

Note: This document replaces an incomplete version that was inadvertently posted prior to the October 17, 2000 final rule publication.

Summary of Comments on
Test Methods Amendments
Proposed in the Federal Register
on August 27, 1997

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1.0 SUMMARY

On August 27, 1997, the U.S. Environmental Protection Agency (EPA) proposed amendments to 40 CFR Parts 60, 61, and 63 to reflect miscellaneous editorial changes and technical corrections throughout the parts in sections pertaining to source testing or monitoring of emissions and operations and added Performance Specification 15 (PS 15) to Appendix B of Part 60. In addition, the test methods in Appendix A of Part 60, Appendix B of Part 61, Appendix A of Part 63, and the performance specifications in Appendix B of Part 60 were restructured in the format recommended by the Environmental Monitoring Management Council (EMMC) to achieve uniformity and consistency between Agency methods (62 FR 45369). EMMC's methods format is outlined in Appendix A of this summary. On November 18, 1997, EPA announced, in the Federal Register, the reopening of the public comment period to allow the affected public sufficient time to review and comment on the proposed action (62 FR 61483). Public comments on the proposal were requested at the time the amendments were proposed in the Federal Register. There were 28 comment letters (see Table 1-1) submitted by facility owners and operators, trade associations, State and local air pollution control agencies, environmental consultants, and private citizens. Summaries of the comments that were submitted, along with EPA's responses to these comments, are presented in this document. This

comment summary and the Agency's responses serve as the basis for the revisions made between proposal and promulgation.

TABLE 1-1. LIST OF COMMENTERS ON THE PROPOSED AMENDMENTS FOR TESTING AND MONITORING PROVISIONS.

<u>Item Number in Docket A-97-12</u>	<u>Commenter and Affiliation</u>
IV-D-01	Norman Morrow Exxon Chemical Americas P.O. Box 3272 Houston, TX 77253-3272
IV-D-02	Julian Blomley Blomley International Environmental Consulting P.O. Box 421461 Los Angeles, CA 90042-1461
IV-D-03	Kevin Kitchen Private Citizen 90 East Main Lehi, UT 84043
IV-D-04	Karin Ritter American Petroleum Institute 1220 L Street, Northwest Washington, DC 20005-4070
IV-D-05	Mel Schulze Hunton & Williams 1900 K Street NW Washington, DC 20008-1109
IV-D-06	Phillip Juneau Emission Monitoring Inc. 8901 Glenwood Avenue Raleigh, NC 27612-7503
IV-D-07	Kathleen Kono American Society for Testing and Materials 100 Barr Harbor Drive West Conshohoken, PA 19428-2959
IV-D-08	Roger Shigehara Emission Monitoring, Inc. 8901 Glenwood Avenue Raleigh, NC 27612-7503
IV-D-09	Laura Kinner Emission Monitoring, Inc. 8901 Glenwood Avenue Raleigh, NC 27612-7503
IV-D-10	M.L. Mullins Chemical Manufacturers Association 1300 Wilson Blvd. Arlington, VA 22209

IV-D-11 Kathleen Kono
American Society for Testing and Materials
100 Barr Harbor Drive
West Conshohoken, PA 19428-2959

TABLE 1-1. (Continued)

<u>Item Number in Docket A-97-12</u>	<u>Commenter and Affiliation</u>
IV-D-12	Norman Morrow Exxon Chemical Americas P.O. Box 3272 Houston, TX 77253-3272
IV-D-13	Roger Shigehara Emission Monitoring, Inc. 8901 Glenwood Avenue Raleigh, NC 27612-7503
IV-D-14	Roger Shigehara Emission Monitoring, Inc. 8901 Glenwood Avenue Raleigh, NC 27612-7503
IV-D-15	Laura Kinner Emission Monitoring, Inc. 8901 Glenwood Avenue Raleigh, NC 27612-7503
IV-D-16	Walter Brown Engine Manufacturers Association 401 North Michigan Avenue Chicago, IL 60611-4267
IV-D-17	J.C. Peargin Chevron 1401 Eye Street, Suite 1200 Washington, DC 20005
IV-D-18	Ed Surla Indiana Department of Environmental Management 100 North Senate Avenue P.O. Box 6015 Indianapolis, IN 46206-6015
IV-D-19	Raymond Walters State of New Hampshire Department of Environmental Services 64 No. Main Street P.O. Box 2033 Concord, NH 03302-2033

IV-D-20 R.W. Orchowski
Duquesne Light
411 Seventh Avenue
P.O. Box 1930
Pittsburgh, PA 15230-1930

IV-D-21 Debra Jezouit
Counsel to the Class of '85 Regulatory Response Group
Baker & Botts
1299 Pennsylvania Avenue, N.W.
Washington, DC 20004-2400

Item Number in
Docket A-97-12

Commenter and Affiliation

IV-D-22 Frank DeVooght
Texas Natural Resource Conservation Commission
Enforcement Division/Air Section
Engineering Services

IV-D-23 Frank DeVooght
Texas Natural Resource Conservation Commission
Enforcement Division/Air Section
Engineering Services

IV-D-24 Frances Cameron
California Environmental Protection Agency
Air Resources Board
P.O. Box 2815
2020 L Street
Sacramento, CA 95812-2815

IV-D-25 Peter Yronwode
State of Missouri
Department of Natural Resources
Division of Environmental Quality
P.O. Box 176
Jefferson City, MO 65102-0176

IV-D-26 Wayne Stollings
Triangle Environmental Services
P.O. Box 13294
Research Triangle Park, NC 27709

IV-D-27 Stephen Anderson
State of Connecticut
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

IV-G-01 Richard White
TU Services
Energy Plaza
1601 Bryan Street
Dallas, TX 75201-3411

2.0 GENERAL

2.1 STATEMENT OF BASIS AND PURPOSE

Comment: Several commenters stated that the preamble language for this proposal was inadequate. Section 307(d) of the Clean Air Act, which applies to this rulemaking, requires that the Agency provide a "statement of basis and purpose" for its proposal. One purpose of this provision is to provide adequate notice to potential commenters regarding the content of and rationale underlying the proposal. Commenters stated that, in this proposal, EPA did not provide an adequate basis and purpose statement and misled the readers into thinking that the proposal contained no substantive changes to the test methods. To imply that there are no substantive changes being made, and then not even include the text of the changes in the Federal Register, violates the spirit and intent of Section 307(d). Based on the number of substantive changes in this proposal, and in light of the Section 307(d) requirements, the commenters feel that EPA must address these issues in a new proposal, before it may go final with the proposal it has published. If EPA is interested in going forward with the proposal, EPA should repropose the changes with an adequate preamble discussion summarizing the proposed changes and adequately explaining the Agency's basis for the proposed changes. (IV-D-05, IV-D-20, IV-D-21)

Response: We agree that the preamble to the proposed

rule may not have given adequate public notice for some of the revisions. The revisions to the continuous instrumental methods (Method 3A, 6C, 7E, 10, and 20) may be considered substantive, but were not enumerated in the preamble nor was a supporting rationale given. To remedy this, the revisions to Methods 3A, 6C, 7E, 10, and 20 will be repropose as a separate rule subsequent to this final rule. The comments on these method that were received under the proposal of this rule will be addressed after the reproposal with any additional comments that may be received.

Comment: One commenter stated that all of the 40 CFR Part 60 Appendix A test methods should be updated to more current technology without creating restrictions that limit the ability to measure the specific pollutants. The current percent tolerance allowed by the calibration error, calibration drift, bias and/or interference check for Methods 3A, 6C, and 7E should remain the same for the proposed modifications to the specific methods. Method 10 should be modified to require the same performance specifications as Methods 3A, 6C, and 7E. Method 25 should be modified to allow direct sample interface with the newer methane/nonmethane analyzers available from gas analyzer manufacturers. Method 25 should also be modified to have fixed performance specifications for the analyzer/sample interface similar to Methods 3A, 6C, 7E, and 10. (IV-D-03)

Response: The comments on Methods 3A, 6C, 7E, and 10 will be addressed in the future reproposal of these revisions. The performance specifications for these methods are too stringent to be applied to Method 25. It is doubtful that the newer methane/nonmethane analyzers are capable of meeting the performance requirements of Method 25, and their use in direct

sample interface would not satisfy the current sampling requirements.

2.2 AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM) STANDARDS REFERENCES

Comment: Several commenters stated that EPA needs to update the references to ASTM Standards to include the most recent versions of the Standards. Sometimes, however, there are substantive changes when an ASTM standard is updated. Therefore, it is critical that the version of the standard in use when a subpart was promulgated continues to be available as a basis for determining compliance. A list of the most recent ASTM Standards is included in this summary document as Appendix A. (IV-D-07, IV-D-11, IV-D-12, IV-D-20)

Response: The ASTM standards cited in the test methods and associated subparts were updated in the proposed rule to include the most recent versions. These more recent, non-cited versions were evaluated to ensure that the updates did not alter the intent of their original application. The older versions of the standards cited when the subparts were promulgated will still be allowed.

Comment: One commenter stated that the new nomenclature used to reference ASTM standards should be explained clearly in the regulatory language. The commenter recommends adding language to §60.17, §61.18, and §63.14 to state that "the nomenclature ASTM XXXX - Y, Z means ASTM Standard XXXX - Y or ASTM Standard XXXX - Z may be used at the owner or operator's discretion." (IV-D-12)

Response: The General Provisions to the appropriate parts will be amended to add this language.

Comment: One commenter strongly encourages the EPA to clearly state in the preamble to the final revisions that the intent of updating ASTM standards is to allow use of any of the listed versions of the standard. (IV-D-12)

Response: This will be stated in the preamble to the final rule.

2.3 ENGLISH/METRIC CONVERSIONS

Comment: One commenter recommends that the EPA clarify that compliance with either the metric or English compliance limits given in the rule is allowed. (IV-D-12)

Response: Our policy is that, under normal situations, either metric or English compliance limits may be used. The standard should be given in 2 or 3 significant figures. Whenever rounding off results in a discrepancy in the compliance status between the metric and English units, the metric units govern. This is an Agency enforcement policy.

Comment: One commenter stated that changes in the existing English unit emission limits should not be made in this rulemaking, but should be separately proposed as changes in the requirements of the impacted subpart so that affected sources can be given adequate notice. Therefore, the commenter recommends EPA withdraw and repropose under more appropriate titles, and with full publication in the Federal Register, the following proposed changes and any other changes in the English unit emission limits - Part 60 Proposed Revisions 37, 51, 58, and 548. (IV-D-12)

Response: The intent of the revisions in this rule is not to change any emission standard but to add customary alternative units where they were lacking. Since these

revisions are considered minor and conform to already established Agency conventions, we feel a reproposal with additional public review is not necessary.

Comment: Due to the large number of errors in the English/metric conversions, one commenter recommended a thorough QA/QC of these values. (IV-D-12)

Response: We are not aware of large numbers of errors in the English/metric conversions. The revisions in this rule have been evaluated for accuracy.

3.0 40 CFR PART 60

3.1 PART 60 PROPOSED REGULATORY REVISIONS

3.1.1 General

Comment: One commenter stated that while useful improvements to heat capacity and flare velocity formulas are proposed in the Part 60 revisions, they include errors and are not consistently proposed. The commenter recommends extending the changes to the flare and heat capacity language in Part 60 Proposed Revisions 442 through 446 to all flare and heat capacity requirements in the three parts (after making corrections to the errors). Also, revise §60.18 and §63.11 to match the changes in this proposal. Finally, change and correct Part 60 proposed revisions 341 through 344, 485, Part

61 proposed revision 120, etc., to have identical content to those in 442 through 446, and search parts 60, 61, and 63 subparts to locate all other places that flare and heat capacity requirements occur and revise them to match (i.e., same number of significant figures, same units, etc.). (IV-D-12)

Response: The intent of these revisions is to improve and correct a large portion of the heat capacity and flare velocity formulas throughout the Parts 60, 61, and 63 rules. However, due to time constraints and evolving rules, most of the useful suggestion extending these revisions to other rules will have to be made at a later date.

Comment: Throughout Parts 60, 61, and 63 "temperature monitoring devices" are required (§60.563, §60.613, §60.663, §60.703, §61.303, and §63.111) to have an accuracy of "±1 percent of the temperature being measured, or ±0.5EC, whichever is greater." One commenter noted that, in a few cases, a change is proposed in the wording of this requirement (revision 551). The commenter pointed out that common thermocouples cannot meet this specification. All subparts need to have the exact same specification for this frequently used monitoring device. The commenter recommends changing the temperature monitoring accuracy requirements throughout the three parts from "±1 percent of the temperature being measured or ±0.5EC, whichever is greater" to "±0.75 percent of the temperature being measured or ±2.5EC, whichever is greater," which is the standard specified in some subparts (e.g., Part 60 proposed revisions 286 and 353) and is consistent with the common J and K thermocouple specifications. (IV-D-12)

Response: The changes the commenter recommended may change the stringency of the requirements in some cases and is

beyond the scope of this minor rulemaking. The recommendations would add consistency to the temperature device requirements but would be better addressed under a separate proposal notice.

3.1.2 Subpart A-General Provisions

Comment: Two commenters noted that the revisions to §60.13(g)(1) may require some utilities to revise report generation procedures and software. The commenters felt that, since reporting requirements vary between States, utilities should not be required to modify their current procedures or software. They also felt that this issue should be addressed in §60.7, as opposed to §60.13, with possible exceptions discussed in specific subparts. (IV-D-05, IV-D-20)

Response: To preclude utilities having to modify their current procedures or software, the revision requiring the submittal of one report of the excess emissions and monitoring system performance has been dropped.

Comment: One commenter noted that in §60.13(g)(2), EPA appears to be adding a requirement to install flow monitors for utilities that measure opacity separately from multiple exhaust ducts that are being combined into a common stack. The commenter felt that requiring flow monitors will create an enormous burden on industry and constitutes a very significant change in the regulations. The commenter suggested that source owners be allowed to measure and report opacity values separately for each source when different standards apply. Also, for CEMS (other than opacity monitors), when combined exhausts have different standards, Section 60.13(g) should permit the use of apportioning methods or the use of determinations by difference. (IV-D-05)

Response: It is not the intent of this amendment to §60.13(g)(2) to require any equipment beyond that currently used. The intent is to clarify the rule by explicitly stating the requirements of an emission measurement configuration that was not addressed in the general monitoring provisions.

Comment: One commenter noted that in §60.13(j)(2), the word "alternative" appears to have been omitted. (IV-D-05)

Response: This was an unintentional omission. The word "alternative" has been added.

Comment: One commenter stated that, in Revision 5, proposed §60.13(g)(1) is incomplete and establishes a new and different requirement from the promulgated language because a sentence from the old §60.13(g) was left out. The sentence "When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install an applicable continuous monitoring system on each separate effluent unless installation of fewer systems is approved by the Administrator" is missing. This sentence should be added to the proposed §60.13(g)(1). If it was the intent to change the requirement, then inadequate public notice was provided by not discussing the change and its basis in the preamble to the rule. In such a case, this change should be removed from this package and repropose with adequate explanation and justification. (IV-D-12)

Response: Omission of this sentence was unintentional; it has been added to §60.13(g)(1).

3.1.3 Subpart D-Standards of Performance for Fossil-Fuel
Fired Steam Generators for Which Construction is
Commenced After August 17, 1971

Comment: One commenter stated that, in §60.43c(a)(1), 0.051 lb/million BTU should be used for the English equivalent

of the emission limit. (IV-D-05)

Response: We agree with the commenter. Emission standards should contain at least two but no more than three significant figures. However, updating all emission standards to reflect the desired significant figures is beyond the scope of our updating the testing provisions. Such an update would have to be made under a separate proposal that could assess and address any resulting impacts of such revisions.

3.1.4 Subpart Da-Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 8, 1978

Comment: One commenter noted that, in Revision 63 for §60.48c(b), the word "CEMS" in the current rule should be changed to "CEMS and/or COMS," not to "continuous monitoring system." The latter is defined to include parameter monitors as well as CEMS and COMS and the less precise language of the proposed change would be confusing. (IV-D-12)

Response: We agree, and this change has been made.

3.1.5 Subpart Ea-Standards of Performance for Municipal Waste Combustors

Comment: One commenter stated that, in Revision 67 for §60.51a, the proposal to replace the CEM definition with a CMS definition is unworkable, since CEMS are referred to throughout §60.58a and 59a. Rather, the commenter recommends adding the CMS definition in addition to the current CEM definition and then revising §60.58a and 59a, as needed, to refer to the correct definition. (IV-D-12)

Response: We agree and have made the recommended revisions.

3.1.6 Subpart J-Standards of Performance for Petroleum Refineries

Comment: In Revisions 78 and 81, one commenter stated that changing the required span setting for the oxygen (O₂) analyzer required by §60.105 from 10% to 25% reduces the accuracy of the O₂ reading and can prevent use of existing analyzers. The existing analyzers frequently are set at 10% span in order to monitor the combustor's O₂ level for energy efficiency and control purposes. Where O₂ levels are kept low, to reduce fuel consumption and emissions, an O₂ analyzer set at 10% is preferable. Since O₂ analyzers are able to cover the entire range (they are normally calibrated with air) and the proposal moves to the lowest accuracy span, the commenter recommends deleting the span setting requirement altogether. As long as an O₂ reading is required, the needs of the rule are met. (IV-D-12)

Response: We agree. The span setting requirement for the O₂ analyzer has been dropped.

Comment: Revision 82, proposes to revise §60.105(a)(6)(ii) to read as follows:

"The performance evaluations for this reduced sulfur (and O₂) monitor under §60.13(c) shall use Performance Specification 5."

One commenter feels that the proposed revision to §60.105(a)(6)(ii) should be revised to the following for clarity:

"The performance evaluations for this reduced sulfur (and O₂) monitor under §60.13(c) shall use Performance Specification 5 of Appendix B of this Part (and Performance Specification 3 of Appendix B of this Part for the O₂ analyzer)."
(IV-D-12)

Response: This recommendation has been made to add clarity.

3.1.7 Subpart GG-Standards of Performance for Stationary Gas Turbines

Comment: One commenter suggested revising §60.335 so that the use of 29.92 in. Hg is acceptable for P_r and the barometric pressure for the date of the test for P_o in the ISO standard NO_x equation. (IV-D-23)

Response: The commenter's suggestions appear feasible. However, the Agency needs to study the matter further before a decision can be made. This suggested revision to 60.335 will be handled in a separate future rulemaking to give the public opportunity for comment.

Comment: One commenter suggested that the NO_x monitor span value of 300 ppm required when testing Subpart GG gas turbines should be removed or revised to state that a "maximum span value of 300 should be used." The commenter felt that EPA should also eliminate the need to test at four loads when steam injection is not used. Testing should be required at peak load only, if no controls are employed and at low and high loads only, if dry low- NO_x controls are being used. (IV-D-05)

Response: Language has been added to Subpart GG allowing a monitor span values less than 300 ppm provided all collected data is within the instrument calibration range.

We disagree with the commenter's desire to eliminate the test at four loads when steam injection is not used. This requirement remains unchanged.

Comment: One commenter noted that in §60.335, the NO_x symbols used in the revised text for this section are

identical. The commenter stated that the second symbol should be NO_{x_o} . (IV-D-05)

Response: We agree, and the correction has been made.

3.1.8 Subpart VV-Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

Comment: Revision 322 for §60.481, states:

"In §60.481, under the definition *In vacuum service*, beginning in line 3, revise the words "5 kilopascals (kPa)" to "5 kilopascals (kPa) (19.7 in. H₂O)."

One commenter recommends changing the proposed revision as follows to match Part 61 proposed revision 113 and to use a more common unit of process measurement, psia:

"In §60.481, under the definition for *In vacuum service*, beginning in line 3, revise the words '5 kilopascals (kPa)' to '5 kilopascals (kPa) (0.7 psia).'

 (IV-D-12)

Response: This change has been made.

Comment: One commenter stated that, in Revision 342 for §60.485 in proposed new paragraph (4), the constant K should be 1.740×10^{-7} not 1.740×10^7 , the English unit version of that constant should be 1.029×10^{-8} , and C_i should say "concentration on a wet basis of ...". (IV-D-12)

Response: These corrections have been made.

3.1.9 Subpart DDD-Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Polymer Manufacturing Industry

Comment: One commenter stated that, in Revision 422 for §60.560, there is an error in the revised table that should be

changed from "0.05 (1.10)^{b,h}" to "0.05 (0.11)^{b,h}." (IV-D-12)

Response: This correction has been made.

Comment: One commenter noted that, in Revision 442 for §60.564, there is an error in the equation that should be corrected by changing the heat combustion term to "H_j" from "J_j" for consistency with other equations and the list of terms below the equation. There is also an error in the second parenthetical expression in the definition of the HT term. The expression should be "(77EF and 30 in. Hg)" not "(68EF and 30 in. Hg)". The new English unit version of K₃ should also be corrected to 1.029 x 10⁻⁸. The value proposed for K₃ is 4.67 x 10⁻⁶ (1/ppm)(lb-mole/scf)(Btu/kcal). (IV-D-12)

Response: These corrections have been made.

Comment: One commenter stated that, in Revision 446 for §60.564, EPA should correct the units of the metric version and the value and units of the English version of constant K₇ to match the correct values presented in proposed revision 341 for the same constant, labeled K₂ there. (IV-D-12)

Response: This correction has been made.

3.1.10 Subpart III-Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes

Comment: One commenter suggested that, in Revisions 483 for §60.614, rather than changing "4 inches" to "10 centimeters (4 inches)," these paragraphs should be changed from "smaller than 4 inches in diameter" to "with a nominal diameter of 10 centimeters (4 inches) or less." Pipe diameters are not precise and there can be confusion over

whether inside or outside diameter is being specified. (IV-D-12)

Response: The convention is to give the metric dimension followed by the English dimension. The note that this is a nominal diameter will be inserted.

Comment: In Revision 485 in proposed newly redesignated §60.614(e)(4), one commenter stated that EPA should correct the new English unit version of K_1 to 1.029×10^{-8} . The K_1 value proposed is 1.01×10^{-11} (1/ppm)(lb-mole/scf)(Btu/kcal). Also, in the Cj term, revise "ASTM D1946-77" to "ASTM D1946-77,90,94" to match revisions elsewhere. (IV-D-12)

Response: These corrections have been made.

Comment: In regard to Revision 487 for proposed newly redesignated §60.614(f)(1)(i), one commenter noted there is an error in the second parenthetical expression in the definition of the HT term. The expression should be "(77°F and 30 in. Hg)" instead of "(68°F and 30 in. Hg)." (IV-D-12)

Response: This correction has been made.

Comment: One commenter noted that, in Revision 489 for the proposed newly redesignated §60.614(f)(1)(ii), there is an error in the second parenthetical expression in the definition of the HVAL term. The expression should be "(77°F and 30 in. Hg)" instead of "(68°F and 30 in. Hg)." (IV-D-12)

Response: This correction has been made.

Comment: One commenter noted that, in Revision 490 for the proposed newly redesignated §60.614(f)(2), there is an error in the second parenthetical expression in the definition of the HT term. The expression should be "(77°F and 30 in. Hg)" instead of "(68°F and 30 in. Hg)." (IV-D-12)

Response: This correction has been made.

3.1.11 Subpart NNN-Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

Comment: One commenter suggested that, in Revisions 525 for §60.664, rather than changing "4 inches" to "10 centimeters (4 inches)," these paragraphs should be changed from "smaller than 4 inches in diameter" to "with a nominal diameter of 10 centimeters (4 inches) or less." Pipe diameters are not precise and there can be confusion over whether inside or outside diameter is being specified. (IV-D-12)

Response: The convention is to give the metric dimension followed by the English dimension. The note that this is a nominal diameter will be inserted.

Comment: In Revision 528 for the proposed newly redesignated §60.664(e)(4), one commenter noted that there is an error in the new English unit version of K_1 that should be corrected to 1.029×10^{-8} . The K_1 value proposed is 1.01×10^{-11} (1/ppm)(lb-mole/scf)(Btu/kcal). (IV-D-12)

Response: This correction has been made.

Comment: In Revision 532 of the proposed newly redesignated §60.664(f)(1)(i), one commenter noted that there is an error in the second parenthetical expression in the definition of the HT term. The expression should be "(77EF and 30 in. Hg)" instead of "(68EF and 30 in. Hg)." (IV-D-12)

Response: This correction has been made.

Comment: In Revision 535 of the proposed newly redesignated §60.664(f)(2), one commenter noted that there is an error in the second parenthetical expression in the definition of the HT term. The expression should be "(77EF

and 30 in. Hg)" instead of "(68EF and 30 in. Hg)." (IV-D-12)

Response: This correction has been made.

3.1.12 Subpart RRR-Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

Comment: One commenter noted that many changes are included in the proposal for New Source Performance Standards (NSPS) Subpart III, Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes, and Subpart NNN, Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, but the related Subpart RRR is not addressed. Due to the interactions of these subparts (e.g., compliance with Subpart NNN is considered compliance with Subpart RRR for applicable vents), the commenter recommends revising Subpart RRR to match the changes in Subparts III and NNN. (IV-D-12)

Response: Subpart RRR will be revised to match the changes being made in Subparts III and NNN in a future rulemaking.

3.1.13 Subpart WWW-Standards of Performance for Municipal Solid Waste Landfills

Comment: One commenter feels that it would be helpful if English units were added to Subpart WWW. After metric numbers, the commenter would like to see the equivalent amount in English units in parentheses. (IV-D-22)

Response: The English units have been added to Subpart

WWW.

Comment: In Subpart WWW, one commenter noted that there is no mention of various models to determine gas generation/flow rates. One report mentions a "modified Scholl Canyon Landfill Gas Emission Model." The commenter asked if this model is acceptable for the maximum flow rate to be in accordance with §60.755(a)(1). If it is acceptable to use this model (or other models, e.g., Landfill Air Emission Estimation model referenced in AP-42) to determine the maximum gas generation flow rate (see §60.759(c)(2)), then the commenter feels that it should be added to Subpart WWW. (IV-D-22)

Response: We did not endorse a specific model in Subpart WWW because we wanted to allow sources the maximum flexibility in choosing models. We do not feel that this flexibility should be jeopardized by listing specific models.

Comment: One commenter noted that, in Subpart WWW, §60.759(c)(2) references §60.755(a)(1), which says to use the "k" and "Lo" factors from the most recent AP-42. The most recent AP-42 is dated January 1995, which says to use the default factors for "k" and "Lo" that will come out in the final rule. The commenter feels that it would be easier to reference §60.754(a)(1) in §60.755(a)(1) and use the default values of 0.05 per year for "k" and 170 cubic meters per megagram for "Lo." (IV-D-22)

Response: The recommended change is one we are considering in future technical correction notice. This revision may be made at that time.

3.2 PART 60, APPENDIX A-TEST METHODS

3.2.1 Instrumental Test Methods - Methods 3A, 6C, 7E, 10, and 20

The following comments were received from the proposal of the amendments to Methods 3A, 6C, 7E, 10, and 20. Because the public was not given adequate notice of the method changes in the preamble, the method revisions will be repropose in the near future as a separate notice. The comments are listed here without responses. The questions and responses will be in the final rule to the reproposal so that future public comments to the reproposal can be considered.

Comment: Commenters stated that EPA should not proceed with the proposed changes to Reference Methods 3A, 6C, and 7E. The commenters feel that the preamble did not provide adequate notice of the substantive changes proposed to these methods. (IV-D-20, IV-D-21)

Comment: Several commenters feel that the proposed revisions to the instrumental test methods will make them much less applicable in situations where there is no established emission limit because of their repeated reference to and dependence upon "the concentration corresponding to the emission standard." The commenters noted that, formerly, quality assurance depended upon the instrument's meeting criteria determined by the span (full-scale range) of the instrument itself. Under the proposed revisions, there would be no basis for quality assurance criteria when no emission standard exists for the source under test. The commenters recommend amending the proposed revisions in order to facilitate use of these methods where no standard exists or actual emissions may be substantially different from the applicable standard. (IV-D-05, IV-D-21, IV-D-24, IV-D-25, IV-G-01)

Comment: Several commenters requested clarification on how to proceed when the applicable standard is not a simple concentration or mass emission limit, as is the case for power plants, where these methods are most frequently applied. The commenters would like EPA to clarify what is "the concentration corresponding to the emission standard" when the limit is imposed in terms of pounds of pollutant per million BTU of heat input (lb/MMBTU) as in 40 CFR Part 60 Subpart D. The commenters noted that an infinite combination of pollutant and diluent concentrations could result in the same lb/MMBTU emission level, yet the proposed revisions offer no guidance as to what concentration of either pollutant or diluent to use to establish quality assurance criteria. (IV-D-19, IV-D-21, IV-D-25)

Comment: Several commenters noted that proposed methods 3A, 6C and 7E require analyzer calibration gas selection to be chosen based on pollutant concentration. The commenters feel that it is often not possible to identify pollutant concentrations prior to testing and the proposed wide range of acceptable calibration gases would allow gases to be used that could compromise the accuracy of emissions data. Although the current calibration gas selection criteria may need to be standardized, the commenters feel that the span concept should be retained and the selection of calibration gases should be based on analyzer span. The commenters would also like clarification on the thought process behind the elimination of the notion of span in the CEM methods. Several commenters noted that newer instruments which do not have a span selection but perform across a very broad range of concentrations are not readily subject to the concept of span. The commenters suspect that it was this development that

prompted the reference to "the concentration corresponding to the emission standard." The commenters recommend that, where such an instrument is employed, the recent historic data be used to determine an expected concentration and the choice of calibration gases and quality assurance criteria be based on this gas concentration. The commenters suggested that, if the proposed changes are adopted anyway, they should be stated more clearly. They recommend that the analyzer be ranged so that emissions readings average between 10 and 90% of span. (IV-D-18, IV-D-21, IV-D-24, IV-D-27, IV-G-01)

Comment: One commenter requested clarification on how the revised definitions of bias and calibration limits can be applied when actual emissions differ from the standard by more than one order of magnitude to assure reliable data. (IV-D-25)

Comment: One commenter stated that the unnecessarily complex bias correction procedure in the proposed revisions may lead to expensive repetition of testing because bias corrected data will not be immediately available and a false compliance determination could be made on-site and have to be reversed later after bias correction calculations have been performed. (IV-D-25)

Comment: Several commenters stated that they object to the revision of the methods to require the use of high-level concentration gas for all system bias checks. Bias checks should always be performed with the calibration gas closest to the actual stack concentration. The commenters feel that EPA should require use of the calibration gas that is closest to the measured concentration. (IV-D-03, IV-D-18, IV-D-21, IV-D-24, IV-D-25, IV-G-01)

Comment: Several commenters stated that the zero and

calibration drift requirement should be retained in the revised test methods. The elimination of a requirement that zero and calibration drift be determined following each test run reduces the chance that erroneous data caused by instrument malfunction will be detected and corrected quickly. (IV-D-03, IV-D-18, IV-D-25, IV-G-01)

Comment: One commenter supported deleting the calibration drift requirement. The commenter feels that omitting the calibration drift test will not significantly affect the accuracy of the data and should make reporting easier. (IV-D-06)

Comment: One commenter stated that EPA should retain the original calibration error, calibration drift, bias, and/or interference check for Methods 3A, 6C, and 7E. (IV-D-03)

3.2.1.1 Method 3A-Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure)

Comment: One commenter stated that many sections of Method 3A reference Method 6C. Therefore, all of the comments on Method 6C in the referenced sections are also applicable to Method 3A (see Section 3.2.1.2). (IV-D-05)

Comment: One commenter noted that there is no CO₂ or O₂ emission standard for any source. Therefore, the interference test for this method cannot be done as written. (IV-D-05)

Comment: One commenter requested clarification on which analyzer error and bias error requirements would be applicable for Method 3A for O₂ and CO₂, since Method 3A refers to the quality control limits of Method 6C. The commenter feels that analyzer calibration error and sample system bias limits without reference to a specific emission limit would be

helpful when the EPA test methods are used for purposes other than showing compliance with NSPS. (IV-D-24)

Comment: One commenter noted that in Section 12, the old gas concentration equation is retained rather than using the new slope and intercept equation from Method 6C. The commenter would like clarification as to the reasoning behind this. (IV-D-05)

3.2.1.2 Method 6C-Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Procedure)

Comment: Two commenters recommended deleting all references to "the concentration corresponding to the emission standard." The applicable standard may not be compatible with the method, and the method may be applied where no standard has been established. In regard to Section 1.2, one commenter suggests deleting "only when specified in an applicable subpart of the regulations." This will require that States explicitly qualify their adoption by reference of these methods to assure that they apply to other sources as well. (IV-D-05, IV-D-25)

Comment: One commenter noted that if the reference methods are being utilized for a relative accuracy test to certify a CEM, the additional error allowed by the proposed revisions may greatly compromise the data which is generated by the CEM. The commenter recommends that EPA fully examine the relationship between PS-2 (and other performance specifications) and the proposed changes to the instrumental methods. (IV-D-18)

Comment: Several commenters stated that Section 3.3.1 should be revised with reference to instrument span or

historic concentration. The commenters suggest deleting references to NSPS because such standards are stated in lb/MMBTU and do not specify a concentration standard. A second recommendation is to revise this section to read something similar to the following:

"The high-level gas shall be such that the emission standard is not less than 20 percent of the high-level gas and none of the sample concentrations exceed the high-level gas." (IV-D-03, IV-D-21, IV-D-25, IV-G-01)

Comment: One commenter noted that high-level calibration gas is now defined in terms of the "concentrations of interest" and it is stated that the "concentrations of interest" should be 20-80 percent of the high-level gas value. The "concentration of interest" is defined as the "concentration corresponding to the emissions standard." The commenter feels that this creates confusion as to the correct selection of high calibration gas value. Also, the commenter feels that using the "concentration of interest" terminology leaves the analyzer span value undefined. By not defining analyzer span with respect to the level of measurements to be made (as was previously done), EPA is encouraging the use of non-optimum analyzer ranges (spans). Another commenter suggests that measurements up to 100% of the concentrations of interest be allowed. By restricting the measurement to 80%, the commenter feels that EPA is forcing the use of artificially high calibration gases. This proposed terminology will lead to more confusion about calibration gas values, which may lead to decreased accuracy of monitors and potentially more failed RATAs. (IV-D-05, IV-D-20)

Comment: In regard to Section 6.1, one commenter stated that any measurement system is inconsistent with Section 2.1.

The commenter asked if this method is limited to the three types of instruments mentioned in the summary, or if it is truly any measurement system. (IV-D-08)

Comment: One commenter noted that Sections 6.1.1, 6.1.2, and 8.2.2.1 state that the sampling probe must be heated. The commenter feels that it is unclear whether the probe must be electrically heated, or whether a hot stack can be sufficient to heat the probe. The commenter recommends clarifying these paragraphs to provide that the exit temperature of the sampling probe should be maintained to at least 95EC to prevent condensation if the stack temperature is greater than 95EC or to at least 5EC greater than the stack gas temperature for stacks with temperatures less than 95EC. (IV-D-21)

Comment: In regard to Sections 6.1.2 and 6.1.5, one commenter suggests including temperatures in EF as well as EC. Many instruments only provide temperature data in English units and personnel are more familiar with this system. The commenter noted that Method 5 specifies a probe temperature of 120EC ±14EC (248EF ±25EF) to prevent condensation. The commenter feels that this temperature may be more appropriate. (IV-D-25)

Comment: In regard to Section 6.1.10, one commenter requested clarification of the statement "whichever is less restrictive." The commenter requested that, if this means whichever requires fewer samples, EPA clarify why more rather than fewer samples is required. (IV-D-25)

Comment: In regard to Section 8.1, one commenter suggested that EPA specify a minimum number of sampling points to be used when there is no applicable regulation. Another commenter suggested including the following description of the sampling site and sampling points:

"The sampling site must conform to EPA Method 1 criteria. The same criteria specified in an applicable regulation must be used to determine the number of sampling points. Otherwise, if the number of sample points is not specified in an applicable regulation then a single sample point may be sampled provided that the gas in the stack is not stratified. The sample point should be near the centroid of the stack or at least 1 meter from the stack inside wall, whichever is less restrictive." (IV-D-03, IV-D-25)

Comment: In regard to Section 8.2.3, one commenter recommends that EPA replace "high-level gas" with "gas closest to stack concentration." (IV-D-25)

Comment: In regard to Section 8.2.3.2, many commenters suggested that EPA retain the original bias check specification of 5% instead of the newly proposed 10% of the emission standard. The commenters feel that, if the bias exceeded 5% of the span, there must be a significant problem with the sample conditioning system that must be fixed. The commenters suggest the sampling system bias be calculated in terms of percent of span. One commenter noted that, aside from the fact that the bias check calculation will not work due to the emission standard dependence, the change could result in a tighter or looser specification, depending on the relationship of the measurements being made to the high-level calibration gas. (IV-D-03, IV-D-05, IV-D-06, IV-D-19, IV-D-27)

Comment: One commenter stated that, in Section 8.3, the interference check procedures should be revised. The commenter feels that developing interference data is the responsibility of the instrument supplier, not the tester. The commenter stated that this requirement is excessive and will lead to sloppy work or actual falsification of

interference data and will limit the range of sources where the method can be used. (IV-D-25)

Comment: One commenter noted that the definition of interference check that the Agency has proposed states that Method 6 samples are acquired at the sample bypass vent. The commenter recommends that the Method 6 sample should be taken independently from the stack and not from the bypass vent. (IV-D-21)

Comment: One commenter noted that Section 8.3 requires that the interference check must be run with the initial field test. The commenter recommends that EPA provide more flexibility in this paragraph by allowing interference checks to be run during or before an initial field test. (IV-D-21)

Comment: Two commenters noted that Section 8.3 states that the interference check should be conducted for at least three runs during the "initial field test on a particular source category." The commenter would like EPA to clarify if this means that the tester is obligated to conduct interference checks during the first sampling event for a boiler, or if source category means that it is for gas boilers, oil boilers, coal boilers, etc. The commenter would also like to know if it is the first sampling event in a state or region, or the first sampling event of a calendar year. Also, the commenter would like to know if it must be repeated if an analyzer undergoes significant maintenance. One commenter noted that an interference check is required to be conducted at each source category. The commenter recommends that EPA consider modifying this requirement by stating that once an interference check by a company (e.g., an auditor or consultant) is performed on a certain make or model of a sulfur dioxide analyzer, that additional interference checks

on that company's same model analyzers need not be performed. (IV-D-18, IV-D-27)

Comment: In regard to Section 8.4, one commenter suggested that EPA specify a minimum sampling time to use when there is no applicable regulation. (IV-D-25)

Comment: In regard to Section 8.5.2, two commenters suggested eliminating the proposed complex statistical procedure and retaining the original bias correction formula. The commenters also feel that if this does become the means to correct the raw data, the proposed language in this section is not sufficient to explain how to correctly apply this procedure. (IV-D-19, IV-D-25)

Comment: In regard to Section 8.6, one commenter noted that EPA performed a study on the measurement of low-level concentrations and concluded that an absolute limit (i.e., ppm SO₂ rather than percent) be set when measuring low-level concentrations. The commenter feels that the same needs to be done for the interference checks. When measuring concentrations down at the 10-50 ppm levels, it is difficult to meet the 7 percent of the modified Method 6 result. The commenter suggests including some of the guidance information found in Emission Measurement Technical Information Center (EMTIC) Technical Information Document (TID) 012, "Test Method 6C - Guidance." The commenter suggests specifically including the identification of source category and the difference of 7 percent or 5 ppm, whichever is less restrictive. (IV-D-03, IV-D-08)

Comment: One commenter noted that the proposed method states that if the analyzer and the Method 6 results differ by more than 7% of the Method 6 results, the run is invalidated. The commenter stated that it is not clear what is meant by the

word "run." The commenter requests that EPA retain the current language in Paragraph 8.6 or provide further clarification on the proposed revision. (IV-D-21)

Comment: In regard to Section 10.2.2, several commenters stated that EPA should retain the original calibration error specification of 2%. The commenters stated that the original value was easily met and, if not met, indicated an equipment malfunction. The calibration error specification of 4% of the concentration equivalent to the emission standard loosens the quality assurance criteria, which can only produce less accurate emission data. Also, commenters stated that many emission units are not subject to unit-specific emission limits, but operate under a bubble in combination with other units. The commenters would like clarification on how calibration error limits can be established for these units and for units that are subject to an emission limit expressed as a percent reduction across a control device. The commenters suggest that calibration error be calculated in terms of percent of span or as percent of the high-level gas, if the calibration standard selection revisions are made. (IV-D-03, IV-D-05, IV-D-06, IV-D-19, IV-D-27)

Comment: One commenter suggested that Section 12.0 should provide the formulae for least-squares line, y-intercept, and slope to facilitate development of spreadsheets for data calculation and evaluation. (IV-D-25)

Comment: In regard to Section 12, several commenters noted that the proposed Equation 6C-1 is incorrect and gives erroneous results. The commenters suggest retaining the promulgated Equation 6C-1. One commenter provided the following two alternative forms for Equation 6C-1:

1) If the final bias and initial bias lines described in

Section 12 of EPA restructured Test Method 6C are defined with known concentration of calibration gas as the independent variable and the analyzer response as the dependent variable, the slopes and y-intercepts are the following expressions and Equation 6C-1 should be expressed as below:

$$m_i = \frac{C_{b_i} - Z_i}{C_{cal}} \quad b_i = Z_i$$

$$m_f = \frac{C_{b_f} - Z_f}{C_{cal}} \quad b_f = Z_f$$

and:

$$C_{gas} = \frac{C_{avg} - \frac{b_i + b_f}{2}}{\frac{m_i + m_f}{2}} \quad \text{Eq. 6C-1}$$

2) Or Equation 6C-1 can be written directly in terms of the bias check results:

$$C_{gas} = \left[C_{avg} - \frac{Z_i + Z_f}{2} \right] * \left[\frac{C_{cal}}{\frac{C_{b_i} + C_{b_f}}{2} - \frac{Z_i + Z_f}{2}} \right] \quad \text{Eq. 6C-1A}$$

where:

- m_i = Slope of the initial bias check 2-point line
- m_f = Slope of the final bias check 2-point line
- b_i = Y-intercept of the initial bias check 2-point line
- b_f = Y-intercept of the final bias check 2-point line
- C_{b_i} = Analyzer response for initial bias check with calibration gas
- C_{b_f} = Analyzer response for final bias check with calibration gas
- Z_i = Analyzer response for initial bias check with zero gas
- Z_f = Analyzer response for final bias check with zero gas

gas
 C_{avg} = Averaged response of analyzer for stack gas
 C_{gas} = Analyzer response C_{avg} for stack gas, corrected
for sample system bias
 C_{cal} = True concentration of calibration gas.

(IV-D-03, IV-D-06, IV-D-08, IV-D-21, IV-D-24, IV-D-27, IV-G-01)

Comment: One commenter requested clarification on the statement in Section 12.3, "whichever is less restrictive." The commenter asked that, if this means whichever requires fewer samples, EPA clarify why more rather than fewer samples is required. (IV-D-25)

Comment: In regard to Section 13, one commenter would like EPA to provide criteria for evaluating method performance when the applicable standard is not compatible with the method, or where no standard has been established. (IV-D-25)

3.2.1.3 Method 7E-Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Procedure)

Comment: One commenter stated that, in all cases where Method 7E is identical to or references Method 6C, the Method 6C comments also apply to Method 7E. (IV-D-05)

Comment: In regard to Section 8.2.3.1, one commenter stated that the described NO₂ to NO conversion efficiency test is an inadequate procedure for determining the NO₂ to NO conversion. The commenter feels that following the steps of the procedure does not assure that the combined NO gas and purified air convert to NO₂ in the Tedlar bag. The commenter suggests that the NO₂ to NO converter be tested annually by completing gas phase titration. (IV-D-03)

Comment: In regard to Section 12.1, one commenter noted that the interference response equation is incorrect. The equation that was proposed is as follows:

$$\% \text{ of analyzer range} = \frac{\text{Analyzer output response}}{\text{Emission standard}} \times 100$$

The commenter feels that analyzer output response divided by emission standard times 100 cannot equal % of analyzer range. The interference response test is only done once, prior to initial field use. After that initial test, the analyzer can be used on a variety of sources with many different emission standards. The commenter would like to know, even if the equation in Section 12.2 worked, which emission standard one would choose as the divisor in the equation. (IV-D-05)

3.2.1.4 Method 20-Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions From Stationary Gas Turbines

Comment: One commenter stated that the primary diluent measurement should be deleted. This procedure was used to account for stratification due to dilution in one type of gas turbine. The majority of the gas turbines today have little or no stratification. An EPA study determined that using three traverse points on a line that runs through the centroid of the duct is sufficient to account for any stratification that might be present. The commenter recommended that this procedure be revised to use this approach. (IV-D-08)

Comment: One commenter noted that maintaining a probe, filter, and heated umbilical temperature of 95EC will not ensure the absence of condensate. The commenter recommends that, depending on the source, temperatures should be between 250EF (121EC) and 350EF (177EC). (IV-D-05)

Comment: In regard to Section 8.1.2.1, one commenter recommends limiting the number of traverse points to 24 or 25. Requiring up to 48 or 49 traverse points is unnecessary from a technical viewpoint and is often a burden to the source operator. (IV-D-05)

Comment: One commenter stated that the system bias and interference limits should be 5% and 2%, respectively, and EPA should add absolute limits for "low-NO_x" measurement. (IV-D-05)

Comment: One commenter noted that the revised Method 7E still only allows the use of chemiluminescent monitors. The commenter feels that, consequently, in Method 20, the discussion regarding interference check procedures for other types of monitors is unnecessary and should be deleted. (IV-D-05)

3.2.2 Other Test Methods

3.2.2.1 Method 1-Sample and Velocity Traverses for Stationary Sources

Comment: The proposed Section 11.3.1.2 is as follows:

"For particulate traverses, one of the diameters must coincide with the plane containing the greatest expected concentration variation (e.g., after bends); one diameter shall be congruent to the direction of the bend. This requirement becomes less critical as the distance from the disturbance increases; therefore, other diameter locations may be used, subject to the approval of the Administrator."

One commenter stated that the proposed language, especially the confusing usage of the term "congruent," does not clarify the location requirements, and in fact, does the opposite. (IV-D-19)

Response: For particulate traverses, one of the

diameters must coincide with the plane containing the greatest expected concentration variation (e.g., after bends); one diameter (port) shall be located in the plane of the bend and the second diameter (port) 90 degrees or perpendicular to the bend. This requirement becomes less critical as the distance from the disturbance increases; therefore, other diameter locations may be used, subject to the approval of the Administrator.

3.2.2.2 Method 2-Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

Comment: One commenter recommended including the alternative procedure "Simplified Thermocouple Calibration Procedure" in the method. (IV-D-13)

Response: Current plans are to revise Method 2 to include this recommended information. Method 2 will be revised in a future rulemaking to include this information.

3.2.2.3 Method 2E-Determination of Landfill Gas Production Flow Rate

Comment: One commenter stated that English units should be added to the method. (IV-D-22)

Response: English units will be added to the method.

Comment: One commenter stated that the promulgated language in former Section 3.2 (proposed Section 8.2) states "6 meters from the cover." The commenter would like clarification on if this means 6 meters from the top or bottom of the cover. (IV-D-22)

Response: Section 8.2 has been clarified to note that

perforations shall not be closer than 6 meters to the bottom of the cover.

Comment: One commenter noted that, in Figure 4, the 15 meter pressure probes are not to scale in the figure. The commenter stated that they appear to be approximately 7.5 meters from the extraction well. (IV-D-22)

Response: Figure 4 is not drawn completely to scale. This was done to keep the figure size manageable while showing the needed inner detail of the shallow pressure probes and extraction well.

Comment: In regard to Figure 5, one commenter would like clarification on whether backfill material is acceptable as "cover material or equivalent." If not, the commenter would like clarification on where the specifications for "cover material" can be found. Also, the commenter would like to know how high the pressure probe can extend above grade. (IV-D-22)

Response: Backfill or other materials are acceptable for filling the remainder of the pressure probe holes as long as the material is of equal permeability to the existing material. For the purposes of Method 2E testing, "cover material" is the material used at the specific site to cover the wastes from the atmosphere.

Comment: One commenter noted that, in the promulgated version, Section 3.4 (proposed Section 8.4) refers to Section 4.1. This section is not in the promulgated method. (IV-D-22)

Response: The referenced Section 4.1 in the former promulgated version should have read Section 4. This error has been corrected in the newly promulgated method.

Comment: In regard to Section 8.6.1, one commenter stated

that the promulgated language for this section (former Section 3.6.1) is unclear as to whether to average P_i or P_g . (IV-D-22)

Response: P_i is averaged. This has been noted in Section 8.6.1.

Comment: In regard to Section 8.7.4 (former Section 3.7.4), one commenter noted that the average (P_{fa}) should be the average of the "final absolute pressure of the deep probe." (IV-D-22)

Response: This has been noted in Section 8.7.4.

Comment: In regard to Section 8.7.5 (former Section 3.7.5), one commenter noted that the language in the promulgated version of this method calls for a deep pressure probe at 3 m. The commenter stated that the x-axis should only have 15, 30, and 45 meter distances. Also, the commenter stated that the maximum radius of influence should be R_m , not ROI as in the promulgated language. (IV-D-22)

Response: These changes have been made to Section 8.7.5.

Comment: In regard to Section 8.9.2 (former Section 3.9.2), one commenter recommended adding a statement that P_s needs to be recorded so that P_{sa} can be determined in the next section. (IV-D-22)

Response: A statement has been added to Section 8.9.2 to record the gauge pressure of each deep probe.

Comment: In regard to Section 8.9.3 (former Section 3.9.3), one commenter noted that the first sentence of the promulgated language references the wrong section. The commenter also suggested that, after the sentence "... stabilized radius of influence," add " (R_s) " for clarity and consistency. (IV-D-22)

Response: Section 8.9.3 cites the correct section. The noted addition for clarity has been made.

Comment: One commenter noted that, in Section 12.1 (former Section 5.1), definitions of C_o and C_w are missing from the promulgated version. The commenter stated that P_s , R_m , and t_t are not used in Method 2E and should be removed from the definitions list. The commenter also noted that t_i is not appropriately subscripted in the equation for Q_f . The commenter noted that the definition given in the promulgated version for V_t is not the same as found in the method text. (IV-D-22)

Response: C_o and C_w were defined in Section 3.5 instead of Section 5.1 of the promulgated version. P_s and R_m have been inserted in the the texts where they are used. T_t is not used and has been removed, and t_i has been corrected. The definition of V_t has been changed to be consistent with the promulgated version.

Comment: In regard to Section 12.5 (former Section 3.7.3), one commenter stated that the equation is incorrect in the promulgated version. The equation should be:

$$P_f = P_{bar} + P$$

The commenter also noted that the P should be P_{gf} . (IV-D-22)

Response: These corrections have been made.

Comment: In regard to Section 12.10 (former Section 5.3), one commenter thought that "†" should be " **B**?" in the equation for V_r in the promulgated method. (IV-D-22)

Response: This correction has been made.

Comment: One commenter noted that, in Section 12.12 (former Section 5.1), the revised methane generation potential

should be L_0' instead of L_0 in the promulgated language. The commenter added that L_0 is not discussed anywhere in Method 2E. The commenter feels that the method should say what it is and give it a value. (IV-D-22)

Response: L_0 has been corrected to read L_0' , and the numerical value for L_0 has been added to its definition.

Comment: In regard to Sections 12.13, 12.14, and 12.15 (former Sections 5.6, 5.7, and 5.8), one commenter stated that it is unclear in the promulgated version the origin of these equations. The commenter noted that the units for the constant 5.256×10^{-5} should be stated in the promulgated version. In Section 12.15 (former Section 5.8), the commenter feels that it is unclear in the promulgated version what the exponent should be. (IV-D-22)

Response: The errors and confusion created by the published equations have been corrected.

3.2.2.4 Method 5-Determination of Particulate Emissions From Stationary Sources

Comment: One commenter recommends an amendment to the existing language of Method 5 (and Methods 201 and 202 as soon as possible) clearly limiting the application of Method 5 to non-IC engine stationary sources. The only exception would be the option to use Method 5 for existing stationary IC engines that were put into service before this rule change. The commenter recommends specifying dilution-based methods for PM

measurement and certification for all classes of new IC engines. The commenter provided the following recommended wording:

"Note: 40CFR60 Appendix A Methods 5 - 5H, inclusive, contain requirements for particulate matter emissions test equipment and protocol which are inappropriate for determination of particulate matter from stationary reciprocating internal combustion engine (IC) sources. Therefore, Methods 5 - 5H, or any derivative thereof, including Modified Method 5 with Back-Half Wash, are not recommended by the Agency for IC particulate emissions quantification at site. Particulate matter test methods and equipment requirements suitable for use with IC engines can be found in ISO 8178-1 and 8178-2." (IV-D-16)

Response: The recommendation must be considered by the Agency before a determination can be made. It is beyond the scope of this rulemaking, which addresses minor changes to methods, to make the requested change at this time.

Comment: One commenter requests including the alternative Method 5 Post-Test Calibration in the method. (IV-D-13)

Response: Current plans are to revise Method 5 in the future to include this information recommended during the comment period. The Subsection 5.3.2 "Calibration After Use" under "5.0 Calibration" will be revised to include the Recommended Alternative Method for Post-Test Calibration.

Comment: In regard to Section 6.1.1.4, one commenter noted that, for the pitot tube, electronic manometers should be the standard. The commenter also recommended including guidelines on how to check calibration. (IV-D-13)

Response: Electronic manometers are acceptable alternatives to inclined manometers, especially at low flow

rates. At this time, they appear to be best suited as alternatives to inclined manometers, rather than the standard. Due to time constraints, the Agency would prefer to add guidelines on checking electronic manometer calibration in a future rulemaking rather than at this time.

Comment: In regard to Section 6.2.4, one commenter requested clarification on whether containers other than petri dishes can be used. (IV-D-13)

Response: The use of other chemically-resistant containers will be evaluated and addressed in a subsequent rulemaking.

Comment: In regard to Section 7.1.2, one commenter noted that common practice is to mix the indicating type with non-indicating type. The commenter recommends that this practice be allowed in the method. (IV-D-13)

Response: Method 5 will be revised to allow mixing of indicating and non-indicating silica gel up to a 50/50 mix.

Comment: In regard to Section 7.1.3, one commenter asked if EPA has checked the necessity of specifying the different types of ASTM deionized distilled water. The commenter asked if deionized water can be used without distillation if blank analyses result in low blank values. (IV-D-13)

Response: We do not feel this change is justifiable since an analysis of the back half can include measurements for condensable particulate and/or organic components. Condensable particulates require distilled water while organics require deionized water.

Comment: In regard to Section 7.1.5, one commenter stated that, with the new types of connectors, the use of stopcock grease should not be allowed. (IV-D-13)

Response: We feel the tester should retain the option of

using stopcock grease.

Comment: In regard to Section 8.1.3, one commenter noted that the alternative of oven drying the filters at elevated temperatures may cause errors when samples cannot (or should not) be oven dried after they are taken. The commenter recommends including a cautionary statement on this matter. (IV-D-13)

Response: In the oven-drying procedure, the temperature should not be allowed to exceed the filter temperature specified for sample collection. After drying, the filters should be allowed to cool to ambient temperature before weighing.

Comment: In regard to the Note in Section 8.5.8, one commenter recommends defining (giving tolerance for) "identical nozzles." Also, the commenter stated that the time-weighting approach should be allowed if different nozzle sizes are used. (IV-D-13)

Response: We will evaluate acceptable tolerances and add them to Method 5 in a future rulemaking. Time-weighting is allowed when the same nozzle size or "identical size" nozzles are used.

Comment: In regard to Section 10.3.2, one commenter suggests using duplicate runs that agree within $\pm 4\%$ ($\pm 2\%$ from average) rather than triplicate runs. The commenter stated that the difference in accuracy between two runs and three runs, especially when one is comparing the average value against a pre-test value, is negligible. (IV-D-13)

Response: We disagree with the commenter and feel the increased certainty in three runs over two justifies the requirement.

Comment: In regard to Section 12.3, one commenter noted that the K_1 should be 17.65 rather than 17.64. The latter

would be correct if 459.69 is consistently used in the field rather than 460. The commenter stated that the equations specify 460. (IV-D-13)

Response: We agree and have made the change.

3.2.2.5 Method 18-Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

Comment: One commenter noted that many of the recent requirements applicable to their facilities, which specify Method 18 analysis, apply to small vents and emission points and it is not always clear how to apply the method, which was clearly written for large, vertical stacks and ducts. The commenter suggests revising the method to cover sampling of 4-inch and smaller vents. (IV-D-12)

Response: Method 18 applies to the determination of gaseous pollutant concentration in stationary sources; it does not require isokinetic sampling or the utilization of other stack modifications. Method 18 sampling involves placing the probe in the centroid of the stack and sampling at a single point. For sources complying with emission rate standards, flow measurements can be made according to the method cited in the applicable standard (either Method 2, 2A, 2C or 2D, 40 CFR Part 60, Appendix A).

Comment: One commenter stated that this method is difficult to follow. The commenter suggested that, to simplify organization of this method, divide the method into five categories. Each title would begin "Measurement of Gaseous Organic Compounds by Gas Chromatography" with the following differences:

18A - Evacuated container sampling procedure.

- 18B - Bag sampling procedure.
- 18C - Direct interface procedure.
- 18D - Dilution interface procedure.
- 18E - Adsorption tube sampling procedure. (IV-D-14)

Another commenter suggested dividing the method into two different methods, one for the direct extractive technique, and the other for sample collection into bags, flasks, or adsorbents. (IV-D-09)

Response: The Agency notes that the method is currently divided according to the various sampling procedures; for example, Section 8.2.2 is the Direct Interface Sampling and Analysis Procedures, Section 8.2.3 is Dilution Interface Sampling and Analysis Procedure, and so on. The Agency does not agree that the method should be divided into separate methods, since separating this method into several methods will provide the source with less flexibility in terms of applying multiple sampling procedures to the same source.

Comment: One commenter stated that many sections contain contradictory statements such as described for Section 8.1.3.1 below. The commenter stated that the method also makes reference to liquid samples; indeed, the solid sorbent desorbates are all liquid solutions, but the only sample introduction technique discussed is via a gas sampling loop. (IV-D-10)

Response: The Agency thanks the commenter for pointing out the contradiction and has addressed the problem in Section 8.1.3. The presurvey section has been made optional, to be used only by those sources with no knowledge of stack gas constituents.

Comment: One commenter feels that many of the draft revisions to this method are overly prescriptive and

contradictory. The note immediately before Section 1.0 states that the method should not be performed "by those persons who are unfamiliar with source sampling." However, the commenter noted that the method contains very specific and restrictive details such as the "6-mm OD borosilicate sampling probe, enlarged at one end to 12-mm OD" in Section 8.1.3.1.1 and the "64-mm OD Teflon® tubing" specified in Section 8.2.3.1.3. The commenter feels that these details may have been included to be examples of a way to accomplish the task; however, they will become requirements in the field. (IV-D-10)

Response: As mentioned previously, the Presurvey Sampling Section (8.1.3) is optional. The prescriptive requirements for equipment have been addressed by removing them or making them suggestions.

Comment: One commenter stated that terms critical to the analytical method, such as minimum detectable concentration, limit of quantitation, or practical quantitation limit should be described statistically with confidence limits and acceptance criteria. The commenter also feels that the number of points required for a calibration curve, the field and laboratory blank frequency, and replicate analysis of samples should also have a statistical basis so that all test results are of a known quality. (IV-D-10)

Response: The Agency does define these terms in other methods, where specific pollutants from specific sources are being measured. However, Method 18 is a generic method; any number of hundreds of organic compounds, utilizing four different sampling procedures, any analytical gas chromatography column, with any commercially available detector may be carried out with this method. Therefore, maximum flexibility has been given to the source in terms of

detection limits, etc. (it would be impractical to define detection limits for this method, since they can vary from the low parts per billion to several parts per million, depending on the sampling and analytical technique chosen by the source). This method is self-validating, in that the source may use any of the options mentioned above as long as the recovery study procedures are carried out and the criteria for recovery are met. The Agency believes that this approach provides the source with maximum flexibility while also providing assurance of data quality to the regulatory authority.

Comment: One commenter noted that the proposed method requires triplicate injections for analysis of the calibration standards for preparation of the pre-test calibration curve, triplicate injections of the test samples, and triplicate injections for construction of the post-test calibration curve. The commenter would like to know how much additional accuracy is expected to be obtained for the extra hours spent in sample analysis and calibration while in the field conducting a source test, compared to the current method which requires two consecutive analyses for pre- and post-test calibration and sample analysis meeting the same criteria for acceptance. (IV-D-19)

Response: The Agency has tightened its quality assurance procedures in the method by requiring triplicate instead of duplicate injections. Triplicate injections are commonly used procedures which are prevalent in the analytical community, as well as in other Agency methodologies. It is difficult to establish precision and accuracy with duplicate injections, while triplicate injections provide a reasonable measure of analytical precision without being overly burdensome.

Comment: In regard to Section 4.0, one commenter suggests adding an additional section, Section 4.5, to state that the GC run time must be of sufficient time to clear all eluting peaks from the column before proceeding to the next subsequent GC run in order to prevent carryover. (IV-D-09)

Response: The Agency agrees with the commenter and a Section 4.5 has been added to the method.

Comment: In regard to Section 8.1, one commenter suggests that this section be deleted from the test method and be placed in a guideline document. The commenter feels that this part is not a requirement and adds unnecessary clutter to the entire method. (IV-D-14)

Response: As mentioned previously, this section has been made optional to the source. However, the Agency believes the section should stay in the method in order to provide guidance to sources that need to carry out a presurvey.

Comment: One commenter noted that Section 8.1.3.1 states that the flasks should be pre-cleaned with methylene chloride. The commenter noted that this compound is frequently a target analyte, and has been identified as a ubiquitous contaminant in field blank samples, laboratory blank samples, and method blank samples in numerous testing programs employing methods 18 and TO-14. The commenter feels that the cleaning procedure should be conducted using heat and humidified air or another means to prevent the possible contamination of the sampling equipment. (IV-D-09)

Response: The Agency agrees with the commenter and has modified the wording in this section to allow alternative cleaning procedures.

Comment: In regard to Section 8.1.3.1, one commenter noted that the instruction for use of grease in this procedure

is contradictory. The commenter noted that this section states that "Teflon® stopcocks, without grease, are preferred" and then details a cleaning procedure that includes removing the grease from the stopcocks and finishes the instructions with "grease the stopcocks with stopcock grease and return them to the flask receivers." (IV-D-10)

Response: This contradiction has been addressed.

Comment: One commenter noted that Section 8.2.1.1.2 states to, when possible, perform the analysis within 2 hours of sample collection. The commenter requested clarification on procedures to use when it is not possible to perform the analysis within 2 hours. The commenter suggested that this requirement perhaps should be based on the time determined from the sample stability or sample recovery study. (IV-D-14)

Response: The Agency has addressed this issue in Section 8.2.1.1.2 by removing the wording for 2 hour analysis, and replacing it with a reiteration of the recovery study requirements. The Agency believes the recovery study, which is conducted using the same hold time as for the field samples, is sufficient to prove the absence of sample degradation.

Comment: One commenter noted that Section 8.2.1.4.2 states "verify the dilution factors periodically through dilution and analysis of gases of known concentration." The commenter would like clarification on what is meant by "periodically." The commenter suggested that the frequency should depend on the stability of the dilution device. The commenter feels that, if the flow metering devices are stable, the dilution factor needs to be checked but once. (IV-D-14)

Response: The Agency agrees with the commenter and has modified this section to require dilution verification before

sampling each bag.

Comment: In regard to Section 8.2.1.5.2.1, one commenter would like EPA to verify that the use of triplicate analyses significantly increases the accuracy over duplicates for calibration curves. (IV-D-14)

Response: As stated earlier, the Agency has tightened its quality assurance procedures in the method by requiring triplicate instead of duplicate injections. Triplicate injections are commonly used procedures which are prevalent in the analytical community, as well as in other Agency methodologies. It is difficult to establish precision and accuracy with duplicate injections, while triplicate injections provide a reasonable measure of analytical precision without being overly burdensome.

Comment: One commenter noted that Section 8.2.2.2 states that for the direct sampling and analysis procedure, calibration should be conducted using gas standards that have been prepared in Tedlar bags. The commenter feels that it seems contradictory to calibrate a direct interface analyzer with standards contained in a bag. The commenter feels that a provision is necessary to allow use of direct analysis of gaseous standards from a dynamic flow. Additionally, the commenter stated that the sample pressure at the inlet to the GC introduction valve should be the same (or similar) during calibration as during actual sample analysis. (IV-D-09)

Response: The Agency agrees with the commenter and has modified the method to require cylinder gases, as well as the wording changes suggested by the commenter.

Comment: One commenter noted that Section 8.2.2.2 requires comparison of a pre- and post-test calibration curve. The commenter feels that the post-test calibration procedure

is excessive. Calibration needs to be conducted only once each day in the field for typical gas chromatographic-based analysis using non-specific detectors. The commenter stated that calibration before and after each run also makes the direct interface technique overly burdensome for the testers, decreases the amount of actual sampling time available during the field test, and increases the test cost for the affected facility relative to sample collection on adsorbent tubes with off-site analysis. (IV-D-09)

Response: The method requires only pre- and post-test calibrations, not post-run calibrations. Gas chromatographs tend to drift during a day's operations, thus making it imperative to conduct pre- and post-test calibration in order to ensure data quality.

Comment: In regard to Section 8.2.2.2, one commenter would like clarification on the need for five samples per run. The commenter feels that, if samples are taken at regular intervals, three samples are sufficient to calculate an average over that period of time. The commenter stated that, when EPA evaluated how many traverse points would be necessary to obtain a reasonable average, EPA determined that it would take three points. This conclusion was incorporated with the RATA test. The commenter feels that, since temporal and spatial changes are similar, three samples ought to be sufficient. (IV-D-14)

Response: The Agency disagrees with the commenter. In order to provide an accurate characterization of a source, particularly a variable source, it is necessary to obtain as many points as possible. Most other Agency methods require that each run consist of at least an hour's worth of data. Since most GC runs last 10 minutes or less, five data points

could be carried out in under one hour. The Agency does not believe this requirement poses an unusual or unreasonable requirement in order to provide adequate data quality.

Comment: In regard to Section 8.2.2.2, one commenter noted that a comparison of the pre- and post-test calibration curves is required. The commenter requests clarification on the procedure for accomplishing this. Each compound will have a calibration curve and is calibrated at three points. The commenter would like EPA to define what is meant by the mean value of a calibration curve. The commenter would like to know what the suspected success rate is for this criterion, especially at low concentrations, and if EPA has data to support this criterion. If these data do exist, the commenter would like to know where and from whom they can be obtained. (IV-D-14)

Response: The Agency agrees with the commenter that the wording in this section needs to be clarified, and has thus addressed the issue. In terms of the success rate for this criterion, pre- and post-test calibration of gas chromatographs is good laboratory practice that should be carried out by reputable laboratories, since gas chromatographic detectors (particularly the most commonly used detector, the flame ionization detector) tend to drift electronically, thus making routine calibration a necessity.

Comment: One commenter noted that Section 8.2.3.2.1 states "verify the operation of the dilution system by analyzing a high concentration gas of known composition through either the 10:1 or 100:1 dilution stages, as appropriate." The commenter feels that the use of flow calibrators in the field gives better verifications, and analyses add analytical error. (IV-D-14)

Response: The Agency agrees with the commenter and has clarified the wording in this section.

Comment: In regard to Section 8.4.1, one commenter would like to know if it is acceptable for the difference to be greater than 10%, as long as a consistent recovery can be documented. (IV-D-14)

Response: The recovery study for direct interface/dilution interface is basically a leak check; there is no other recovery demonstration procedure. If the difference in value is greater than 10 percent, a leak is present in the sampling system which must be addressed before sampling can begin.

Comment: In regard to Section 8.4.2.1, one commenter would like clarification on how to determine the concentrations of the known mixtures in the spiked bag. The commenter noted that the sample volume in the bag is not measured during sampling and to determine the known concentration when the bag is spiked, one must somehow measure the volume. (IV-D-14)

Response: The Agency notes that the sample volume is one of the parameters to be recorded during sampling, as stated in Section 8.2.1.1.2 (the volume can be calculated by multiplying the sample flow rate by the sampling time).

Comment: One commenter stated that, in Section 8.4.3.1, the recovery criteria proposed are unrealistic. The commenter noted that the highly variable nature of batch processes adversely affects the ability of a test program to successfully satisfy the "Recovery Study for Adsorption Tube Sampling" criteria specified in 8.4.3. The commenter feels that satisfying the 0.70#R#1.30 recovery criteria under these conditions is based on luck, not science. (IV-D-10)

Response: The Agency does not agree that a 30 percent bias is unrealistic or unreasonable. Since the spiking of the adsorbant is carried out before sampling, conducting the test on a batch operation or on a highly variable source does not affect the recovery procedure nor the recovery study results, assuming that the source has chosen the appropriate adsorbant for the pollutants of interest.

Comment: One commenter stated that the sampling procedure specified in Section 8.4.3.1 will be impossible to achieve in many processes. The commenter noted that the specifications preclude the use of this test protocol on horizontal ducts and vents or on any duct or vent that is not vertical. Many of the ducts and vents associated with batch processes are as small as 2 inches in diameter and can be as small as 3/4 of an inch in continuous processes. The commenter recommends that EPA revise the method to require laboratory recovery studies over the entire sample concentration range determined for the source. This approach is similar to the sampling bag spiking protocol in 8.4.2.1 except that the spiking would be required at three levels, low, middle, and high, instead of the one level required for the bag samples. (IV-D-10)

Response: Method 18 in general, and the adsorbant tube procedure in particular, does not require isokinetic sampling. As stated earlier, a gaseous sample is being extracted from the stack, thus not requiring isokinetic sampling (in which stack diameter and port location would be more problematic). As for requiring multiple spiking concentrations, the Agency does not deem this necessary, since adsorbant tube sampling is an integrated sampling technique which results in the measurement of a single concentration over the testing period. Thus, there is no need for the added expense of multiple

recovery studies.

Comment: One commenter noted that Section 9.2 states that "verification is complete and acceptable when the independent analysis concentration is within 5 percent of the gas manufacturer's concentration." The commenter would like clarification on whether a tester can obtain certified concentrations within $\pm 5\%$ accuracy of tag value. (IV-D-14)

Response: Due to changes in the audit program, the audit gas requirements have been modified in this section (the 5 percent verification requirement no longer applies).

Comment: One commenter noted that Section 9.2 requires successful analysis of an audit gas to within 10%. Many gases are certified by the manufacturer to only 5-10% accuracy because of their physical and chemical properties, and the difficulty of conducting the laboratory certification. The commenter feels that provisions need to be included for errors associated with the audit gas certified value. (IV-D-09)

Response: The audit procedure in Section 9.2 requires the analysis of an audit gas when it is available from the Agency. Agency audit gases are prepared and certified to be accurate to within 1 percent accuracy.

Comment: One commenter noted that Section 10 states that cylinder gases certified to 1% are preferred, although prepared standards are allowed. This section also provides for the use of dilution of high concentration levels of cylinder gases using Method 205. The commenter feels that it seems contradictory to place such a high level of known accuracy on those testers using cylinder standards relative to those standards prepared by other means. Additionally, the commenter feels that the requirements of Method 205 are overly burdensome to testers using dilution of certified cylinder

standards, increase greatly the cost of testing by requiring additional analyzers (such as a NO_x analyzer) to be brought into the field to verify the dilution, and create a disincentive to use cylinder gas standards for calibration. (IV-D-09)

Response: Due to various comments received by the Agency, the method now requires the use of certified gas cylinders, preferably certified to 1 percent accuracy, but also allowing 2 percent certified gas when necessary. The Agency also believes that Method 205 is a reasonable means of proving the accuracy and precision of gas dilution systems, and notes that the use of these systems is optional to the source. The best option in terms of data quality is to obtain multiple certified cylinder gases, but the Agency does allow the use of gas dilution systems as long as these systems have been demonstrated to meet the quality assurance criteria of Method 205.

Comment: In regard to Section 10.1, one commenter requests clarification on what is acceptable, if ±1% cylinder gases are preferable. The commenter would also like to know what the percent value for prepared standards is. Method 205 requires ±2% accuracy, which may not be achievable with a GC analyzer. (IV-D-14)

Response: Section 10.1 has been changed for the sake of clarity and in response to comments. As for Method 205, it does not require demonstration with a GC analyzer; any analyzer, at the discretion of the source, may be used to demonstrate the precision and accuracy of the gas dilution system according to Method 205.

Comment: In regard to Section 10.1, one commenter recommends modifying the restrictive sample dilution ratios in

order to increase the versatility of the technique. The commenter feels that restriction of sample dilution ratios to 10:1 and 100:1 needlessly restricts the versatility of this technique. Many sources require dilution ratios greater than 100:1 to prevent column and detector overloading, and instrument contamination. The commenter noted that dilution techniques can also be used to reduce the water content of a sample to prevent condensation at the sampling interface, and to reduce the temperature of the source gases and improve the capacity of the sampling media. (IV-D-10)

Response: This section has been modified in response to comments, and that requirement has been removed.

Comment: One commenter noted that the use of dilution systems is also discussed in Section 8.2.3 and implied in Section 9.2 since the audit gases must be analyzed in a manner identical to the calibration gases and source gases. Section 9.2 of the draft discusses the use of audit gases as tools to assure the accuracy of the analytical equipment and as aids for the analytical chemist. The commenter suggests that audit gases be used to tune the test apparatus before the test in order to obtain accurate data. This section also describes the use of commercially obtained gases for audit purposes. The commenter feels that this would require the testing firm to procure the audit cylinders well in advance of the test and could significantly increase the cost of testing. (IV-D-10)

Response: The audit requirement has been modified, and the source is no longer required to obtain audit gases if they are not available from the Agency. Tuning of the analytical instruments with audit gas is not necessary, since the calibration procedures are in place for that specific purpose.

Comment: One commenter requests clarification on Section

10.1.2.1 including what the accuracy of this procedure is, if EPA has any documentation on its precision, and, if so, where the documentation can be obtained. (IV-D-14)

Response: As noted earlier, this section has been removed in order to improve quality assurance procedures in the method as a response to public comment.

Comment: One commenter requests clarification on Section 10.1.2.2 including what the accuracy of this procedure is, if EPA has any documentation on its precision, and, if so, where the documentation can be obtained. (IV-D-14)

Response: As noted earlier, this section has been removed in order to improve quality assurance procedures in the method as a response to public comment.

Comment: In regard to Section 13.1, one commenter noted that Method 18 is not a method in the general sense, but is more of a guideline on how to develop and document a test method. Therefore, the commenter feels that the final method should be written up and submitted along with the proper documentation including the recovery study results. (IV-D-14)

Response: The Agency disagrees with the commenter. Method 18, which has been cited and utilized for many years, is a specific gas chromatography method with strict restrictions as to sampling, analysis, and data quality requirements. Due to the large number of possible target compounds and source matrices which this method addresses, the source has been given more options in terms of the sampling, separation, and analytical systems to be utilized for demonstration of compliance.

Comment: One commenter noted that Section 13.1 states "Gas chromatographic techniques typically provide a precision of 5 to 10 percent relative standard deviation (RSD), but an

experienced GC operator with a reliable instrument can readily achieve 5 percent RSD." The commenter requests clarification on the sample size that corresponds to 5% RSD. (IV-D-14)

Response: The Agency notes that 5 percent RSD has been achieved by the Agency in its testing, by sources who have followed this method for many years, and in the literature, within the confines of the method requirements, namely triplicate injections of a calibration gas standard.

Comment: In regard to Section 13.1(a), one commenter requests clarification on, for the precision, how the 5% of the mean value of triplicates compares with the 5% RSD. (IV-D-14)

Response: The Agency notes that this section is referring to the requirement that triplicate injections of calibration standard fall within 5 percent of their mean value. The values presented in Section 13.1 are theoretical performance values for gas chromatographic systems in general, while the precision, accuracy, and recovery criteria presented in Sections 13.1(a), (b), and (c), respectively, are specific requirements of Method 18.

Comment: In regard to Section 13.1(b), one commenter requests clarification on what the accuracy of the audit samples is. (IV-D-14)

Response: Section 13.1(b) specifies the accuracy which must be achieved by the source analyzing the audit gas sample, which is within 10 percent of the certified value.

Comment: In regard to Section 16.0, one commenter feels that this section should be revised to allow the use of impinger/liquid absorption material as well as non-commercial adsorbent and absorbent materials. The commenter feels that this section could be more widely usable and versatile by

allowing the use of impinger/liquid absorption based sample collection and the use of non-commercial adsorbent and absorbent materials as long as they meet the method quality assurance criteria. The commenter noted that the entire discussion of adsorption tube sampling also implies that the only analysis technique that can be used for these samples is gas chromatography. Many other separation techniques are available that will provide improved qualitative and/or quantitative accuracy. (IV-D-10)

Response: The Agency does allow the use of a water impinger with the use of adsorbents in Method 18. However, the use of non-commercially available adsorbents has not been studied by the Agency in application to this method. The Agency agrees that many other separation techniques are available, but notes that Method 18 is a specific gas chromatography technique. Sources wishing to utilize other sampling and/or separation techniques may do so upon validation of the technique according to the procedures in Method 301, 40 CFR Part 63, Appendix A.

Comment: In regard to Section 16.1.4.3, one commenter requests clarification on whether the 10% of audit concentration considers the accuracy with which the audit was prepared. (IV-D-14)

Response: The Agency has conducted an in-house audit program for many years, including one for Method 18. The audit accuracy requirements are based on past experience and the certified accuracy of the prepared audit samples.

Comment: One commenter noted that Section 17.0 contains many references which are from 16 to more than 30 years old and may contain procedures and work practices that are no longer used in most modern analytical laboratories. The

commenter recommends revising this section to reflect the most current references. (IV-D-10)

Response: The Agency agrees that some of the references might be dated, but these references were used in developing the method, and therefore must remain. The method itself, however, is still relevant, as the quality assurance practices and requirements are still being utilized.

3.2.2.6 Method 25-Determination of Total Gaseous Nonmethane Organic Emissions as Carbon

Comment: One commenter noted that Method 25 has limitations due to conditions that may exist in stack gas characteristics. If such conditions exist, then it is recommended to interface a nonmethane analyzer directly to the source or use Method 25A or 25B to measure the emissions. The commenter recommended modifying Method 25 to allow instruments that are able to determine the methane and nonmethane portions using components different from those described by Method 25 when the analyzer is directly interfaced to the source. The commenter feels that Method 25 would be more practical for determining methane/nonmethane emissions at the field site if the method could be modified to allow these other analyzers. The commenter feels that it will also be necessary that fixed performance specifications be defined in the method, such as those for Method 6C. (IV-D-03)

Response: These comments address method changes that are beyond those covered in the proposal notice and are, therefore, beyond the scope of this action. The commenter is encouraged to pursue these method changes through other appropriate channels.

3.2.2.7 Method 25C-Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gases

Comment: One commenter stated that the tank leak-check requirements in Section 8.1 are not stringent enough, especially for Method 25C. The commenter recommends either no change within 30 minutes or 1 mm Hg change in one hour if the requirement needs to be adjusted for field leak-check ease. (IV-D-26)

Response: We agree that the proposed requirement can potentially allow for too much ambient air inleakage. The original tank leak-check requirements have been reinstated.

Comment: In regard to Section 8.3, one commenter noted that when Section 4.3 of the promulgated version was converted to Section 8.3 of this proposed version, a very important step was deleted. The commenter stated that the flush with helium to remove nitrogen and the pre-charging of the canister is missing. The amount of nitrogen remaining after the evacuation for leak check may not be significant, but it could be inferred that the tank should be evacuated to the 10 mm Hg level prior to sampling. The commenter stated that, without the pre-charge of helium to 325 mm Hg prior to sampling, the sample is a hazardous shipment under DOT regulations. None of the currently used sample containers meet the DOT 4-G regulations for hazardous shipments. The commenter noted that either new canisters would have to be found or some type of external package meeting the shipping requirements found. The only other remedy would be to limit the sample tank volume to less than 2.5 L. The commenter feels that none of the alternatives seem to be appealing from a shipping cost standpoint. (IV-D-26)

Response: The helium flush and precharging step was

inadvertently left out of the proposed method. This was not our intent, and this step has been added to reformatted Method 25C.

Comment: One commenter suggested that the definition of P_{ti} should be changed from "gas sample tank pressure after evacuation" to something like "gas sample tank pressure before sampling." The commenter feels that the current wording could confuse people with the leak check evacuation and not the value recorded prior to sampling as specified in Section 8.3. (IV-D-26)

Response: We agree that the proposed wording may add confusion. The definition of P_{ti} will not change from the promulgated version which is "gas sample tank pressure before sampling."

Comment: One commenter stated that there is no determination of what constitutes a valid composite sample as referenced in the NSPS regulations. The commenter recommended wording similar to the following:

"A sample taken from a gas collection system will be considered a valid composite sample for the area incorporated by said system." (IV-D-26)

Response: Criteria for valid composite samples will be given in the method.

3.3 PART 60, APPENDIX B-PERFORMANCE SPECIFICATIONS

3.3.1 Performance Specifications (PS) - General

Comment: One commenter suggested that, in order to facilitate low level monitors, an absolute difference specification could be added to each PS, as in PS-4A. The

addition of the confidence coefficient in the determination of the absolute difference relative accuracy calculation in PS-4A would make the idea applicable to each of the PS. (IV-D-27)

Response: This idea appears plausible and we are considering it. However, it is best addressed in a separate rulemaking where the public will have the opportunity to comment.

3.3.2 Performance Specification 1-Specifications and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources

Comment: One commenter noted that a letter was sent to Mr. Anthony Wayne of the Emission Measurement Branch of the USEPA on December 7, 1992, which included a number of comments in regard to RM 203 with many references to PS-1. The commenter does not feel that these comments were adequately addressed in the current revisions. (IV-D-27)

Response: The mentioned comments are being evaluated under a separate action to amend Method 203 and PS-1 which will be published in the future. They are beyond the scope of the minor method revisions addressed in this rule.

3.3.3 Performance Specification 2-Specifications and Test Procedures for SO₂ and NO_x Continuous Emission Monitoring Systems in Stationary Sources

Comment: One commenter noted that this PS requires that the monitored process be operating at 50% of normal load for determining calibration drift or for conducting a RATA. Operating a 50% load or greater for extended periods of time may not be possible or appropriate at some facilities (i.e.,

sludge incinerators, peaking units, etc.). The commenter recommends that the definition of normal load be expanded to include a provision for sources which operate intermittently (refer to EMTIC Guideline Document GD-017). (IV-D-27)

Response: A definition of normal load which accomodates facilities which operate intermittently has been added to PS-2.

Comment: One commenter noted that, in Section 8.1.3.2, a stratification test procedure has been added. The commenter feels that EPA should not attempt to describe stratification test procedures in a one-half paragraph write up. The commenter recommends eliminating this discussion, and make the source owner and test crew responsible for collecting representative data. (IV-D-05)

Response: The stratification procedure added to PS-2 is only a suggested procedure. Other procedures more appropriate to special situations are allowed and encouraged. The source owner and test crew are responsible for collecting representative data, but they do have flexibility in how they determine whether stratification is present.

Comment: One commenter noted that, in Sections 8.4.3.1 and 8.4.3.2, the original wet chemistry reference methods are the only ones mentioned. Since the instrumental methods have been around for a number of years, the commenter suggests they be added. (IV-D-05)

Response: Methods 6 and 7 are only mentioned in Sections 8.4.3.1 and 8.4.3.2 as examples of integrated and grab sample methods. It is not the intent of this section to list all of the methods that are acceptable for the RA test. Acceptable RA test methods are listed in the applicable subparts to the regulations that apply to a regulated facility.

3.3.4 Performance Specification 15-Performance
Specification for Extractive FTIR Continuous
Emissions Monitor Systems in Stationary Sources

Comment: One commenter noted that the statement of applicability for the demonstration is limited to the criteria herein. The commenter stated that, with performance based measurement systems, the focus is on data quality objectives (DQO) where the PS is coupled with the DQO. (IV-D-04)

Response: The purpose of reference methods and, in this case PS, is to provide standard procedures for sources to follow in order to provide the public with quality emission data. However, the Agency provides latitude to sources by publishing performance-based methods and PS whenever possible. This PS is one such procedure; as long as it meets the requirements of the PS, any FTIR sampling system can be used for any regulated pollutant.

Comment: One commenter requested that EPA define method detection limit (MDL) and practical quantitation limit (PQL) for this continuous emission monitoring application. The commenter feels that the Agency must distinguish clearly between spectral noise and measurable signals for compliance determination. (IV-D-04)

Response: Since this PS may be applied to any number of pollutants using any number of sampling systems, we cannot define MDL and PQL. The MDL and PQL depend on many factors related to the emission source, the instrument's optical configuration, and the target analytes.

Comment: One commenter recommends that the ability to pass calibration, calibration drift tests, and RATAs serves as a final proof that PS-15 is met. The commenter noted that extractive IR, UV is used today without a concentration-

pathlength specification. The commenter feels that the requirements being written into the rule are not necessary. (IV-D-17)

Response: The PS does not contain a concentration-pathlength specification. It provides guidance to the source for choosing and evaluating an optical configuration, which includes selecting a suitable pathlength.

Comment: In regard to Section 3.0, one commenter noted that the MDL and PQL for each compound are dependent on the design of the hardware, the potential and level of background interference, and the infrared spectra of the species of interest. Meteorological conditions (temperature, pressure, humidity) will affect the MDL and PQL. The commenter feels that specific goals for these quantities should be guidance only. (IV-D-17)

Response: The PS addresses how the target analyte, optical design, and other factors affect MDL and PQL. Meteorological conditions, except pressure, have no effect on extractive closed-cell measurements. Pressure effects are accounted for in extractive measurements by following the PS-15 requirement for recording the ambient pressure and by equilibrating the sample pressure with the ambient pressure.

Comment: One commenter stated that the method needs to consider the effect on the output of a gas entering the system that has an additive absorption in the area of interest, whether it is considered a pollutant or not. (IV-D-17)

Response: The PS addresses this issue in the discussion of spectral interferences. The source should design the analytical software to subtract all interferences, which means that the source to be monitored must be well-characterized.

Comment: In regard to Section 3.10, two commenters stated

that the Agency should consider deviations greater than 5% acceptable upon Agency review. There may be applications where the background deviation specification becomes technology limiting. The commenters strongly recommend that the Agency test this PS prior to proposing a change to §60.100 rules. (IV-D-04, IV-D-17)

Response: We have utilized extractive FTIR systems for source measurements since 1992 and have become very experienced with the technology. Upon reflection on the commenter's suggestion, the background deviation allowance has been expanded to ± 10 percent.

Comment: One commenter noted that Section 6.1 states that installation of the sampling equipment should follow the requirements of EPA Test Methods contained in References 1 and 3, and the EPA FTIR protocol. These references are to Method 318 (an FTIR instrumental test method). The commenter suggests using the criteria outlined in PS 2, Section 3. (IV-D-15)

Response: We agree with this comment and have modified the PS accordingly.

Comment: One commenter noted that Section 6.2 makes statements that seem to imply that an operator will be interpreting the spectra, and conducting analysis on a run by run basis. The commenter feels that it has no bearing on the continuous operation of an FTIR measurement system. (IV-D-15)

Response: Section 6.2 deals with the FTIR system set-up and not its continuous, ongoing operation. This section will help the instrument operator evaluate the suitability of the optical configuration.

Comment: In regard to Section 6.3, one commenter noted that Part A of this section states that one interferogram per

sampling run or per hour must be saved. The commenter feels that this implies that this is an instrumental test method, not a performance specification for a continuous emission monitoring system. Part E of this section states that all data must be stored for at least 2 weeks, after which the requirements are lessened. The commenter requests clarification of the requirements for spectral examination of the 2 week data files. The commenter also feels that this section should require recording the barometric pressure on a daily basis. (IV-D-15)

Response: We agree that this section is confusing, and have clarified the data storage requirements of this PS.

Comment: In regard to Section 7.0, two commenters recommend greater guidance on standards and reagents including American Chemical Society reagent standard designations and National Institute for Standards and Technology (NIST) standards, reference material or NIST traceable reference material. (IV-D-04, IV-D-17)

Response: We did not provide more specific requirements for the reagents and standards due to the fact that this PS may be applied to any of hundreds of pollutants, some of which are not available in certified cylinder form.

Comment: One commenter stated that, in Section 8.0, guidance is needed on sample collection, preservation, storage, and transport. In particular, the commenter feels that the Agency should address the general use and applicability of Tedlar bags and Summa canisters for reference, calibration, and source samples. (IV-D-04)

Response: Since this PS is an on-line, continuous instrumental procedure, sample collection, preservation, storage and transport are not applicable. The FTIR Protocol

provides guidance on reference preparation.

Comment: One commenter noted that Section 10.1 states that the CTS measurements made at the beginning of each 24-hour period must agree to within 5 percent. Verification of the instrument frequency response and absorbance intensity of the CTS is also required. The commenter requests clarification on the corrective action if the 5 percent criterion is not met and the corrective action if the frequency has shifted. (IV-D-15)

Response: We agree that the wording in this section requires clarification, and have modified Section 10.1 accordingly. We have found that, over many years of testing experience with FTIR, in practice, the spread in CTS measurements over several days is usually less than 1 percent. Because many things can cause CTS failure, the corrective action will depend on the nature of the malfunction, we cannot provide instructions for every contingency. Furthermore, only testers familiar with FTIR technology should be conducting the testing for this PS (as with any analytical instrument), and thus should not need instructions on how to operate and maintain an FTIR instrument.

Comment: One commenter noted that Section 10.3 states that the system calibration results must be equal to the absorbance for the analyte calibration. The commenter requests clarification on whether this means that the results have to be identical and what the specification is for acceptance for the system calibration. Additionally, the commenter feels that the procedure should state that the system calibration standard must be introduced upstream of the particulate filter (if used). (IV-D-15)

Response: Upon further deliberation, we have removed the

system calibration requirement from the PS. Since both a system calibration and the CTS measurement basically test instrument function, having both these requirements in the PS would be redundant.

Comment: In regard to Section 10.4, one commenter stated that the Agency needs to consider the practicality of analyte spiking for applications where the sample probe is not readily accessed without serious safety implications. The commenter feels that the sampling system bias needs to be addressed; however, this requirement should be addressed on a site-specific basis. (IV-D-04)

Response: Automated sampling valves are available for spiking when testing in locations where safety hazards are an issue of concern.

Comment: One commenter noted that Section 10.5 states that the S/N is defined as the "RMS noise level of a contiguous segment of spectrum...A loss of S/N may indicate a loss in optical throughput, or detector or interferometer malfunction." The commenter requests clarification on the corrective action for a loss of S/N and at what percent loss of S/N is the corrective action taken. (IV-D-15)

Response: Because many things can cause loss of S/N, the corrective action will depend on the nature of the malfunction, and we cannot provide instructions for every contingency. Furthermore, only testers familiar with FTIR technology should be conducting the testing for this PS (as with any analytical instrument), and thus should not need instructions on how to operate and maintain an FTIR instrument.

Comment: In regard to Section 10.7, one commenter feels that the requirements for detector linearity are unclear.

(IV-D-15)

Response: Section 10.7 contains two procedures for checking the linearity of the detector over a range of power incidents. Detector response for FTIR is generally linear at lower incident power and becomes non-linear as the incident power is increased. We believe that instrument linearity is crucial as a quality assurance procedure, and that an operator familiar with FTIR should, as a routine component of instrument operation, conduct a linearity check over a range of power incidents.

Comment: One commenter noted that Section 11.1 states that the FTIR CEM can be certified upon installation using Method 301. The commenter noted that Method 301 does not determine the ruggedness of a CEMS or its ability to operate continuously over an extended period of time. The commenter feels that provisions for an extended evaluation (such as the 7-day drift test contained in PS-2) should be included. (IV-D-15)

Response: The CTS test provides an ongoing test of instrument drift, and since it is conducted daily, the Agency believes this requirement is a more rigorous check of drift than a 7-day test.

Comment: One commenter recommended that a method validation plan be used that incorporates a Method 301 type validation or other statistically acceptable protocol. The commenter noted that this approach is consistent with performance based measurement systems and recognizes the site-specific validation issues. (IV-D-04)

Response: Method 301 is a validation procedure for test methods, not performance specifications. We believe the analyte spiking procedure in the PS is a rigorous check of

system bias.

Comment: One commenter recommended the requirement for nine runs be considered guidance, or that language be added that the "number of runs be selected consistent with performance based measurement systems and data quality objective requirement." Further, the commenter stated that this same concept should apply to Section 11.1.1.4.3 where 10 runs should be considered guidance similar to comments in 11.1.1.4. The commenter stated that, in summary, the required number of runs should be "guidance" rather than prescriptive. (IV-D-04)

Response: The requirement for nine runs (when comparing the FTIR to a reference method) and 10 runs (when comparing the FTIR to a reference monitor) is standard for performance specifications. The Agency notes that this PS also allows analyte spiking as an option, and thus believes that a revision of the PS on this point is not necessary.

Comment: One commenter noted that Section 11.1.1.4.3 states "if the reference method is a CEM, synchronize the sampling flow rates of the RM and the FTIR CEM." The commenter noted that instrumental analyzers are used for reference methods. EPA Methods 6C, 7E, 3A and 10 measure SO₂, NO_x, O₂, CO₂, and CO on a continuous basis for a short period of time that is defined as a test. The continuous operation of instrumental analyzers over long periods of time is not defined as reference methods. The commenter feels that statements such as this reflect the fact that this performance specification is actually a form of an instrumental test method, not a specification for the use of an FTIR analyzer over an extended period of time. (IV-D-15)

Response: We disagree with the commenter's

interpretation of the purpose of test methods versus PS. A test method is a short (usually consists of 3 runs) demonstration of compliance with the regulation, while a PS is a procedure for validation and operation of a CEMS for use in compliance with the monitoring provisions of a regulation. As an example, Method 25A (40 CFR Part 60, Appendix A) is a test method which utilizes a flame ionization analyzer (FIA) for demonstrating compliance while PS-8 (40 CFR Part 60, Appendix B) is used when utilizing a FIA as a CEMS.

4.0 40 CFR PART 61

4.1 PART 61 PROPOSED REGULATORY REVISIONS

Comment: One commenter stated that, in Revision 120 in the revised definitions of HT and H_i , the parenthetical expressions need to be changed from "(77°F and 14.7 psi)" to "(77°F and 30 in. Hg)" for consistency with the Part 60 revisions. Also, EPA needs to correct the K constant to 1.740×10^{-7} (not 1.740×10^7), and the English unit version of that constant to 1.029×10^{-8} . The English unit version of that constant was proposed as 4.674×10^8 [(g-mole)(Btu)/(ppm-scf-kcal)]. Also, the C_i definition should be corrected to say "concentration on a wet basis of ...". The C_i definition should be revised to cite ASTM D1946-77,90,94 rather than D2504-67,77,88,93 for consistency with all the other flare requirements. (IV-D-12)

Response: These numerical corrections have been made. Citing ASTM D1946 is beyond the scope of this rulemaking.

APPENDIX A

ENVIRONMENTAL MONITORING MANAGEMENT COUNCIL'S METHODS FORMAT

The test methods and performance specifications in 40 CFR Parts 60, 61, and 63 were restructured in the format recommended by EMMC. Only in a few instances were there any deviations from this recommended format. The following is an outline of this recommended format:

- 1.0 Scope and Application.
- 2.0 Summary of Method.
- 3.0 Definitions.
- 4.0 Interferences.
- 5.0 Safety.
- 6.0 Equipment and Supplies.
- 7.0 Reagents and Standards.
- 8.0 Sample Collection, Preservation, Storage, and Transport.
- 9.0 Quality Control.
- 10.0 Calibration and Standardization.
- 11.0 Analytical Procedures.
- 12.0 Calculations and Data Analysis.
- 13.0 Method Performance.
- 14.0 Pollution Prevention.
- 15.0 Waste Management.
- 16.0 References.
- 17.0 Tables, Diagrams, Flowcharts, and Validation Data.

APPENDIX B

NUMBERS OF MOST CURRENT OF ASTM STANDARDS

The following list was provided in Docket No. IV-D-07 and provides the number of the most current ASTM standards.

A99-82 (There is no 87 version - it was reapproved in 1987.)
A100-93
A101-93
A482-93
A483-64 (There are no 74 or 88 versions. It was reapproved those years.)
A495-94
D86-96
D129-95
D240-92
D270 was withdrawn and replaced by D4057-95 and D4177-95.
D323-94
D388-95
D396-97
D975-97
D1072-90 (There is no 94 version. It was reapproved in 1994.)
D1137-53 (There is no 75 version. It was reapproved in 1975.)
D1193-91
D1266-91
D1475-90
D1552-95
D1835-91
D1826-94
D1945-96

D1946-90 (There is no 94 version. It was reapproved
in 1994.)
D2013-86
D2015-96
D2016 was withdrawn and replaced with D4442-92 and D444-
88.
D2234-96
D2369-97
D2382-88 was withdrawn and replaced by D4809-95.
D2504-88 (There is no 93 version.)
D2584-94
D2622-94
D2879-97
D2880-96
D2908-91
D2986-95a
D3031-81
D3173-87 Discontinued.
D3176-89
D3177-89
D3178-89
D3246-96
D3370-95a
D3431-80 Discontinued.
D3792-91
D4017-96a
D4057-95
D4084-94
D4177-95
D4239-94
D4442-92
D4444-92
D4457-85 (There is no 91 version.)
D4809-95
D5403-93
E168-92
E169-93
E260-96