

APPENDIX D

SOURCE TESTING:

SUMMARY OF REQUIREMENTS

FOR MEASUREMENTS

AND ALTERNATIVES

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Source Testing: Summary of Requirements for Measurements and Alternatives

***** NOTES FOR FOLLOWING TABLE *****

- (1) Each reference to a measurement requirement includes the following requirements for the substances to be tested and type of test to be performed:
 - (a) The test shall measure the quantities of all listed substances whose presence in detectable quantities can be determined using the ARB-adopted test method or other method specified in section IX.A. for the substance indicated. Therefore the test indicated for "dioxins" shall include measurement of all the polychlorinated dibenzodioxins and dibenzofurans to which the ARB-adopted method for dioxins and furans applies. Specifically, the test results shall include the determination of total tetra-, penta-, hexa-, hepta-, and octa- PCDD/PCDF homologue groups and all the 2,3,7,8-substituted PCDD/PCDF isomers listed in the method; and
 - (b) ARB-adopted test methods which are necessary to characterize associated source conditions, including stack flow rate and moisture content, shall also be performed to ensure a proper source test for the material indicated. These associated tests shall be identified in the proposed source test protocol in the inventory plan.
- (2) Reference to the "full set of metals" or "all metals" herein refers to the following listed substances which are required to be measured and reported: arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr) which includes total chromium and hexavalent chromium (Cr VI), copper (Cu), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), selenium (Se), and zinc (Zn).
- (3) Fuel analysis shall include analysis for the full set of metals referred to in Note (2), chlorine content, and sulfur content.

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Source Testing: Summary of Requirements for Measurements and Alternatives *

Emitting Process, Device or Facility Activity	Substance and Type of Test	Alternative (if any)
--COMBUSTION--		
1. Incinerators		
(a) Incinerators burning hazardous, municipal, or biomedical waste, or burning tires, or heating 55 gallon (or other sizes) drums for the purpose of drum reconditioning, reclamation, or recycling. Does not include refuse incinerators at schools, prisons, restaurants, or hotels.	<ul style="list-style-type: none"> a. Full set metals/stack test b. Hydrogen chloride/stack test c. PAH/stack test d. Dioxins/stack test e. Formaldehyde/stack test f. Benzene/stack test g. Vinyl chloride/stack test h. PCBs/stack test: required any time that dioxins are tested PCBs shall be speciated to include: PCB 77, PCB 81, PCB 105, PCB 114, PCB 118, PCB 123, PCB 126, PCB 156, PCB 157, PCB 167, PCB 169, and PCB 189. 	<ul style="list-style-type: none"> Small business: Fuel analysis Small business: Fuel analysis - - Small business: Not required Small business: Not required Small business: Not required -
(b) Incinerators at schools, prisons, restaurants, and hotels.	Full set metals/stack test	-
(c) Metal reclamation when surface is coated with plastic material	Same as 1(a) above	Same as 1(a) above
2. Coal and coke combustion including incineration*		
	<ul style="list-style-type: none"> a. Full set metals/stack test b. Hydrogen chloride/stack test c. PAH/stack test d. Dioxins/stack test e. Formaldehyde/stack test 	<ul style="list-style-type: none"> Small business: Fuel analysis Small business: Fuel analysis - - - Requirements a-e shall not apply to universities, schools, colleges, hospitals, and correctional institutions where coal or coke combustion is used primarily for space heating.

* See notes preceding the table for further explanation of terms used in the table.

3. Residual and crude oil combustion and incineration*	<ul style="list-style-type: none"> a. Full set metals/stack test b. Metals, chloride/fuel analysis c. Benzene/stack test d. PAH/stack test e. Formaldehyde/stack test 	<p>Small business: Fuel analysis</p> <ul style="list-style-type: none"> - - - - <p>Requirements a-e shall not apply to universities, schools, colleges, hospitals, and correctional institutions where residual or crude oil combustion is used primarily for space heating.</p>
4. Distillate and diesel combustion and incineration*	<ul style="list-style-type: none"> a. Metals, chloride/fuel analysis b. PAH/stack test c. Formaldehyde/stack test d. Diesel PM (PM10) If source testing is necessary, ARB should be consulted as to the most appropriate test method. 	<ul style="list-style-type: none"> - - - <p>Requirements a-c shall not apply to universities, schools, colleges, hospitals, and correctional institutions where distillate or diesel combustion is used primarily for space heating.</p> <p>Requirements a-c shall not apply to emergency or stand-by equipment that primarily burn distillate or diesel fuel.</p>
5. Waste oil combustion and incineration* (including oil containing used, recycled, reprocessed, or re-refined oil)	<ul style="list-style-type: none"> a. Full set metals/stack test b. Halogenated organics/stack test c. Benzene/stack test d. PAH/stack test e. Dioxins/stack test f. Formaldehyde/stack test g. PCBs/stack test: required any time that dioxins are tested PCBs that should be speciated include: PCB 77, PCB 81, PCB 105, PCB 114, PCB 118, PCB 123, PCB 126, PCB 156, PCB 157, PCB 167, PCB 169, and PCB 189, as described in the Consolidated Table of OEHHA / ARB Approved Risk Assessment Health Values. 	<p>Small business: Fuel analysis</p> <ul style="list-style-type: none"> - - - - <p>Small business: Not required</p> <ul style="list-style-type: none"> -

* If co-fired with hazardous, municipal, or biomedical waste, or burning tires, then include all testing required under 1(a).

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| 6. Wood, wood waste, and agricultural waste combustion and incineration* (includes untreated and treated wood) | a. Full set metals/stack test
b. PAH/stack test
c. Dioxins/stack test
d. Formaldehyde/stack test | Small business: Fuel analysis
-
-
-
Requirements a-d shall not apply to universities, schools, colleges, hospitals, and correctional institutions where wood, wood waste, or agricultural waste combustion is used primarily for space heating. |
| 7. Natural gas combustion | a. Formaldehyde/stack test for electric utilities only | - |

--OTHER PROCESSES--

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| 8. Waste water treatment facilities - including Publicly Owned Treatment Works (POTWs) | | |
| - Sludge incinerator | Same as Incinerators 1(a) | Same as Incinerators 1(a) |
| 9. Agriculture-related facilities: dust | a. Metals/Lab analysis of dust representative of fugitive dust ** | Small business: Not required |
| 10. Pharmaceutical mfg. | | |
| - Blender | a. Halogenated organics/ ducted or as applicable in method
b. Benzene/ducted or as applicable in method | -
- |
| - Drying oven | a. Halogenated organics ducted or as applicable in method
b. Benzene/ducted or as applicable in method | -
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* If co-fired with hazardous, municipal, or biomedical waste, or burning tires, then include all testing required under 1(a).

** Preferably dust trapped by the particulate control equipment, if any.

11. Smelters and foundries		
(a) All	a. Full set metals/stack test	Small business: Metals test/ feed material analysis for As, Be, Cd, Cr(VI), Ni, Pb
	b. Hydrogen sulfide/stack test	Small business: Not required
(b) Secondary copper smelters	a. Same as 11(a) plus dioxins/stack test	-
12. Petroleum refineries		
- CO boilers	a. Benzene/as applicable in method	-
	b. Formaldehyde/as applicable in method	-
	c. All metals/ducted or as applicable in method	-
- Catalytic crackers	a. Benzene/as applicable in method	-
	b. Formaldehyde/as applicable in method	-
	c. All metals/ducted or as applicable in method	-
- Oil combustion	a. Same as appropriate oil combustion by fuel type	Same as <u>5</u> (oil combustion)
13. Asphaltic concrete production	a. Full set of metals/ducted or as applicable in method	-
	b. Benzene/ducted or as applicable in method	-
	c. PAH/ducted or as applicable in method	Small business: Not required
14. Cement mfg.	a. Full set of metals/stack test	-
	b. Formaldehyde/stack test	-
	c. Benzene/stack test	-
	d. Dioxins/stack test *	-
	e. PAH/stack test *	Small business: Not required
	f. Hydrogen chloride/stack test*	Small business: Fuel analysis, including total chloride

* except when burning primarily natural gas; then not required

15. Pulp and Paper mfg.		
- Combustion	a. All combustion, as applicable by fuel type	Same as for Combustion
- Bleaching	a. Formaldehyde/ducted or as applicable in method	-
	b. Halogenated organics/ducted or as applicable in method	-
16. Textile mfg.		
- Combustion	a. All combustion, as applicable by fuel type	Same as for Combustion
- Other processes	a. Benzene/ducted or as applicable in method	-
	b. Formaldehyde/ducted or as applicable in method	-
	c. Halogenated organics/ ducted or as applicable in method	-
17. Solvent recycling (re-refining)	a. Halogenated organics/ ducted or as applicable in method	-
	b. Benzene/ducted or as applicable in method	-
18. Fiberboard mfg.	a. Formaldehyde/ducted or as applicable in method	-
19. Glass mfg.	a. Arsenic/stack test	-
	b. Cr(VI) and lead/stack test	Small business: Not required
20. Bulk plant/terminal	a. Gasoline vapors/existing compliance tests must be provided	-