Updated October 26, 1993

MEMORANDUM

SUBJECT: Audit Materials Available through EMTIC for Source Testing Measurements

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Attached is a listing of all source test audit materials available through EMTIC to federal, state, and local agencies for use during performance specification tests and compliance tests. In addition, these audit materials are available indirectly (i.e., through the federal, state, and local agencies) to source owners or their source test consultants who are applying EPA Method 301 on test methods not validated by EPA (i.e., their own methods). We request you make the attached information available to Agency personnel and source owners/source test consultants by means of the EMTIC electronic bulletin board and the EMTIC quarterly newsletter. In order to focus on and encourage increased auditing to ensure adequate data quality during performance specification tests and compliance tests, we recommend you include the attached listing of available audit materials every quarter in the EMTIC quarterly newsletter and update the bulletin board at that time. We will be pleased to update the list of available audit materials prior to each EMTIC quarterly newsletter.

EPA AUDIT MATERIALS
Available through EMTIC
Research Triangle Park, North Carolina

October 1993

The following EPA audit materials are available directly only to personnel of federal, state and local air pollution control agencies. Several EPA reference test methods require the analysis of EPA audit materials as part of the source test. An audit, even when not specifically required in the reference test method, should be conducted whenever the source testing is conducted for the following two purposes:

1. Performance Specification Testing. During a performance specification test used to determine acceptance of an installed pollution control system and/or pollution monitoring system: conduct an audit.

2. Compliance Testing. During a compliance test used to demonstrate that the source is operating within EPA, state or local agency emission regulations: conduct an audit.

Regardless of the purpose for the source test, the results of the audit must be provided to the government agency reviewing the source test results. Audits during performance and compliance testing, document the proficiency of the source test independently since the auditee does not know the values of the EPA audit materials.

The following EPA audit materials are currently available by calling the EPA contact person shown. Anticipate your need for the audit materials; allow 30 days between request and delivery. Currently, there is no charge for audit materials except cylinder gas audit containers must be returned at the expense of the auditee or audit requester.

I. Clean Air Act NSPS, NESHAP and SIP

The following EPA audit materials are available for auditing source tests for NSPS (New Source Performance Standards), NESHAP (National Emission Standards for Hazardous Air Pollutants) and SIP (state emission standards as part of State Implementation Plans).

Some of these audit materials may also be useful in auditing source tests required by RCRA regulations for the burning of hazardous waste in incinerators, boilers, and industrial furnaces.

A. EPA Method 6 (SO_2)
Glass ampules
Components: 3 solutions in concentration range between 100 and 3000 mg SO_2/DSCM
Acceptance criteria: ± 5% of audit value
Contact: Ellen Streib (AREAL) (919) 541-7834

B. EPA Method 7 (NO_x)
Glass ampules
Components: 3 solutions in concentration range between 100 and 2000 mg NO_2/DSCM
Acceptance criteria: ± 10% of audit value
Contact: Ellen Streib (AREAL) (919) 541-7834

C. EPA Method 18 (organic gases by gas chromatography)
Gas cylinder
Components: One organic gas per cylinder in N_2. 78 organic gases available. See "List of Audit Gases Available for NSPS, NESHAP, and SIP Regulations"
Contact: Ellen Streib (AREAL) (919) 541-7834

D. EPA Method 23 (dioxin/furan)
Amber glass container
Components: Spiked amberlite resin (XAD-2), 11 dioxin and 14 furan isomers (3 samples in concentration range between 0 and 500 ng dioxin/furan per sample)
Acceptance criteria: ± 50% of value
Contact: Easter Coppedge (AREAL) (919) 541-7863

E. EPA Method 25 (TGNMO)
Gas cylinders
Components: Aliphatic hydrocarbons, aromatic hydrocarbons, CO_2 in N_2 (2 cylinders: 1 between 50 and 300 ppmC and 1 between 700 and 2000 ppmC)
Acceptance criteria: ± 20% of value
Contact: Ellen Streib (AREAL) (919) 541-7834

F. EPA Method 26 (HCl)
Glass ampules
Components: 4 solutions in concentration range between 25 and 900 mg Cl/L
Contact: Ellen Streib (AREAL) (919) 541-7834

G. EPA Method 28 (wood heater integrity)
Leak check device

Components: Metal flue and flow rate instrumentation
Acceptance criteria: < 20% of total flow
Contact: Mike Toney (OAQPS) (919) 541-5247

H. EPA Method 301 (Non-EPA validated source test methods)

Any of the EPA audit materials are available to source owners or their source test consultants using EPA Method 301 (Field Validation of Emission Concentrations from Stationary Sources). The permitting authority (EPA regional offices, state and local agencies) must request the EPA audit materials for the source owners or their source test consultants.

II. Resource Conservation Recovery Act (RCRA) Regulations for Burning of Hazardous Waste

The following are EPA audit materials for auditing source tests during the burning of hazardous waste in incinerators, boilers and industrial furnaces. Some of these audit materials may also be useful in auditing source tests required by Clean Air Act regulations.

A. Volatile Organic Sampling Train (Method 0030 in SW-846: Test Methods for Evaluating Solid Waste)
Gas Cylinder
Components: Five to nine organic gases in N_2 per cylinder. Twenty-six (26) organic gases available at ppb concentration levels. See "List of Audit Gases Available for RCRA Regulations for Burning of Hazardous Waste".
Contact: Ellen Streib (AREAL) (919) 541-7834

B. Multiple hazardous metals (Not Available at This Time)
Quartz filters
Components: Two glass fiber filters: each filter spiked with As, Be, Cd, Ni, Pb, Hg, Zn, Sb, Ba, Cu, Mn, P, Se, Ag, Ti, Total Cr.
Acceptance criteria: ± 10% of value
Contact: Ellen Streib (AREAL) (919) 541-7834

List of Audit Gases Available
for
RCRA Regulations for Burning of Hazardous Waste*

Group I Compounds	Group II Compounds	Group III Compounds	Group IV Compounds
Carbon tetrachloride Chloroform Perchloroethylene Vinyl chloride Benzene	Trichloroethylene 1,2-dichloro-ethane 1,2-dibromoethane Acetonitrile Trichloro-fluoromethane (F-11) Dichloro-difluoromethane (F-12) Bromomethane Methyl ethyl ketone 1,1,1-trichloro-ethane	Vinylidene chloride 1,1,2-trichloro-1,2,2-trifluoro-ethane (F-113) 1,2-dichloro-1,1,2,2,-tetra-fluoroethane (F-114) Acetone 1,4-Dioxane Chlorobenzene Toluene Pyridine***	Acrylonitrile 1,3-Butadiene Ethylene oxide** Methylene chloride Propylene oxide** o-Xylene
Group I <u>Available</u> 7 to 90 ppb 90 to 430 ppb 430 to 10,000 ppb	Group II <u>Available</u> 7 to 90 ppb 90 to 430 ppb	Group III <u>Available</u> 7 to 90 ppb 90 to 430 ppb	Group IV <u>Available</u> 7 to 90 ppb 430 to 20,000 ppb

*All gas standards are in a balance gas of nitrogen.
**The concentration of this compound in the cylinders in the 7 to 90 ppb range is not certified due to stability problems. Compounds in the 430 to 10,000 ppb range cylinders are found to be stable.
***Concentration not certified due to stability problems.

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List of Audit Gases Available
for
NSPS, NESHAP and SIP Regulations

Compound	Low Conc. (20 to 200 ppb)	Mid Conc. (0.5 to 5 ppm)	High Conc. (5 to 50 ppm)	Very High Conc. (ppm as shown)
Benzene	A (Feb)	A (Feb)	A	60-400
Ethylene	----	----	A	300-700
				3000-20,000
Propylene	----	----	A	300-700
Methane/Ethane	----	----	----	1000-9000(M)
				200-800(E)
Propane	----	----	A	300-700
				1000-20,000
Toluene	A (Feb)	A (Feb)	A	100-700
Hydrogen Sulfide	----	----	A	100-700
Meta-Xylene	----	----	A	300-700
Methyl Acetate	----	----	A	300-700
Chloroform	A	A	A	300-700
Carbonyl Sulfide	A (Feb)	A (Feb)	A	100-400
Methyl Mercaptan	----	A	A	----
Hexane	A (Feb)	A (Feb)	A	----
1,2-Dichloroethane	A	A	A	100-600
Cyclohexane	----	----	----	80-200
Methyl Ethyl Ketone	A (Feb)	A (Feb)	A	----
Methanol	A (Feb)	A (Feb)	A	----
1,2-Dichloropropane	A	A	A	300-700
Trichloroethylene	A	A	A	100-600
1,1-Dichloroethylene	A	A	A	100-600

Code: A - Audit gas currently available
A (Nov) - Audit gas available November 1, 1991
A (Feb) - Audit gas available February 1, 1992

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List of Audit Gases Available
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Compound	Low Conc. (20 to 200 ppb)	Mid Conc. (0.5 to 5 ppm)	High Conc. (5 to 50 ppm)	Very High Conc. (ppm as shown)
1,2-Dibromoethylene*	----	----	*	100-300*
Perchloroethylene	A	A	A	300-700
Vinyl chloride	A	A	A	----
1,3-Butadiene	----	----	A	----
Acrylonitrile	----	----	A	300-500

Aniline*	----		----			*		----		
Methyl Isobutyl Ketone		A (Feb)		A (Feb)			A			----
Para-dichlorobenzene*		----		----		*			----	
Ethylamine*		----		----		*			----	
Formaldehyde*		----		----		*			----	
Methylene Chloride	A			A		A			----	
Carbon Tetrachloride		A		A			A			----
Freon 113	----		----			A		----		
Methyl Chloroform	A			A		A			----	
Ethylene Oxide		A (Feb)		A			A			----
Propylene Oxide		A (Feb)		A (Feb)			A			75-200
Allyl Chloride		A		A			A			75-200
Acrolein	----		----			A		100-300		
Chlorobenzene		A		A			A			----
Carbon Disulfide	A (Feb)			A (Feb)		A			75-200	
Cyclohexanone*		----		----		*			----	
EPA Method 25 Mixture**		----		----		----		100-200		750-2000
Ethylene Dibromide	----		----			A		50-300		
1,1,2,2-Tetra-chloroethane		A		A			A			----

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*Cylinders are no longer available; the compounds were found to be unstable in the cylinders.
**The gas mixture contains one or two aliphatic hydrocarbons, an aromatic hydrocarbon, and carbon dioxide in nitrogen. Concentrations shown are in ppmC.

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Acetaldehyde	A (Nov)	A (Nov)	A (Nov)	----
Acetonitrile	A (Nov)	A (Nov)	A (Nov)	----
Bis (chloromethyl) ether	A (Nov)	A (Nov)	A (Nov)	----
Chloroprene	A (Nov)	A (Nov)	A (Nov)	----
Cumeme	A (Nov)	A (Nov)	A (Nov)	----
Dichloroethyl ether	A (Nov)	A (Nov)	A (Nov)	----
1,3-Dichloropropene	A (Nov)	A (Nov)	A (Nov)	----
Dimethyl hydrazine	A (Nov)	A (Nov)	A (Nov)	----
1,4-Dioxane	A (Nov)	A (Nov)	A (Nov)	----
Ethyl Acrylate	A (Nov)	A (Nov)	A (Nov)	----
Ethyl benzene	A (Nov)	A (Nov)	A (Nov)	----
Ethyl chloride	A (Nov)	A (Nov)	A (Nov)	----

Ethylene dibromide	A (Nov)	A (Nov)	A (Nov)	----
Hexachloroethane	A (Nov)	A (Nov)	A (Nov)	----
Methyl bromide	A (Nov)	A (Nov)	A (Nov)	----
Methyl chloride	A (Nov)	A (Nov)	A (Nov)	----
Methyl iodide	A (Nov)	A (Nov)	A (Nov)	----
Methyl methcralyte	A (Nov)	A (Nov)	A (Nov)	----
Methyl t-butyl ether	A (Nov)	A (Nov)	A (Nov)	----
2-Nitropropane	A (Nov)	A (Nov)	A (Nov)	----
Propionaldehyde	A (Nov)	A (Nov)	A (Nov)	----
Para-xylene	A (Nov)	A (Nov)	A (Nov)	----
Styrene	A (Nov)	A (Nov)	A (Nov)	----
Vinyl acetate	A (Nov)	A (Nov)	A (Nov)	----
Vinyl bromide	A (Nov)	A (Nov)	A (Nov)	----

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Benzyl chloride	A (Feb)	A (Feb)	A (Feb)	----
Bromoform	A (Feb)	A (Feb)	A (Feb)	----
1,4 Dichlorobenzene	A (Feb)	A (Feb)	A (Feb)	----
1,1 dichloroethane	A (Feb)	A (Feb)	A (Feb)	----
Hexachloro 1,3 butadiene	A (Feb)	A (Feb)	A (Feb)	----
1,1,2 Tridichloroethane	A (Feb)	A (Feb)	A (Feb)	----
1,2,4 Trichlorobenzene	A (Feb)	A (Feb)	A (Feb)	----
2,2,4-Trimethylpentane	A (Feb)	A (Feb)	A (Feb)	----

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