

September 5, 2000

SUMMARY OF EPA EMISSION TEST METHODS
Title 40
Office of Air Quality Planning and Standards

<u>Method</u>	<u>Reference</u>		<u>Description</u>
<u>Part 51, Appendix M</u>			
201	55 FR 14246	04/17/90	PM-10 (EGR procedure).
201A	55 FR 14246	04/17/90	PM-10 (CSR procedure).
201A	55 FR 24687	06/18/90	Correction of equations.
201	55 FR 37606	09/12/90	Correction of equations.
202	56 FR 65433	12/17/91	Condensable PM.
203 P	57 FR 46114	10/07/92	Transmissometer for compliance.
203A P	58 FR 61640	11/22/93	Visible Emissions - 2-6 min avg.
203B P	58 FR 61640	11/22/93	Visible Emissions - time exceptions.
203C P	58 FR 61640	11/22/93	Visible Emissions - instantaneous.
204	62 FR 32500	06/16/97	VOC Capture Efficiency.
204A	62 FR 32500	06/16/97	VOC Capture Efficiency.
204B	62 FR 32500	06/16/97	VOC Capture Efficiency.
204C	62 FR 32500	06/16/97	VOC Capture Efficiency.
204D	62 FR 32500	06/16/97	VOC Capture Efficiency.
204E	62 FR 32500	06/16/97	VOC Capture Efficiency.
204F	62 FR 32500	06/16/97	VOC Capture Efficiency.
205	59 FR 19590	05/30/94	Dilution calibration verification.
206	Tentative		Ammonia (NH ₃).
207 P	62 FR 64532	12/08/97	Isocyanates.
<u>Part 60, Appendix A</u>			
1-29 P	62 FR 45639	08/27/97	Reformat, revise, amend methods.
1-8	42 FR 41754	08/18/77	Velocity, Orsat, PM, SO ₂ , NO _x , etc.
	43 FR 11984	03/23/78	Corr. and amend. to M-1 thru 8.
1/24	52 FR 34639	09/14/87	Technical corrections.
	52 FR 42061	11/02/87	Corrections.
2-25	55 FR 47471	11/14/90	Technical amendments.

1	48 FR 45034	09/30/83	Reduction of number of traverse points.
1	51 FR 20286	06/04/86	Alternative procedure for site selection.
1A	54 FR 12621	03/28/89	Traverse points in small ducts.
2A	48 FR 37592	08/18/83	Flow rate in small ducts - vol. meters.
2B	48 FR 37594	08/18/83	Flow rate - stoichiometry.
2C	54 FR 12621	03/28/89	Flow rate in small ducts - std. pitot.
2D	54 FR 12621	03/28/89	Flow rate in small ducts - rate meters.
2E	61 FR 9929	03/12/96	Flow rate from landfill wells.
2F	64 FR 26484	05/14/99	3D pitot for velocity.
2G	64 FR 26484	05/14/99	2D pitot for velocity.
2H	64 FR 26484	05/14/99	Velocity decay near the stack wall.
3	55 FR 05211	02/14/90	Molecular weight.
3/3B	55 FR 18876	05/07/90	Method 3B applicability.
3A	51 FR 21164	06/11/86	Instrumental method for O ₂ and CO ₂ .
3B	55 FR 05211	02/14/90	Orsat for correction factors and excess air.
3C	61 FR 9929	03/12/96	Gas composition from landfill gases.
3	48 FR 49458	10/25/83	Addition of QA/QC.
4	48 FR 55670	12/14/83	Addition of QA/QC.
5	48 FR 55670	12/14/83	Addition of QA/QC.
5	45 FR 66752	10/07/80	Filter specification change.
5	48 FR 39010	08/26/83	DGM revision.
5	50 FR 01164	01/09/85	Incorp. DGM and probe cal. procedures.
5	52 FR 09657	03/26/87	Use of critical orifices as cal stds.
5	52 FR 22888	06/16/87	Corrections.
5A	47 FR 34137	08/06/82	PM from asphalt roofing (Prop. as M-26).
5A	51 FR 32454	09/12/86	Addition of QA/QC.
5B	51 FR 42839	11/26/86	Nonsulfuric acid PM.
5C	Tentative		PM from small ducts.
5D	49 FR 43847	10/31/84	PM from fabric filters.
5D	51 FR 32454	09/12/86	Addition of QA/QC.
5E	50 FR 07701	02/25/85	PM from fiberglass plants.
5F	51 FR 42839	11/26/86	PM from FCCU.
5F	53 FR 29681	08/08/88	Barium titration procedure.
5G	53 FR 05860	02/26/88	PM from wood stove - dilution tunnel.

5H	53 FR 05860	02/26/88	PM from wood stove - stack.
5I	64 FR 53027	09/30/99	PM for RATA of PM CEMS.
6	49 FR 26522	06/27/84	Addition of QA/QC.
6	48 FR 39010	08/26/83	DGM revision.
6	52 FR 41423	10/28/87	Use of critical orifices for FR/vol meas.
6A	47 FR 54073	12/01/82	SO ₂ /CO ₂ - manual method.
6B	47 FR 54073	12/01/82	Auto SO ₂ /CO ₂ .
6A/B	49 FR 09684	03/14/84	Incorp. coll. test changes.
6A/B	51 FR 32454	09/12/86	Addition of QA/QC.
6C	51 FR 21164	06/11/86	Instrumental method for SO ₂ .
6C	52 FR 18797	05/27/87	Corrections.
7	49 FR 26522	06/27/84	Addition of QA/QC.
7A	48 FR 55072	12/08/83	Ion chromatograph NO _x analysis.
7A	53 FR 20139	06/02/88	ANPRM.
7A	55 FR 21752	05/29/90	Revisions.
7B	50 FR 15893	04/23/85	UV NO _x analysis for nitric acid plants.
7A/B	Tentative		High SO ₂ interference.
7C	49 FR 38232	09/27/84	Alkaline permanganate/colorimetric for NO _x .
7D	49 FR 38232	09/27/84	Alkaline permanganate/IC for NO _x .
7E	51 FR 21164	06/11/86	Instrumental method for NO _x .
8	36 FR 24876	12/23/71	Sulfuric Acid mist and SO ₂ .
8	42 FR 41754	08/18/77	Addition of particulate and moisture.
8	43 FR 11984	03/23/78	Miscellaneous corrections
9	39 FR 39872	11/12/74	Opacity.
9A	46 FR 53144	10/28/81	Lidar opacity; called Alternative 1.
10	39 FR 09319	03/08/78	CO.
10	53 FR 41333	10/21/88	Alternative trap.
10A	52 FR 30674	08/17/87	Colorimetric method for PS-4.
10A	52 FR 33316	09/02/87	Correction notice.
10B	53 FR 41333	10/21/88	GC method for PS-4.
11	43 FR 01494	01/10/78	H ₂ S.
12	47 FR 16564	04/16/82	Pb.
12	49 FR 33842	08/24/84	Incorp. method of additions.

13A	45 FR 41852	06/20/80	F - colorimetric method.
13B	45 FR 41852	06/20/80	F - SIE method.
13A/B	45 FR 85016	12/24/80	Corr. to M-13A and 13B.
14	45 FR 44202	06/30/80	F from roof monitors.
14A	Tentative		Cassette Sampling for Total Florides.
15	43 FR 10866	03/15/78	TRS from petroleum refineries.
15	54 FR 46236	11/02/89	Revisions.
15	54 FR 51550	12/15/89	Correction notice.
15A	52 FR 20391	06/01/87	TRS alternative/oxidation.
16	43 FR 07568	02/23/78	TRS from kraft pulp mills.
16	43 FR 34784	08/07/78	Amend. to M-16, H ₂ S loss after filters.
16	44 FR 02578	01/12/79	Amend. to M-16, SO ₂ scrubber added.
16	54 FR 46236	11/02/89	Revisions.
16	55 FR 21752	05/29/90	Correction of figure ($\pm 10\%$).
16A	50 FR 09578	03/08/85	TRS alternative.
16A	52 FR 36408	09/29/87	Cylinder gas analysis alternative method.
16B	52 FR 36408	09/29/87	TRS alternative/GC analysis of SO ₂ .
16A/B	53 FR 02914	02/02/88	Correction 16A/B.
17	43 FR 07568	02/23/78	PM, in-stack.
18	48 FR 48344	10/18/83	VOC, general GC method;.
18	49 FR 22608	05/30/84	Corrections to M-18.
18	52 FR 51105	02/19/87	Revisions to improve method.
18	52 FR 10852	04/03/87	Corrections.
18	59 FR 19308	04/22/94	Revisions to improve QA/QC.
19	44 FR 33580	06/11/79	F-factor, coal sampling.
19	52 FR 47826	12/16/87	M-19A incorp. into M-19
19	48 FR 49460	10/25/83	Corr. to F factor equations and F _c value.
20	44 FR 52792	09/10/79	NO _x from gas turbines.
20	47 FR 30480	07/14/82	Corr. and amend.
20	51 FR 32454	09/12/86	Clarifications.
21	48 FR 37598	08/18/83	VOC leaks.
21	49 FR 56580	12/22/83	Corrections to Method 21.
21	55 FR 25602	06/22/90	Clarifying revisions.

22	47 FR 34137	08/06/82	Fugitive VE.
22	48 FR 48360	10/18/83	Add smoke emission from flares.
23	56 FR 5758	02/13/91	Dioxin/dibenzo furan.
23R	60 FR 28378	05/31/95	Revisions and corrections.
24	45 FR 65956	10/03/80	Solvent in surface coatings.
24A	47 FR 50644	11/08/82	Solvent in ink (Prop. as M-29).
24	Tentative		Solvent in water-borne coatings.
24	57 FR 30654	07/10/92	Multicomponent coatings.
24	60 FR 47095	09/11/95	Radiation-cured coatings.
25	45 FR 65956	10/03/80	TGNMO.
25	53 FR 04140	02/12/88	Revisions to improve method.
25	53 FR 11590	04/07/88	Correction notice.
25A	48 FR 37595	08/18/83	TOC/FID.
25B	48 FR 37597	08/18/83	TOC/NDIR.
25C	61 FR 9929	03/12/96	VOC from landfills.
25D	59 FR 19311	04/22/94	VO from TSDF - purge procedure.
25E	59 FR 62896	12/06/94	VO from TSDF - vapor pressure procedure.
26	56 FR 5758	02/13/91	HCl.
26	57 FR 24550	06/10/92	Corrections to Method 26.
26	59 FR 19309	04/22/94	Add 26 HCl, halogens, other hydrogen halides.
26A	59 FR 19309	04/22/94	Isokinetic HCl, halogens, hydrogen halides.
27	48 FR 37597	08/18/83	Tank truck leaks.
28	53 FR 05860	02/26/88	Wood stove certification.
28A	53 FR 05860	02/26/88	Air to fuel ratio.
29	61 FR 18262	04/25/96	Multiple metals.

Part 60, Appendix B

PS-2 - 9 P	62 FR 45639	08/27/97	Reformat, revise, amend performance specs.
PS-1	48 FR 13322	03/30/83	Opacity.
PS-1 P	59 FR 60585	11/25/94	Revisions.
PS-1	65 FR 48914	08/10/00	Revisions, final rule.
PS-2	48 FR 23608	05/25/83	SO ₂ and NO _x .

PS 1-5	55 FR 47471	11/14/91	Technical amendments.
PS-3	48 FR 23608	05/25/83	CO ₂ and O ₂ .
PS-4	50 FR 31700	08/05/85	CO.
PS-4A	56 FR 5526	02/11/91	CO for MWC.
PS-4B P	61 FR 17495	04/19/96	CO and O ₂ for HWI (BIF rules)
PS-4B	64 FR 53032	09/30/99	Final rule.
PS-5	48 FR 32984	07/20/83	TRS.
PS-6	53 FR 07514	03/09/88	Velocity and mass emission rate.
PS-7	55 FR 40171	10/02/90	H ₂ S.
PS-8	59 FR 64580	12/15/94	VOC CEMS performance specifications.
PS-8A P	61 FR 17495	04/19/96	VOC CEMS for HWI (BIF rules)
PS-8A	64 FR 53033	09/30/99	Final rule.
PS-9	59 FR 64580	12/15/94	GC CEMS performance specifications.
PS-10A P	61 FR 17495	04/19/96	Metals CEMS.
PS-11	Tentative		PM CEMS.
PS-11A P	61 FR 17495	04/19/96	PM CEMS (BIF MACT).
PS-12	Tentative		Hg CEMS.
PS-12A P	61 FR 17495	04/19/96	Hg CEMS (BIF MACT).
PS-13	Tentative		HCl CEMS.
PS-13A P	61 FR 17495	04/19/96	HCl CEMS (BIF MACT).
PS-14	Tentative		Cl CEMS.
PS-14A	61 FR 17495	04/19/96	Cl CEMS (BIF MACT).
PS-15 P	62 FR 45372	08/27/97	FTIR CEMS.

Part 60, Appendix F

Prc 1	52 FR 21003	06/04/87	Quality assurance for CEMS.
Prc 1	56 FR 5527	02/11/91	Revision.

Part 60, Appendix J

App-J	55 FR 33925	08/20/90	Wood stove thermal efficiency.
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Alternative Procedures and Miscellaneous

	48 FR 44700	09/29/83	S-Factor method for sulfuric acid plants.
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48 FR 48669	10/20/83	Corrections to S-Factor publication.
49 FR 30672	07/31/84	Add fuel analysis procedures for gas turbines.
51 FR 21762	06/16/86	Alternative PST for low level concentrations.
54 FR 46234	11/02/89	Misc. revisions to Appendix A, 40 CFR Part 60.
55 FR 40171	10/02/90	Monitoring revisions to Subpart J (Petr. Ref.).

Part 60

54 FR 06660	02/14/89	Test methods & procedures rev. (40 CFR 60).
54 FR 21344	05/17/89	Correction notice.
54 FR 27015	06/27/89	Correction notice.

Part 61, Appendix B

101-111 P	62 FR 45639	08/27/97	Reformat, revise, amend methods.
101	47 FR 24703	06/08/82	Hg in air streams.
101A	47 FR 24703	06/08/82	Hg in sewage sludge incinerators.
101A	61 FR 18262	04/25/96	Revisions - Consistency with Method 29.
101	49 FR 35768	09/12/84	Corrections to M-101 and 101A.
102	47 FR 24703	06/08/82	Hg in H ₂ streams.
103	48 FR 55266	12/09/83	Revised Be screening method.
104	48 FR 55268	12/09/83	Revised beryllium method.
105	40 FR 48299	10/14/75	Hg in sewage sludge.
105	49 FR 35768	09/12/84	Revised Hg in sewage sludge.
106	47 FR 39168	09/07/82	Vinyl chloride.
107	47 FR 39168	09/07/82	VC in process streams.
107	52 FR 20397	06/01/87	Alternative calibration procedure.
107A	47 FR 39485	09/08/82	VC in process streams.
108	51 FR 28035	08/04/86	Inorganic arsenic.
108A	51 FR 28035	08/04/86	Arsenic in ore samples.
108B	51 FR 22026	05/31/90	Arsenic in ore alternative.
108C	55 FR 22026	05/31/90	Arsenic in ore alternative.
108B/C	55 FR 32913	08/13/90	Correction notice.
111	50 FR 05197	02/06/85	Polonium-210.
114	54 FR 51695	12/15/89	Monitoring of radio nuclides.
115	54 FR 51702	12/15/89	Radon-222.

Part 61

53 FR 36972 09/23/88 Corrections.

Part 63 Appendix A

303-306 P	62 FR 45639	08/27/97	Reformat, revise, amend methods.
301	57 FR 61970	12/29/92	Field data validation protocol.
302			(Reserved)
303	58 FR 57898	10/27/93	Coke Oven Door Emissions.
304A	62 FR 2793	01/17/97	Biodegradation rate (vented).
304B	62 FR 2793	01/17/97	Biodegradation rate (enclosed).
305	59 FR 19590	04/22/94	Compound specific liquid waste.
306	60 FR 4948	01/25/95	Chromium from electroplaters/anodizers.
306A	60 FR 4948	01/25/95	Simplified Chromium sampling.
306B	60 FR 4948	01/25/95	Surface tension of chromium suppressors.
307	59 FR 61801	12/02/94	Solvent Degreaser VOC.
308 P	58 FR 66079	12/17/93	Methanol.
309 P		06/06/94	Aerospace solvent recovery material balance.
310A	62 FR 12546	03/17/97	Residual hexane in EPDM rubber.
310B	62 FR 12546	03/17/97	Residual hexane in EPDM rubber.
310C	62 FR 12546	03/17/97	Residual hexane in EPDM rubber.
311	60 FR 62930	12/07/95	VOC HAPS in furniture coatings.
312A	62 FR 12546	03/17/97	Residual styrene in SBR rubber.
312B	62 FR 12546	03/17/97	Residual styrene in SBR rubber.
312C	62 FR 12546	03/17/97	Residual styrene in SBR rubber.
313A	62 FR 12546	03/17/97	Residual styrene in PBR rubber.
313B	62 FR 12546	03/17/97	Residual styrene in PBR rubber.
314	Tentative		Halogenated compounds in solvents.
315	62 FR 52418	10/07/97	MeCl Extractable organic matter.
316 P	62 FR 15257	03/31/97	Formaldehyde - manual method.
317	Tentative		Phenol - manual method.
318 P	62 FR 52266	03/31/97	Formaldehyde, phenol, methanol with FTIR.
319 P	61 FR 55862	10/29/96	Filter efficiency, paint over-spray.

320	64 FR 31898	06/14/99	Extractive FTIR.
321	64 FR 31898	06/14/99	FTIR for HCl from Portland Cement kilns.
322	Tentative		GFC/IR for HCl from Portland cement kilns.

P = Proposal

Tentative = Under evaluation