditioning (HVAC) engineers, epidemiologists, public health officials, architects) and synthesized it into an easy to understand process for building managers. The interim guidance emphasizes the importance of a smoke readiness plan, and addresses issues such as upgrading air filters, use of portable air cleaners, and HVAC system management during the SARS-CoV-2 pandemic. This interim guidance was approved by the full ASHRAE committee ahead of the 2021 wildfire season.

B. ASTM International committee E35 (Pesticides, Antimicrobials, and Alternative Control Agents), subcommittee E35.15 (Antimicrobial Agents)

EPA's Office of Pesticide Programs (OPP) within the Office of Chemical Safety and Pollution Prevention (OCSPP) actively participates with ASTM International Committee E35 and Subcommittee E35.15 to develop new and revise existing standard methods for disinfectant efficacy testing (e.g., towelette testing, laundry sanitizers, virology testing) and to advance relevant research in these areas. As of FY2020 there are twelve ASTM standards that pertain to OPP's regulatory guidance, including to the Series 810 - Product Performance Test Guidelines, which are generally intended to meet testing requirements for the

effectiveness of pesticide products under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). EPA staff serve as the technical contacts for five of these ASTM standards. Within the ASTM standards development process, technical contacts play an important role that may include serving as the primary author of a new or revised standard, addressing technical questions about the standard from the public, etc.

C. American National Standards Institute (ANSI) development of the Standardization Roadmap for Unmanned Aircraft Systems (Version 2.0)

EPA's Office of Pesticide Programs (OPP) within the Office of Chemical Safety and Pollution Prevention (OCSPP)
provided guidance and comment on the American National Standards Institute (ANSI) development of the Standardization Roadmap for Unmanned Aircraft Systems (Version 2.0). This roadmap was published by the ANSI Unmanned Aircraft System Standardization Collaborative (UASSC). The UASSC's mission is to coordinate and accelerate the development of the standards and conformity assessment programs needed to facilitate the safe integration of unmanned aircraft systems (UAS) – commonly known as drones – into the national airspace system (NAS) of the United States. The UASSC is also focused on international coordination and adaptability. The Roadmap identifies existing standards and standards in development, defines where gaps exist, and makes recommendations for priority areas where there is a perceived need for additional standardization. EPA's review and comment toward the roadmap provided related to the development of section 8.3.2 of the Roadmap, Pesticide Application.

D. NSF/ANSI/CAN 61: Drinking Water System Components

EPA's Office of Research and Development (ORD) participates in the NSF International committees responsible for developing NSF/ANSI/CAN 61. In FY 2020, the Office of Ground Water and Drinking Water (OGWDW) within EPA's Office of Water undertook rulemaking under the Reduction of Lead in Drinking Water Act (RLDWA). ORD and OGWDW worked closely to ensure that, as much as possible, modifications to NSF/ANSI/CAN 61 could be made to keep it consistent with RLDWA so that use of NSF/ANSI/CAN 61 could fulfil EPA's needs specified in the final rule "Use of Lead Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water." The revised NSF/ANSI/CAN 61 contains aspects that fulfill the RLDWA - as well as other aspects that go beyond the RLDWA – without imposing additional testing burden on the plumbing and plumbing products industry. This modification helped increase industry acceptance of the final rule since many plumbing manufacturers have a history of reliance on NSF/ANSI/CAN 61.

EPA has also been working within NSF/ANSI/CAN 61 to get the acceptance criterion for lead release certification under NSF/ANSI/CAN 61 Section 9 lowered, to provide better health protection against lead contamination for products used in schools and day care centers, as well as residences and commercial buildings. This revision to the NSF/ANSI/CAN 61 standard was done through the NSF standard Task Group process. With the 2020 edition of NSF/ANSI/CAN 61 the lower lead acceptance criterion became a voluntary test with new product labeling requirements to help consumers identify the lowest lead-leaching products. There is also a multi-year phase in to make the lower lead acceptance criterion a mandatory component of NSF/ANSI/CAN 61 in the future.

In addition, we highlight additional examples from FY 2019 that were not included in EPA's FY 2019 reporting:

A. NSF/ANSI 426-2018: Environmental Leadership and Corporate Social Responsibility Assessment of Servers

Rare earths are a key material used in hard disk drives used in servers. Mining of rare earths has significant impacts on water and soil quality, generates waste, and requires energy use. Reusing rare earths can help reduce the impacts of mining as well as increase the resiliency and security of the United States by ensuring access to these materials for new products. The U.S. government has indicated its interest in increasing recycling of rare earths and other critical minerals in EO13817 – A Federal Strategy

to Ensure Secure and Reliable Supplies of Critical Minerals.

EPA initiated development of criteria to include in NSF/ANSI 426 addressing these issues. EPA conducted outreach to and collaborated with the U.S. Department of Energy's (DOE's) Critical Materials Institute, Seagate (a major disk drive manufacturer), the Green Electronics Council (GEC), and other experts, encouraging them to participate in an NSF task group that would explore options and develop criterion for possible inclusion in NSF/ANSI 426. In FY2020 NSF/ANSI 426 incorporated criterion that:
• incentivize use of recycled rare earths in hard disk drives (criterion 7.1.4) and
• enable easier location of the hard disk drives for recyclers (criterion 9.2.4).

NSF/ANSI 426 is the first known standard built to help purchasers identify and procure more sustainable servers, and the first one in any sector known to incentivize use of recycled rare earths. At the time of the publication of this standard, there were no known instances of successful use of recycled rare earths in products. The criterion that incentivized use of recycled rare earths was included in the standard as an aspirational goal in the hopes of sparking some movement toward meeting this objective.

Spurred by the criterion in the NSF/ANSI 426, Dell decided to take on this challenge. Through the creation of innovative partnerships with suppliers, Dell was able to develop a new closed-loop process to recover the rare earth magnets from recovered enterprise equipment. The magnets are reformed for reuse in new hard-disk drives (HDDs) in Dell Latitude 5400 and 5500 notebooks.

During the pilot alone, Dell diverted 660 pounds of magnet material from landfills to create 25,000 HDDs. The process is scalable to use over 8,000 pounds of magnet material to create over 300,000 closed-loop HDDs annually. The same process can be adapted to build drives for other drive models by reshaping the magnets or even in other magnet industries such as magnetic resonance imaging (MRI) machines or electric vehicle motors. EPA awarded Dell a 2019 EPA Sustainable Materials Management Electronics Challenge Gold Award Winner for this work.

B. The NELAC (National Environmental Laboratory Accreditation Council) Institute (TNI)

Throughout FY2019, EPA's Office of Water collaborated with The NELAC (National Environmental Laboratory Accreditation Council) Institute (TNI) on updating and implementing TNI standards that focus on laboratory accreditation as it relates to the Clean Water Act (CWA). This collaboration helps to improve consistency of the various state wastewater laboratory certification programs, as essential components of each state's National Pollutant Discharge Elimination System (NPDES) permit program.

C. Standard Methods

EPA's Office of Water completed a collaborative effort with the Standard Methods Committee (which is responsible for developing Standard Methods for the Examination of Water and Wastewater) that began in FY2018 to develop a method for the analysis of peracetic acid (PAA) in wastewater. EPA supported the design of the method and a unique interlaboratory method validation study that brought together multiple analysts in a single location in order to validate the method for an analyte with a very short holding time (e.g., minutes). A proposed version of Standard Method 4500-PAA PERACETIC ACID (RESIDUAL) was published in October of 2019. EPA expects to propose the method for inclusion at 40 CFR 136 in a future rulemaking effort.

D. Standard Methods and ASTM International D19 Committee on Water

EPA's Office of Water is finalizing a Methods Update Rule (MUR) to allow the use of additional Voluntary Consensus Standards (VCSs) for determinations of microbial and chemical pollutants in wastewater. EPA proposed to revise 40 CFR 136 (October 22, 2019, 84 FR 56590), which lists analytical testing procedures (methods) required to be used by industries and municipalities when analyzing the chemical, physical, and biological properties of wastewater and other environmental samples for reporting under the EPA's National Pollutant Discharge Elimination System (NPDES) permit program. (https://www.federalregister.gov/documents/2019/10/22/2019-22437/clean-water-act-methods-update-rule-for-the-analysis-of-effluent)

EPA worked directly with the Standard Methods Committee and the ASTM D19 Committee to include, enhance, or clarify the quality control requirements associated these methods, where feasible. EPA then requested that these organizations submit to EPA new VCSs and revised versions of older VCSs to be considered for inclusion in a proposed Methods Update Rule (MUR) related to the NPDES permit program. Standard Methods and ASTM International submitted these revised VCSs with changes clearly identified and new VCSs with supporting performance data. EPA reviewed all information to ensure the methods were appropriate for use as alternatives to the existing EPA-approved methods for NPDES compliance monitoring. EPA published the proposed rule on October 22, 2019 and took public comments on the incorporation of these VCSs into the regulations at 40 CFR 136.3. All of these VCSs were favorably received by the public. EPA plans to finalize these methods into the 40 CFR 136.3 regulations in Spring 2021.

The MUR contained four revised microbiological and 27 revised chemical methods from Standard Methods, and 46 revised chemical methods and minor editorial changes from ASTM.

2. Please list the government-unique standards (GUS) your agency began using in lieu of voluntary consensus standards during FY 2020. Please note that GUS which are still in effect from previous years should continue to be listed, thus the total number in your agency's report will include all GUS currently in use (previous years and new as of this FY): 39

(1) Government Unique Standard
EPA Method 1 – Traverse Points, Stationary Sources [Incorporated: 2001]

Voluntary Standard
ASTM D3154-00, Standard Method for Average Velocity in a Duct (Pitot Tube Method)

Rationale
1. The standard appears to lack in quality control and quality assurance requirements. It does not include the following: (1) Proof that openings of standard pitot tube have not plugged during the test; (2) if differential pressure gauges other than inclined manometers (e.g., magnehelic gauges) are used, their calibration must be checked after each test series; and (3) the frequency and validity range for calibration of the temperature sensors. 2. They are too general, too broad, or not sufficiently detailed to assure compliance with EPA regulatory requirements.

Voluntary Standard
ASTM D3154-91 (1995), Standard Method for Average Velocity in a Duct (Pitot Tube Method)

Rationale
Is too general, too broad, or not sufficiently detailed to assure compliance with EPA regulatory requirements.

(2) Government Unique Standard
EPA Method 10 [Incorporated: 2015]

Voluntary Standard
ANSI/ASME PTC 19-10-1981-Part 10
ISO 10396:1993 (2007)
ISO 12039:2001
ASTM D5835-95 (2007)
ASTM D6522-00 (2005)

CAN/CSA Z223.2-M86 (1999)
CAN/CSA Z223.21-M1978
ASTM D3162-94 (2005)

Rationale
The use of these voluntary consensus standards would not be practical with applicable law due to a lack of equivalency, documentation, validation data and other important technical and policy considerations.

(3) Government Unique Standard
EPA Method 101 - Mercury Emissions, Chlor-Alkali Plants (Air) [Incorporated: 2001]

Voluntary Standard
ASTM D6216-98 - Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications.

Rationale
The EPA is incorporating ASTM D6216 (manufacturers certification) by reference into EPA Performance Specification 1, Sect. 5 & 6 in another rulemaking. ASTM D6216 does not address all the requirements specified in PS-1.

(4) Government Unique Standard
EPA Method 101a - Mercury Emissions Sewer/Sludge Incinerator [Incorporated: 2001]

Voluntary Standard
ASTM D6216-98 - Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications.

Rationale
The EPA is incorporating ASTM D6216 (manufacturers certification) by reference into EPA Performance Specification 1, Sect. 5 & 6 in another rulemaking. ASTM D6216 does not address all the requirements specified in PS-1.

(5) Government Unique Standard
EPA Method 10A – Carbon Monoxide for Certifying CEMS [Incorporated: 2001]

Voluntary Standard
CAN/CSA Z223.21-M1978, Method for the Measurement of Carbon Monoxide: 3—Method of Analysis by Non-Dispersive Infrared Spectrometry.

Rationale
1. It is lacking in the following areas: (1) Sampling procedures; (2) procedures to correct for the carbon dioxide concentration; (3) instructions to correct the gas volume if CO2 traps are used; (4) specifications to certify the calibration gases are within 2 percent of the target concentration; (5) mandatory instrument performance characteristics (e.g., rise time, fall time, zero drift, span drift, precision); (6) quantitative specification of the span value maximum as compared to the measured value: The standard specifies that the instruments should be compatible with the concentration of gases to be measured, whereas EPA Method 10 specifies that the instrument

span value should be no more than 1.5 times the source performance standard. 2. Is too general, too broad, or not sufficiently detailed to assure compliance with EPA regulatory requirements.

(6) Government Unique Standard
EPA Method 12 – Inorganic Lead, Stationary Sources [Incorporated: 2000]

Voluntary Standard
ASTM D4358-94 (1999), Standard Test Method for Lead and Chromium in Air Particulate Filter Samples of Lead Chromate Type Pigment Dusts by Atomic Absorption Spectroscopy

Rationale
These ASTM standards do not require the use of glass fiber filters as in EPA Method 12 and require the use of significantly different digestion procedures that appear to be milder than the EPA Method 12 digestion procedure. For these reasons, these ASTM standards cannot be considered equivalent to EPA Method 12. Also, the subject ASTM standards do not require the use of hydrogen fluoride (HF) as in EPA Method 29 and, therefore, they cannot be used for the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires the use of a glass fiber filter, whereas these three ASTM standards require cellulose filters and other probable nonglass fiber media, which cannot be considered equivalent to EPA Method 29.

Voluntary Standard
ASTM E1741-95 (1995), Standard Practice for Preparation of Airborne Particulate Lead Samples Collected During Abatement and Construction Activities for Subsequent Analysis by Atomic Spectrometry

Rationale
These ASTM standards do not require the use of glass fiber filters as in EPA Method 12 and require the use of significantly different digestion procedures that appear to be milder than the EPA Method 12 digestion procedure. For these reasons, these ASTM standards cannot be considered equivalent to EPA Method 12. Also, the subject ASTM standards do not require the use of hydrogen fluoride (HF) as in EPA Method 29 and, therefore, they cannot be used for the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires the use of a glass fiber filter, whereas these three ASTM standards require cellulose filters and other probable nonglass fiber media, which cannot be considered equivalent to EPA Method 29.

Voluntary Standard
ASTM E1979-98 (1998), Standard Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead

Rationale
These ASTM standards do not require the use of glass fiber filters as in EPA Method 12 and require the use of significantly different digestion procedures that appear to be milder than the EPA Method 12 digestion procedure. For these reasons, these ASTM standards cannot be considered equivalent to EPA Method 12. Also, the subject ASTM standards do not require the use of hydrogen fluoride (HF) as in EPA Method 29 and, therefore, they cannot be used for the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires

the use of a glass fiber filter, whereas these three ASTM standards require cellulose filters and other probable nonglass fiber media, which cannot be considered equivalent to EPA Method 29.

(7) Government Unique Standard
EPA Method 15 – Determination of Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide Emissions from Stationary Sources [Incorporated: 2018]

Voluntary Standard
ASTM D4323-84 (2009) - Standard Test Method for Hydrogen Sulfide in the Atmosphere by Rate of Change of Reflectance

Rationale
This standard is not acceptable as an alternative to EPA Method 15 since it only applies to concentrations of H2S from 1 ppb to 3 ppm without dilution, which is likely to be lower than the levels at source conditions. Also, many quality control items are missing in ASTM D4323, such as checks for calibration drift and sample line losses. The calibration curve is also determined with only one point, as opposed to a multi-point curve of EPA Method 15.

(8) Government Unique Standard
EPA Method 17 - Particle Matter (PM) In Stack Filtration [Incorporated: 2001]

Voluntary Standard
ASME C00049

Rationale
EPA looked at this standard for both Pulp and Paper Hazardous Air Pollutant rules and for the Small Municipal Waste Combustion rule. Contains sampling options beyond which would be considered acceptable for Method 5.

Voluntary Standard
ASTM D3685/3685M-95 - Standard Test method for Sampling and Determination of Particle Matter in Stack Gases

Rationale
EPA looked at this standard for both Pulp and Paper Hazardous Air Pollutant rules and for the Small Municipal Waste Combustion rule. Contains sampling options beyond which would be considered acceptable for Method 5.

(9) Government Unique Standard
EPA Method 18 [Incorporated: 2016]

Voluntary Standard
ASTM D6420-99 (2010)
ASTM D6060-17

Rationale
ASTM D6420-99 (2010) “Test method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography/Mass Spectrometry”

The use of this voluntary consensus standard would not be practical due to a lack of equivalency, documentation, validation data and other important technical and policy considerations. The EPA did not receive comments during the notice and comment period that caused us to alter the standards and methods in the final permits.
ASTM D6060-17 - Practice for Sampling of Process Vents with a Portable Gas Chromatography
This ASTM standard lacks key quality control and assurance requirements included in EPA Method 18. For example, ASTM D6060: 1) lacks the requirement of three reference standards in triplicate; 2) lacks the calibration acceptance criteria that the triplicate calibration standards agree within 5 percent of their average; 3) lacks a post-sampling volume flow rate check and requirement to repeat the test if the pre- and post-test flowrates differ by more than 20 percent; 4) lacks triplicate samples for recovery tests and allows a 15 percent difference between the pre-test and recovery test data vs. 10 percent for Method 18; 4) lacks the accuracy performance criteria of 10 percent of the preparation value for audit samples; 5) lacks reporting/documentation requirements. Also, ASTM D6060 does not include procedures for sample collection using other media, such as bags and solid sorbents.

(10) Government Unique Standard
EPA Method 2 – Velocity and S-type Pitot [Incorporated: 1999]

Voluntary Standard
ASTM D3464-96 (2001)
ASTM D3154 – 00 (2014)
ASTM D3463-96 (2014)
ASTM D3796-90 (2016)
ASME B133.9-1994 (2001)

Rationale
ASTM D3464-96 (2001), Standard Test Method Average Velocity in a Duct Using a Thermal Anemometer: Applicability specifications are not clearly defined, e.g., range of gas composition, temperature limits. Also, the lack of supporting quality assurance data for the calibration procedures and specifications, and certain variability issues that are not adequately addressed by the standard limit EPA's ability to make a definitive comparison of the method in these areas.
ASTM D3154 – 00 (2014), Standard Method for Average Velocity in a Duct (Pitot Tube Method): (added to Annual Report in FY2018) This standard appears to cover EPA's Part 60 Methods 1, 2, 2C, 3, 3B, 4, but lacks in quality control and quality assurance requirements. Specifically, ASTM D3154 00 does not include the following: 1) proof that openings of standard pitot tube have not plugged during the test; 2) if differential pressure gauges other than inclined manometers (e.g., magnehelic gauges) are used, heir calibration must be checked after each test series; and 3) the frequency and validity range for calibration of the temperature sensors. (not for EPA Methods 1, 2, 2C, 3, 3B, 4).
ASTM D3463-96 (2014), Standard Test Method Average Velocity in a Duct Using a Thermal Anemometer: (added to Annual Report in FY2018) The applicability specifications in this ASTM standard are not clearly defined, e.g., range of gas composition, temperature limits. Also, the lack of supporting quality assurance data for the calibration procedures and specifications, and certain variability issues that are not adequately addressed by the standard limit EPA's

ability to make a definitive comparison of the method in these areas.
ASTM D3796-90 (2016), Standard Practice for Calibration of Type S Pitot Tubes: (added to Annual Report in FY2018) This ASTM standard is intended to be a calibration procedure for the S-type pitot tube and not a method by which stack gas velocity and/or volumetric flowrates can be measured as in EPA Method 2. In addition, the calibration procedure does not require an inclined manometer and does not specify any additional accuracy verifications for the use of other types of differential pressure gauges.
ASME B133.9-1994 (2001) - Measurement of Exhaust Emissions from Stationary Gas Turbine Engines (this is the latest version, method has been withdrawn with no future updates): (added to Annual Report in FY2018) Not a quantitative method, per se, although a good primer for this source category that includes technical descriptions of manual and instrumental sampling procedures, as well as performance specifications for instrumental methods. This standard has many good references, including the EPA Methods and Performance Specifications. Only use for engines and turbines. Not a method. (not for EPA Methods 2, 3A, 4, 5).

Voluntary Standard
ISO 10780:1994, Stationary Source Emissions-- Measurement of Velocity and Volume Flowrate of Gas Streams in Ducts

Rationale
The standard recommends the use of an L-shaped pitot, which historically has not been recommended by EPA. The EPA specifies the S-type design, which has large openings that are less likely to plug up with dust.

(11) Government Unique Standard
EPA Method 21 - Volatile Organic Compound (VOC) Leaks [Incorporated: 2003]

Voluntary Standard
ASTM E1211-97 - Standard Practice for Leak Detection and Location Using Surface-Mounted Acoustic Emission Sensors

Rationale
This standard will detect leaks but not classify the leak as VOC, as in EPA Method 21. In addition, in order to detect the VOC concentration of a known VOC leak, the acoustic signal would need to be calibrated against a primary instrument. Background noise interference in some source situations could also make this standard difficult to use effectively.

(12) Government Unique Standard
EPA Method 24 – Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coating [Incorporated: 2018]

Voluntary Standard
ASTM D3960-05, ASTM D6053-14, ISO 11890-1 (2000), ISO 11890-2 (2000) Part 2, ISO 3233:1998

Rationale
ASTM D3960-05 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coating: This standard measures the VOC content whereas EPA

Method 24 determines volatile matter content (and water content, density, volume solids, and weight solids). If the regulation allows for the use of VOC content as a surrogate for HAP, then this method is an acceptable alternative to Method 24. If the regulation requires the measurement of volatile matter content, as in Method 24, then this standard is not acceptable;
ASTM D6053-14 - Standard Test Method for Determination of Volatile Organic Compound (VOC) Content of Electrical Insulating Varnishes: Under a separate action, the EPA is incorporating ASTM D6053-96 by reference into EPA Method 24. This standard will only be applicable for a specific type of coating (electrical insulating varnishes). Specimen size for magnet wire coating must be 2.0 grams +/- 0.1 grams;
ISO 11890-1 (2000) Part 1: Paints and Varnishes Determination of Volatile Organic Compound (VOC) Content Difference Method: This standard has different test conditions than EPA Method 24 and therefore is unacceptable as an alternative to Method 24 because measured nonvolatile matter content can vary with experimental factors such as temperature, length of heating period, size of weighing dish, and size of sample. ISO 11890-1 allows for different dish weights and sample sizes than the one size (58 mm in diameter and sample size of 0.5 g) of EPA Method 24. ISO 11890-1 also allows for different oven temperatures and heating times depending on the type of coating, whereas EPA Method 24 requires 60 minutes heating at 110oC at all times. Nonvolatile matter content is not an absolute quantity but is dependent on temperature and heating period. The size of the weighing dish and the size of the sample may also affect the nonvolatile matter measured. Because the EPA Method 24 test conditions and procedures define volatile matter, ISO 11890 1 is unacceptable as an alternative;
ISO 11890-2 (2000) Part 2: Paints and Varnishes-Determination of Volatile Organic Compound (VOC) Content Gas Chromatographic Method: This standard only measures the VOC added to the coating and would not measure any VOC generated from the curing of the coating. The EPA Method 24 does measure cure VOC, which can be significant in some cases, and, therefore, ISO 11890-2 is not an acceptable alternative to EPA Method 24.
ISO 3233:1998 - Paints and Varnishes-Determination of Percentage Volume of Nonvolatile Matter by Measuring the Density of a Dried Coating: This ISO standard is more applicable as a manufacturing tool than an emissions standard, since it measures the amount of coverage of a coating using a dipping plate.

(13) Government Unique Standard
EPA Method 28 (Section 10.1) – Wood Heaters, Certificate and Auditing [Incorporated: 2003]

Voluntary Standard
ASME Power Test Codes, Supplement on Instruments and Apparatus, part 5, Measurement of Quantity of Materials, Chapter 1, Weighing Scales

Rationale
It does not specify the number of initial calibration weights to be used nor a specific pretest weight procedure.

Voluntary Standard
ASTM E319-85 (Reapproved 1997), Standard Practice for the Evaluation of Single-Pan Mechanical Balances

Rationale
This standard is not a complete weighing procedure because it does not include a pretest procedure.

(14) Government Unique Standard
EPA Method 29 – Metals Emissions from Stationary Sources [Incorporated: 2001]

Voluntary Standard
ASTM D4358-94 (1999), Standard Test Method for Lead and Chromium in Air Particulate Filter Samples of Lead Chromate Type Pigment Dusts by Atomic Absorption Spectroscopy

Rationale
These ASTM standards do not require the use of glass fiber filters as in EPA Method 12 and require the use of significantly different digestion procedures that appear to be milder than the EPA Method 12 digestion procedure. For these reasons, these ASTM standards cannot be considered equivalent to EPA Method 12. Also, the subject ASTM standards do not require the use of hydrogen fluoride (HF) as in EPA Method 29 and, therefore, they cannot be used for the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires the use of a glass fiber filter, whereas these three ASTM standards require cellulose filters and other probable nonglass fiber media, which cannot be considered equivalent to EPA Method 29.

Voluntary Standard
ASTM E1741-95 (1995), Standard Practice for Preparation of Airborne Particulate Lead Samples Collected During Abatement and Construction Activities for Subsequent Analysis by Atomic Spectrometry

Rationale
These ASTM standards do not require the use of glass fiber filters as in EPA Method 12 and require the use of significantly different digestion procedures that appear to be milder than the EPA Method 12 digestion procedure. For these reasons, these ASTM standards cannot be considered equivalent to EPA Method 12. Also, the subject ASTM standards do not require the use of hydrogen fluoride (HF) as in EPA Method 29 and, therefore, they cannot be used for the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires the use of a glass fiber filter, whereas these three ASTM standards require cellulose filters and other probable nonglass fiber media, which cannot be considered equivalent to EPA Method 29.

Voluntary Standard
ASTM E1979-98 (1998), Standard Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead

Rationale
These ASTM standards do not require the use of glass fiber filters as in EPA Method 12 and require the use of significantly different digestion procedures that appear to be milder than the EPA Method 12 digestion procedure. For these reasons, these ASTM standards cannot be considered equivalent to EPA Method 12. Also, the subject ASTM standards do not require the use of hydrogen fluoride (HF) as in EPA Method 29 and, therefore, they cannot be used for the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires

the use of a glass fiber filter, whereas these three ASTM standards require cellulose filters and other probable nonglass fiber media, which cannot be considered equivalent to EPA Method 29.

Voluntary Standard
CAN/CSA Z223.26-M1987, Measurement of Total Mercury in Air Cold Vapour Atomic Absorption Spectrophotometeric Method

Rationale
It lacks sufficient quality assurance and quality control requirements necessary for EPA compliance assurance requirements.

(15) Government Unique Standard
EPA Method 29 for the determination of the concentration of Hg [Incorporated: 2015]

Voluntary Standard
ASTM D6784-02 (2008), "Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)"

Rationale
The use of this voluntary consensus standard would be more expensive and is inconsistent with the final Hg standard that was determined using EPA Method 29 data.

(16) Government Unique Standard
EPA Method 29, "Metals Emissions from Stationary Sources" [Incorporated: 2017]

Voluntary Standard
ASTM D6784–02 (Reapproved 2008), ''Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)''

Rationale
The use of this voluntary consensus standard would be impractical because this standard is only acceptable as an alternative to the portion of EPA Method 29 for mercury, and emissions testing for mercury alone is not required under 40 CFR part 63, subpart MM.

(17) Government Unique Standard
EPA Method 2C - Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube) [Incorporated: 2018]

Voluntary Standard
ASTM D3154 – 00 (2014), Standard Method for Average Velocity in a Duct (Pitot Tube Method)

Rationale
This standard appears to cover EPA's Part 60 Methods 1, 2, 2C, 3, 3B, 4, but lacks in quality control and quality assurance requirements. Specifically, ASTM D3154 00 does not include the following: 1) proof that openings of standard pitot tube have not plugged during the test; 2) if

differential pressure gauges other than inclined manometers (e.g., magnehelic gauges) are used, heir calibration must be checked after each test series; and 3) the frequency and validity range for calibration of the temperature sensors. (not for EPA Methods 1, 2, 2C, 3, 3B, 4)

(18) Government Unique Standard
EPA Method 3 – Gas Analysis for The Determination of Dry Molecular Weight [Incorporated: 2018]

Voluntary Standard
ASTM D3154 – 00 (2014), Standard Method for Average Velocity in a Duct (Pitot Tube Method)

Rationale
This standard appears to cover EPA's Part 60 Methods 1, 2, 2C, 3, 3B, 4, but lacks in quality control and quality assurance requirements. Specifically, ASTM D3154 00 does not include the following: 1) proof that openings of standard pitot tube have not plugged during the test; 2) if differential pressure gauges other than inclined manometers (e.g., magnehelic gauges) are used, heir calibration must be checked after each test series; and 3) the frequency and validity range for calibration of the temperature sensors. (not for EPA Methods 1, 2, 2C, 3, 3B, 4)

(19) Government Unique Standard
EPA Method 301- Field Validation of Pollutant Measurement Methods from Various Waste Media [Incorporated: 2018]

Voluntary Standard
ASTM D4855-97 (2002) - Standard Practice for Comparing Test Methods

Rationale
This ASTM standard appears to be equivalent to EPA Method 301 in its statistical design and decision criteria but is less prescriptive than Method 301 for many procedures. For example, the ASTM does not require the use of a t-test explicitly to test the precision of the alternative method, but instead states that a t-test or F-test should be used, as appropriate. The primary difference between ASTM D4855-97 and EPA Method 301, that makes the ASTM standard not acceptable as a complete alternative to the EPA method, is that the ASTM standard addresses the testing of materials rather than environmental samples. Because of this difference, the ASTM standard does not prescribe the use of paired samples as in the EPA method. This feature of EPA Method 301 is critical to its success and the acceptability of an alternate standard.

(20) Government Unique Standard
EPA Method 306 - Chromium Emissions, Electroplating and Anodizing [Incorporated: 2002]

Voluntary Standard
ASTM D4358-94 (1999) - Standard Test Method for Lead and Chromium in Air Particulate Filter Samples of Lead Chromate Type Pigment Dusts by Atomic Absorption Spectroscopy

Rationale
This MACT standard (Petroleum Refineries) only cites Method 29. Therefore, the following EPA comment is only applicable for Method 29 not Method 12 and 306: Method 29 requires the

use of hydrofluoric acid (HF) in its process of digestion of the sample. ASTM D4358-94 (1999) does not require the use of HF; therefore, it cannot be used in the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires the use of a glass fiber filter, whereas the subject ASTM standard requires cellulose filters and other probable non-glass fiber media, and this further negates their use as Method 29 equivalent methods. (Same comment as provided for ASTM E1741 and ASTM E1979).

(21) Government Unique Standard
EPA Method 306a - Chromium Emissions, Electroplating -- Mason Jar [Incorporated: 2002]

Voluntary Standard
ASTM D4358-94 (1999) - Standard Test Method for Lead and Chromium in Air Particulate Filter Samples of Lead Chromate Type Pigment Dusts by Atomic Absorption Spectroscopy

Rationale
This MACT standard (Petroleum Refineries) only cites Method 29. Therefore, the following EPA comment is only applicable for Method 29 not Method 12 and 306: Method 29 requires the use of hydrofluoric acid (HF) in its process of digestion of the sample. ASTM D4358-94 (1999) does not require the use of HF; therefore, it cannot be used in the preparation, digestion, and analysis of Method 29 samples. Additionally, Method 29 requires the use of a glass fiber filter, whereas the subject ASTM standard requires cellulose filters and other probable non-glass fiber media, and this further negates their use as Method 29 equivalent methods. (Same comment as provided for ASTM E1741 and ASTM E1979).

(22) Government Unique Standard
EPA Method 311 "Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection Into a Gas Chromatograph" [Incorporated: 2015]

Voluntary Standard
ASTM D6438 (1999)—Standard Test Method for Acetone, Methyl Acetate, and Parachlorobenzotrifluoride Content of Paints and Coatings by Solid Phase Microextraction-Gas Chromotography

Rationale
This methods is impractical as an alternative to EPA Method 311 because it targets chemicals that are VOC and are not HAP

(23) Government Unique Standard
EPA Method 3A – Carbon Dioxide and Oxygen Concentrations, IAP [Incorporated: 1999]

Voluntary Standard
ISO 12039:2001
ANSI/ASME PTC 19-10-1981(2010)
ISO 10396:(2007)
ASTM D5835-95 (2013)
ASTM D6522-11
ASTM D6522
CAN/CSA Z223.2-M86 (R1999)

Rationale

ISO 12039:2001, Stationary Source Emissions-- Determination of Carbon Monoxide, Carbon Dioxide, and Oxygen--Automated Methods: This ISO standard is similar to EPA Method 3A, but is missing some key features. In terms of sampling, the hardware required by ISO 12039:2001 does not include a 3-way calibration valve assembly or equivalent to block the sample gas flow while calibration gases are introduced. In its calibration procedures, ISO 12039:2001 only specifies a two-point calibration while EPA Method 3A specifies a three-point calibration. Also, ISO 12039:2001 does not specify performance criteria for calibration error, calibration drift, or sampling system bias tests as in the EPA method, although checks of these quality control features are required by the ISO standard.

ANSI/ASME PTC 19-10-1981(2010) - Part 10 Flue and Exhaust Gas Analyses: (added to Annual Report in FY2018) This standard includes manual and instrumental methods of analyses for carbon dioxide (CO2), carbon monoxide (CO), hydrogen sulfide (H2S), nitrogen oxides (NOx), oxygen (O2), and sulfur dioxide (SO2). The VCS method analytes that include one or more of the same techniques as the EPA methods are as follows: CO2 [manual (3B, 6A and 6B) and instrumental (3A and 3C)]; CO [manual (3B) and instrumental (10 and 10B)], H2S [manual (15A and 16A) and instrumental (15, 16, and 16B)], NOx [manual (7 and 7C) and instrumental (7A, 7B, 7E, 20)], O2 [manual (3B) and instrumental (3A, 3C, 20)], and SO2 [manual (6, 6A, 6B, 20) and instrumental (6C)]. The manual methods are all acceptable alternatives to the corresponding EPA test methods (3B, 6, 6A, 6B, 7, 7C, 15A, 16A, 20 (SO2 part of 20 only)). [Note that one of the standard's manual SO2 procedures incorporates EPA Method 6 in its entirety]. For the standard's instrumental procedures, only general descriptions of the procedures are included which are not true methods. Therefore, the instrumental procedures (3A, 3C, 6C, 7A, 7B, 7E, 10, 10B, 15, 16, 16B, 20 (NOx part of 20 only)) are not acceptable alternatives to the corresponding EPA methods.

ISO 10396:(2007) - Stationary Source Emissions: Sampling for the Automated Determination of Gas Concentrations: (added to Annual Report in FY2018) This standard is similar to EPA Methods 3A, 6C, 7E, 10, 20 (nitrogen oxides and oxygen parts of 20 only), ALT 004, CTM 022, but lacks in detail and quality assurance/quality control requirements. Specifically, ISO 10396 does not include the following: 1) sensitivity of the method; 2) acceptable levels of analyzer calibration error; 3) acceptable levels of sampling system bias; 4) zero drift and calibration drift limits, time span, and required testing frequency; 5) a method to test the interference response of the analyzer; 6) procedures to determine the minimum sampling time per run and minimum measurement time; 7) specifications for data recorders, in terms of resolution (all types) and recording intervals (digital and analog recorders, only). This standard is also very similar to ASTM D5835.

ASTM D5835-95 (2013) - Standard Practice for Sampling Stationary Source Emissions for Automated Determination of Gas Concentration: (added to Annual Report in FY2018) This standard is similar to EPA Methods 3A, 6C, 7E, 10, 20 (nitrogen oxides and oxygen parts of 20 only), ALT 004, CTM 022, but lacks in detail and quality assurance/quality control requirements. Specifically, ASTM D5835-95 does not include the following: 1) sensitivity of the method; 2) acceptable levels of analyzer calibration error; 3) acceptable levels of sampling system bias; 4) zero drift and calibration drift limits, time span, and required testing frequency; 5) a method to test the interference response of the analyzer; 6) procedures to determine the minimum sampling time per run and minimum measurement time; 7) specifications for data recorders, in terms of resolution (all types) and recording intervals (digital and analog recorders,

only). This standard is also very similar to ISO 10396.
ASTM D6522-11 - Standard Test Method for the Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers and Process Heaters Using Portable Analyzers: (added to Annual Report in FY2018) ASTM D6522 has been determined to be technically appropriate for identifying nitrogen oxides, carbon monoxide, and oxygen concentrations when the fuel is natural gas.
CAN/CSA Z223.2-M86 (R1999) - Method for the Continuous Measurement of Oxygen, Carbon Dioxide, Carbon Monoxide, Sulphur Dioxide, and Oxides of Nitrogen in Enclosed Combustion Flue Gas Streams: (added to Annual Report in FY2018) This standard is unacceptable as a substitute for EPA Methods 3A, 6C, 7E, 10, 10A, and 20 (nitrogen oxides and oxygen parts of 20 only), since it does not include quantitative specifications for measurement system performance, most notably the calibration procedures and instrument performance characteristics. The instrument performance characteristics that are provided are non-mandatory and also do not provide the same level of quality assurance as the EPA methods. For example, the zero and span/calibration drift is only checked weekly, whereas the EPA methods requires drift checks after each run.

(24) Government Unique Standard
EPA Method 3B – Gas Analysis for the determination of emission rate correction Factor for Excess Air [Incorporated: 2018]

Voluntary Standard
ASTM D3154 – 00 (2014), Standard Method for Average Velocity in a Duct (Pitot Tube Method)

Rationale
This standard appears to cover EPA's Part 60 Methods 1, 2, 2C, 3, 3B, 4, but lacks in quality control and quality assurance requirements. Specifically, ASTM D3154 00 does not include the following: 1) proof that openings of standard pitot tube have not plugged during the test; 2) if differential pressure gauges other than inclined manometers (e.g., magnehelic gauges) are used, heir calibration must be checked after each test series; and 3) the frequency and validity range for calibration of the temperature sensors. (not for EPA Methods 1, 2, 2C, 3, 3B, 4)

(25) Government Unique Standard
EPA Method 4 – Determination of Moisture Content in Stack Gas [Incorporated: 2018]

Voluntary Standard
a. ASTM D3154-00 (2014) Standard Method for Average Velocity in a Duct (Pitot Tube Method)

b. ASME B133.9-1994 (2001) - Measurement of Exhaust Emissions from Stationary Gas Turbine Engines

Rationale
a. This standard appears to cover EPA's Part 60 Methods 1, 2, 2C, 3, 3B, 4, but lacks in quality control and quality assurance requirements. Specifically, ASTM D3154 00 does not include the following: 1) proof that openings of standard pitot tube have not plugged during the test; 2) if

differential pressure gauges other than inclined manometers (e.g., magnehelic gauges) are used, heir calibration must be checked after each test series; and 3) the frequency and validity range for calibration of the temperature sensors. (not for EPA Methods 1, 2, 2C, 3, 3B, 4)

b. Not a quantitative method, per se, although a good primer for this source category that includes technical descriptions of manual and instrumental sampling procedures, as well as performance specifications for instrumental methods. This standard has many good references, including the EPA Methods and Performance Specifications. Only use for engines and turbines. Not a method. (not for EPA Methods 2, 3A, 4, 5).

(26) Government Unique Standard
EPA Method 5 [Incorporated: 2015]

Voluntary Standard
ASME B133.9-1994 (2001)
ISO 9096:1992 (2003)
ANSI/ASME PTC-38-1980 (1985)
ASTM D3685/D3685M-98 (2005)
CAN/CSA Z223.1-M1977

Rationale
The use of these voluntary consensus standards would not be practical with applicable law due to a lack of equivalency, documentation, validation data and other important technical and policy considerations.

(27) Government Unique Standard
EPA Method 515.4 – Chlorinated Acids in DW by LL Fast CG/ECD [Incorporated: 2003]

Voluntary Standard
ASTM D5317-98 -- Standard Test Method For Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography With an Electron Capture Detector

Rationale
ASTM D5317-98 specifies acceptance windows for the initial demonstration of proficiency for laboratory fortified blank samples that are as small as 0 percent to as large as 223 percent recovery for picloram, with tighter criteria for other regulated contaminants. Therefore, this method permits unacceptably large control limits, which include 0 percent recovery.

Voluntary Standard
Standard Method 6640 B for the chlorinated acids

Rationale
The use of this voluntary consensus standard would have been impractical due to significant shortcomings in the sample preparation and quality control sections of the method instructions. Section 1b of Method SM 6640 B states that the alkaline wash detailed in section 4b2 is optional. The hydrolysis that occurs during this step is essential to the analysis of the esters of many of the analytes. Therefore, this step is necessary and cannot be optional. In addition, the method specifies that the quality control limits for laboratory-fortified blanks are to be based

upon plus or minus three times the standard deviation of the mean recovery of the analytes, as determined in each laboratory. Therefore, this method permits unacceptably large control limits, which may include 0 percent recovery.

(28) Government Unique Standard
EPA Method 531.2 – N-Methylcarbamoylozimes/ates, Aqueous In/HPLC [Incorporated: 2003]

Voluntary Standard
Standard Method 6610, 20th Edition

Rationale
Standard Method 6610, 20th Edition has recently been approved for compliance monitoring. Standard Method 6610, 20th Supplemental Edition permits the use of a strong acid, hydrochloric acid (HCL), as a preservative. The preservatives in all of the other approved EPA and Standard Methods procedures for these analytes are weak acids that adjust the pH to a specific value based upon the pKa of the preservative. The use of HCL would require accurate determinations of the pH of the sample in the field and could be subject to considerable error and possible changes in pH upon storage. Although not specifically observed for oxamyl or carbofuran during the development of similar methods, structurally similar pesticides have been shown to degrade over time when kept at pH 3. Therefore, approval of this method is impractical because it specifies the use of a strong acid (HCL) when positive control of the pH is critical.

Voluntary Standard
Standard Method 6610, 20th Supplemental Edition

Rationale
Standard Method 6610, 20th Edition has recently been approved for compliance monitoring. Standard Method 6610, 20th Supplemental Edition permits the use of a strong acid, hydrochloric acid (HCL), as a preservative. The preservatives in all of the other approved EPA and Standard Methods procedures for these analytes are weak acids that adjust the pH to a specific value based upon the pKa of the preservative. The use of HCL would require accurate determinations of the pH of the sample in the field and could be subject to considerable error and possible changes in pH upon storage. Although not specifically observed for oxamyl or carbofuran during the development of similar methods, structurally similar pesticides have been shown to degrade over time when kept at pH 3. Therefore, approval of this method is impractical because it specifies the use of a strong acid (HCL) when positive control of the pH is critical.

(29) Government Unique Standard
EPA Method 5i - Low Level Particulate Matter, Stationary Sources [Incorporated: 2001]

Voluntary Standard
ASTM D6331-98

Rationale
This standard does not have paired trains as specified in method 5 and does not include some

quality control procedures specified in the EPA method and which are appropriate to use in this rule.

(30) Government Unique Standard
EPA Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources [Incorporated: 2018]

Voluntary Standard
a. ISO 7934:1998 (2016) - Stationary Source Emissions Determination of the Mass Concentration of Sulfur Dioxide Hydrogen Peroxide/Barium Perchlorate/Thorin Method

b. ISO 11632:1998 (2016) - Stationary Source Emissions Determination of the Mass Concentration of Sulfur Dioxide Ion Chromatography

Rationale
a. This standard is only applicable to sources with 30 mg/m3 SO2 or more. Also, this standard does not separate SO3 from SO2 as does the EPA methods; therefore, ISO 7934:1998 is not valid if more than a negligible amount of SO3 is present. Also, it does not address ammonia interferences.

b. Sampling procedures are similar to EPA Method 6, but lacks in detail and quality control procedures, such as calibration checks and leaks tests.

(31) Government Unique Standard
EPA Method 7E [Incorporated: 2015]

Voluntary Standard
ANSI/ASME PTC 19-10-1981-Part 10
ISO 10396:1993 (2007)
ASTM D5835-95 (2007)
CAN/CSA Z223.2-M86 (1999)

Rationale
The use of these voluntary consensus standards would not be practical with applicable law due to a lack of equivalency, documentation, validation data and other important technical and policy considerations.

(32) Government Unique Standard
EPA Method 9 [Incorporated: 2016]

Voluntary Standard
ASTM D7520-09 “Standard Test Method for Determining Opacity of a Plume in the Outdoor Ambient Atmosphere”

Rationale
The use of this voluntary consensus standard would not be practical due to a lack of equivalency, documentation, validation data and other important technical and policy

considerations. The EPA did not receive comments during the notice and comment period that caused us to alter the standards and methods in the final permits.

(33) Government Unique Standard
EPA Method ALT 004 [Incorporated: 2002]

Voluntary Standard
ASTM D5835-95 - Standard Practice for Sampling Stationary Source Emissions for Automated Determination of Gas Concentration

Rationale
Similar to Methods 3a, 6c, 7e, 10, ALT 004, CTM 022. Lacks in detail and quality assurance and quality control requirements. Very similar to ISO 10396.

Voluntary Standard
ISO 10396:1993 - Stationary Source Emissions: Sampling for the Automated Determination of Gas Concentrations

Rationale
Duplicates Method 3a, 6c, 7e, 10, ALT 004, CTM 022. Lacks in detail and quality assurance plus quality control requirements. Similar to ASTM D5835.

(34) Government Unique Standard
EPA Method CTM 022 [Incorporated: 2002]

Voluntary Standard
ASTM D5835-95 - Standard Practice for Sampling Stationary Source Emissions for Automated Determination of Gas Concentration

Rationale
Similar to Methods 3a, 6c, 7e, 10, ALT 004, CTM 022. Lacks in detail and quality assurance and quality control requirements. Very similar to ISO 10396.

Voluntary Standard
ISO 10396:1993 - Stationary Source Emissions: Sampling for the Automated Determination of Gas Concentrations

Rationale
Duplicates Method 3a, 6c, 7e, 10, ALT 004, CTM 022. Lacks in detail and quality assurance plus quality control requirements. Similar to ASTM D5835.

(35) Government Unique Standard
EPA Performance Specification 2 (nitrogen oxide portion only) [Incorporated: 2001]

Voluntary Standard
ISO 10849:1996, Determination of the Mass Concentration of Nitrogen Oxides--Performance

Rationale
Is too general, too broad, or not sufficiently detailed to assure compliance with EPA regulatory requirements.

(36) Government Unique Standard
EPA Performance Specification 2 (sulfur dioxide portion only) [Incorporated: 2001]

Voluntary Standard
ISO 7935:1992, Stationary Source Emissions--Determination of the Mass Concentration of Sulfur Dioxide--Performance Characteristics of Automated Measuring Methods"

Rationale
Is too general, too broad, or not sufficiently detailed to assure compliance with EPA regulatory requirements.

(37) Government Unique Standard
SW846-6010b [Incorporated: 2002]

Voluntary Standard
ASTM C1111-98 (1998) - Standard Test Method for Determining Elements in Waste Streams by Inductively Coupled Plasma-Atomic Emission Spectrometers

Rationale
This standard lacks details for instrument operation QA/QC, such as optimizing plasma operating conditions; upper limit of linear dynamic range; spectral interference correction; and calibration procedures, which include initial and continuous calibration verifications. Also lacks internal standard and method of standard addition options for samples with interferences.

Voluntary Standard
ASTM D6349-99 (1999) - Standard Test Method for Determining Major and Minor Elements in Coal, Coke, and Solid Residues from Combustion of Coal and Coke by Inductively Coupled Plasma-Atomic Emission Spectrometers

Rationale
This standard lacks details for instrument operation QA/QC, such as optimizing plasma operating conditions, upper limit of linear dynamic range, spectral interference correction, and calibration procedures, that include initial and continuous calibration verifications. Also lacks details for standard preparation, and internal standard and method of standard addition options for samples with interferences.

(38) Government Unique Standard
Validated Method 8327: Per-and Polyfluoroalkyl Substances (PFAS) Using External Standard Calibration and Multiple Reaction Monitoring (MRM) Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) [Incorporated: 2019]

Voluntary Standard
ASTM D7979-19: Standard Test Method for Determination of Perfluorinated Compounds in

Water, Sludge, Influent, Effluent and Wastewater by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

Rationale

For the reasons set forth below, EPA determined that PFAS analytical methods should be validated by multiple laboratories, rather than by a single lab, for use under the Resource Conservation and Recovery Act (RCRA) and other EPA programs, e.g., the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The ASTM D7979 standard is not multi-lab validated for the matrices of concern for RCRA and CERCLA.

Multi-lab validation accomplishes several purposes: First, it is a means to assess accuracy and reproducibility of data independent of the organization that developed the method. Second, it reduces uncertainty regarding the method used to produce the data to support decision making. By assuring accuracy and reproducibility of the data and confidence in the method, methods that are multi-lab validated provide additional assurance to EPA decision-makers and the public that resulting data used to protect human health and the environment are robust, reliable and of known quality.

EPA test methods that support RCRA and are used by other Federal programs can be found in the EPA publication, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, also known as SW-846. Under RCRA's SW-846 methods program, the methods development and validation process for Validated Method 8327 and other methods contained in SW-846 includes posting a method on EPA's public website for public comment, comment adjudication and relevant method revisions

(39) Government Unique Standard

WaterSense Specification for Spray Sprinkler Bodies Appendix B: Spray Sprinkler Body Performance test method [Incorporated: 2017]

Voluntary Standard

ASABE/ICC 802-2014, "Landscape Irrigation Sprinkler and Emitter Standard"

Rationale

WaterSense used ASABE/ICC 802-2014 (section 303.5.2) as the basis for its sprinkler performance test. However, no product testing was done by the ASABE/ICC standard development committee prior to publishing the standard. When WaterSense did this testing many changes had to be made to eliminate redundant steps, correct deficiencies in the method and provide sufficient detail to run the test consistently at any laboratory. WaterSense has submitted the revised method to the ASABE/ICC 802 committee for consideration in the revision of the standard