

## Appendix B:

### Guidance for GHG Source Testing to Support Mandatory Reporting

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The California Air Resources Board (ARB) Regulation for the Mandatory Reporting of Greenhouse Gas Emissions provides the option for facility-specific greenhouse gas (GHG) source testing in certain circumstances. Source testing enables development of facility-specific emission factors. This appendix provides general guidance for preparing, collecting, and submitting GHG source test data.

#### When is GHG Source Testing Allowed?

The option for source testing of greenhouse gas emissions is limited to the specified circumstances listed below. In all other cases, source testing is not permitted and the methods and factors provided in the regulation must be used. See Attachment 2 for additional detail.

- CH<sub>4</sub> and N<sub>2</sub>O combustion emissions (§95125(b)(4))
- CO<sub>2</sub> from the combustion of biomass solid fuels, waste-derived fuels, or municipal solid waste (§95125(h)(3))
- CO<sub>2</sub> from geothermal generating facilities (§95111(i)(2))
- CO<sub>2</sub> from sulfur recovery processes at refineries (§95113(b)(5)(B))

#### How Do I Get a Source Test Plan Approved by ARB?

The GHG regulation requires that prior to source testing the facility operator submit a source test plan to ARB for approval. The purpose of ARB review is to help ensure the source test approach will provide accurate and representative emissions data. To meet reporting deadlines it is very important that the plan is submitted to ARB early enough to provide time for review, possible revision, carrying out source testing, development of emission factors and application in the GHG emissions data report.

The basic steps involved are as follows.

- Prepare a source test plan that incorporates ARB specified test methods, or equivalent with justification. A general template is provided as Attachment 1.
- Submit the plan to ARB for approval via mail or e-mail.

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PTSD/Climate Change Reporting Section  
1001 I Street, 7<sup>th</sup> floor  
Sacramento, CA 95814  
or  
E-mail to: [ghg-report@arb.ca.gov](mailto:ghg-report@arb.ca.gov)

*The purpose of this chapter is to provide guidance on the source test requirements of the mandatory GHG reporting regulation. As described more specifically in Chapter 1 of this document, this guidance does not add to, substitute for, or amend the regulatory requirements as written in these or other sections of the regulation [Subchapter 10, Article 2, sections 95100 to 95133, title 17, California Code of Regulations].*

### What Methods are Acceptable for Source Testing of CO<sub>2</sub> Concentrations?

To help ensure consistency in GHG emission measurements, ARB provides preferred methods for GHG source testing. Other equivalent methods may be submitted within the Source Test Plan for evaluation. These other methods should include adequate documentation to verify that they are accepted high quality test methods. The preferred CO<sub>2</sub> test methods are shown below.

- CARB Method 100: Procedures for Continuous Gaseous Emission Stack Sampling (<http://www.arb.ca.gov/testmeth/vol1/vol1.htm>)
- CARB Method 3: Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight (<http://www.arb.ca.gov/testmeth/vol1/vol1.htm>)
- U.S. EPA Method 3A: Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure) (<http://www.epa.gov/ttn/emc/methods/method3a.html>)
- South Coast AQMD Method 25.1: Total Carbon Analysis using GC/NDIR (for sample collection only) (<http://www.aqmd.gov/tao/methods/stm.html>)

### What Methods are Acceptable for Source Testing of CH<sub>4</sub> Concentrations?

- U.S. EPA Method 18: Measurement Of Gaseous Organic Compound Emissions By Gas Chromatography (<http://www.epa.gov/ttn/emc/promgate/m-18.pdf>)
- South Coast AQMD Method 25.1: Total Carbon Analysis using GC/NDIR (<http://www.aqmd.gov/tao/methods/stm.html>)

### What Methods are Acceptable for Source Testing of N<sub>2</sub>O Concentrations?

- ARB Method MLD 136: Procedure for Determination of Nitrous Oxide in Automotive Exhaust by Fourier Transform Infrared Spectroscopy, adapted as appropriate for stationary source testing.  
<http://www.arb.ca.gov/testmeth/slb/exhaust.htm>
- South Coast AQMD Method 25.1: Total Carbon Analysis using GC/NDIR (for sample collection only, separate N<sub>2</sub>O analysis required).  
<http://www.aqmd.gov/tao/methods/stm.html>

### What Methods are Acceptable for Determining Flow Rates and Other Parameters?

- The ARB has published methods for establishing stack gas velocity, volumetric flow rates, and other parameters measured during source testing. These methods are available at: <http://www.arb.ca.gov/testmeth/vol1/vol1.htm>, and comparable U.S. EPA methods available here: <http://www.epa.gov/ttn/emc>.
- Acceptable methods include:
  - CARB or U.S. EPA Methods 1 through 4 (together) which include traverses (M1), stack gas velocity (M2), stack gas molecular weight (M3), and stack gas moisture (M4) determinations for stacks 12 inches or larger in diameter. See <http://www.arb.ca.gov/testmeth/vol1/vol1.htm> or <http://www.epa.gov/ttn/emc/promgate.html>.
  - U.S. EPA Method 1A: Sample and Velocity Traverses for Stationary Sources with Small Stacks or Ducts, <http://www.epa.gov/ttn/emc/promgate.html>.

- CARB or US EPA Method 2A: Direct Measurement of Gas Volume Through Pipes and Small Ducts. See <http://www.arb.ca.gov/testmeth/vol1/vol1.htm> or <http://www.epa.gov/ttn/emc/promgate.html>.
- Quality assurance and quality control (QA/QC) guidance for source testing is available in ARB's Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Source Emissions Monitoring and Testing at: <http://www.arb.ca.gov/testmeth/testmeth.htm>
- QA/QC methods to be used during source testing should be identified in the source test plan. Also see the U.S. EPA Emission Measurement Center Guideline Document (GD-042), Preparation and Review of Site-Specific Emission Test Plans, <http://www.epa.gov/ttn/emc/guidlnd.html>
- All QA/QC procedures need to be included in appendices to the source test report.
- Methods other than those specified by the ARB and EPA may be used if they are demonstrated in the source test plan to be substantially equivalent to the ARB or EPA guidance.

#### **Are Other Test Methods Acceptable?**

Flexibility is provided to use other test methods if certain criteria are met. In some cases test methods other than those specified could be acceptable for meeting the GHG source test requirements. Acceptable alternative methods must be equal to or more accurate than the ARB specified methods. Review of alternative methods will require additional review time by ARB. Sufficient documentation and analysis of the proposed method(s) should be provided to allow full evaluation of the method.

#### **Can Test Methods Be Combined?**

Yes. In some situations it may be more efficient and cost effective to combine methods for determining GHG emissions. For example, Method 25.1 allows for collection of a sample that can be analyzed for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Appropriate analytical methods must be used for each tested gas, however.

#### **What Must Be Included in a Source Test Plan?**

There is no prescriptive format for preparing a source test plan. However, each plan should include certain key components. These items are summarized below, and are also shown in the source test plan template in Attachment 1. The test plan should include:

- Source description and operational parameters
- Test program (sampling locations, number of runs, sample run time, sample type and gas, etc.)
- Test schedule
- Sampling and analytical procedures, methods and equipment used, laboratory used
- Quality assurance and quality control activities
- Data reporting and data reduction requirements

- Other significant information such as facility name, location, and contacts

The following EPA guidance documents will be helpful for preparing a source test plan. They can be found via <http://www.epa.gov/ttn/emc/guidlnd.html>.

- GD 42 - Preparation and Review of Site Specific Test Plans
- GD 43 - Preparation and Review of Emission Test Reports
- GD 50 - National Stack Test Guidance Document

### What Key Data are Collected or Computed for Source Testing?

The purpose of source testing is to develop representative, facility-specific emission factor data. To perform this calculation the following information will be needed:

- Concentration measurements of the gas or gases of interest
- Stack flow rates during testing
- Fuel consumption during testing
- For geothermal sources, vent gas flows and gross power production

### How Many Source Tests Are Required?

The objective of source testing is to develop emission rate information or emission factors that accurately represent the overall annual emissions from the tested source. Therefore, the variability in the source will guide the number of source tests needed, and will be considered when ARB reviews sources test plans.

- At a minimum, each distinct facility source for which source testing is used must be tested at least once annually.
- A steady state process (such as a boiler) that uses commercially available natural gas with minimal fluctuations in heat value could typically be characterized with a small number of tests.
- Variable fuels such as biomass or waste fuels may require more frequent testing (such as quarterly) to accurately characterize the GHG emissions.
- If annual testing is proposed for variable fuels, the test plan must include information explaining how annual testing will adequately reflect seasonal, compositional, moisture, and other fuel combustion emissions variability.

### What Constitutes a Source Test?

The source testing program must be designed to effectively estimate the actual annual GHG emissions produced by the source.

- The objective of source testing is to develop emission rate information or emission factors that accurately represent the overall annual emissions from the tested source.
- At a minimum, source tests require 3 sampling runs.
- A sample run consists of all the test methods necessary for all the compounds of interest plus the additional testing necessary to convert ppm (or grams/ft<sup>3</sup>) to grams/hour, tonnes/year, or tonnes/fuel used.
- A sample run is long enough to adequately represent an emissions generating process or 30 minutes, whichever is more. For example, a sample run for a fixed-roof storage tank is 24 hours long because the sun and ambient temperature causes the tank to emit at varying rates. The same type of

situation might be true for a biomass cogeneration plant which burns variable fuels.

- In general, because testing is being performed to estimate annual emissions, it is recommended to suspend testing during unusual or “upset” conditions, unless these would be germane to the annual emissions calculations.

### Can Testing Be Performed Less Often Than Annually?

No. The regulation specifies that source testing must be performed at least annually. This requirement applies even when there has not been a change in fuels or processes over the course of the year. The requirement will be reevaluated after sufficient GHG source data are available to examine year-to-year variability.

### For Biomass or Waste Derived Fuels, What Sampling Schedule is Acceptable?

Because of the variability of certain fuels, the ways they are managed, and the composition of the fuels, it is not possible to specify a sampling schedule in advance. A proposed sampling schedule should be provided in the source test plan with an explanation and justification for the schedule and methods used. ARB will evaluate the sampling frequency and provide assistance if needed to develop an appropriate sampling regimen.

- The sampling schedule should be determined on a case-by-case basis depending on the type of facility, the type of fuel, the heat and carbon variability of the fuel, and how often the fuel used changes over time.
- The goal of the reporting program is to accurately quantify GHG emissions. In situations where a single annual source would not certainly and meaningfully characterize annual emissions, more tests should be proposed in the test plan.
- If substantial emissions variability is not observed during multiple tests, this could serve as a justification for fewer tests in future years, which may be proposed in a revised source test plan.

### Do Emission Factors Need to be Reported?

Yes. The purpose of source testing is to develop emission factors that relate fuel use to emissions (or gas flows to emissions in the case of geothermal facilities). The regulation requires that computed emission factors be reported to the ARB (section 95104(a)(9)).

### What is Meant by ARB or District Oversight?

If source testing is selected, the regulation specifies that emissions be calculated “...using ARB approved source specific emission factors derived from tests conducted at least annually under the supervision of ARB or the local air pollution control district or air quality management district.” To facilitate oversight,

- The facility operator provides source test dates to ARB and the local air pollution control district, or local air quality management district.
- The operator provides access to the facility during test dates for ARB and air district staff, facility staff who are managing the source test activities and staff familiar with the operations being tested.

- ARB will not necessarily observe all tests performed, but will notify the facility operator when we plan to observe. To the extent feasible and appropriate supervision will be delegated to the air district.

### How are Emission Factors Calculated Using Measured Concentration and Flow Data?

The objective of source testing is to develop facility-specific emission factors for selected emission sources. For GHG emissions, emission factors will usually be represented as emissions per unit of fuel, such as kg CO<sub>2</sub>/scf, kg N<sub>2</sub>O/gallon, or kg CH<sub>4</sub>/short-ton. During source testing, sampling is performed to measure the concentrations of the gases of interest within the overall combustion exhaust (or geothermal vent) flow. In addition, information to compute exhaust gas flow rates and fuel consumption are carefully measured during the sampling period.

- Using the measured emissions concentration and overall exhaust flow information, the emissions flux (or mass) emitted from the stack over a measured amount of time is computed.
- Using the computed mass emitted and the amount of fuel consumed during the sampling period, the emissions per unit of fuel consumed can be calculated. It is the responsibility of the facility operator to work with the source test firm and facility staff to accurately quantify the emissions concentrations, flow rates, and fuel usage necessary to compute accurate and representative emission factors.
- In some cases, multiple samples will need to be taken to obtain a representative emission factor based on averages of individually computed emission factors.
- Emission factors need to be reported in units of emissions per amount of fuel consumed, where fuel is reported in units of either scf for gases, gallons for liquids, short tons for non-biomass solids, or bone dry tons for biomass-derived solid fuels.

### Testing for Geothermal Electricity Generation Facilities

Operators of geothermal facilities will represent emissions as CO<sub>2</sub>/megawatt-hour, measuring CO<sub>2</sub> concentrations, vent gas flows, and gross power production. Geothermal plant operators will need to adjust the approach described above to reflect the operational differences between combustion and geothermal sources. Below is information relevant to geothermal facilities.

- Typically, CO<sub>2</sub> emissions from geothermal electricity generation facilities are estimated using a mass balance approach.
- Gas chromatograph measurements are made to compute the CO<sub>2</sub> levels in the vent gas. Vent gas flows and gross power production rates are also measured. The concentration, flow, and power information are used to compute an emission factor represented as kgs CO<sub>2</sub>/MWh electricity generated.
- The emission factor is multiplied by the megawatt hours of electricity produced annually to compute CO<sub>2</sub> emissions.
- As with other sources, if there is substantial variability in the CO<sub>2</sub>/KWh emission factor during the course of the year, multiple samples at different times should be considered to adequately estimate the overall annual emissions.
- It is assumed that the CO<sub>2</sub> in the geothermal steam supply emitted from the power plant includes the CO<sub>2</sub> steam-field emissions from venting wells, freeze

protection, pipeline start-ups, and other incidental sources. Also included are CO<sub>2</sub> emissions from H<sub>2</sub>S burner equipped plants that incinerate vent gases containing CH<sub>4</sub> emissions that are converted to CO<sub>2</sub> during combustion.

### Converting Source Test Data to Emission Factors

Each source test will have its own unique combination of sampling parameters, methods, analysis, equipment, timing, and other variables. However there is commonality in that measured GHG emissions concentration data must be converted to an emission factor, usually represented as emissions/fuel used. In preparing a source test plan for ARB approval, the methods for computing emission factors should be provided.

The details of these computations are beyond the scope of this general guidance. For more information regarding sampling and calculations, refer to the ARB test method website (<http://www.arb.ca.gov/testmeth/testmeth.htm>). The link for criteria pollutants (<http://www.arb.ca.gov/testmeth/vol1/vol1.htm>) includes methods for determining stack gas velocity and volumetric flow rates, moisture content, and other parameters needed to compute emission factors. Further information is provided in the ARB "Supplement to Stationary Source Test Methods" available here: <http://www.arb.ca.gov/testmeth/vol1/vol1suppl.doc>.

### What if a Source Test Plan is Rejected?

Because we want to ensure that high quality GHG emissions source test data are collected, ARB source test experts will review the submitted plans to ensure that appropriate methods, sampling sites, sampling frequencies, QA/QC, and other standard practices are followed. If problems with a source test plan are identified, ARB staff will work with the submitter to try to resolve issues.

Regardless of whether source testing or other methods are used for calculating emissions, GHG emissions reports must be submitted on time. Well before the reporting deadline, therefore, it is important that facility operators plan for the time necessary to hire a source test contractor (if needed), prepare a source test plan, have the plan approved by ARB, perform the source testing, process the source test data, develop an emission factor (or factors), and incorporate the emission factor data into the emissions report. It is likely that this full process could take several months.

If source test data are not ready by the regulatory submittal date for the emissions report, the facility operator should select a different method for computing and reporting the required GHG emissions.

### Who Can Help With GHG Source Testing Questions?

If help is needed in preparing the source test plan, determining source test methods, or with other questions, please contact ARB staff via e-mail at [ghg-report@arb.ca.gov](mailto:ghg-report@arb.ca.gov). Or you may call Patrick Gaffney in the Climate Change Reporting Section, 916-322-7303.

**Appendix B  
ATTACHMENT 1****RECOMMENDED KEY ELEMENTS  
GHG SOURCE TEST PLAN TEMPLATE****Regulation for the Mandatory Reporting Of  
Greenhouse Gas Emissions**

There is no prescribed format for source test plans to be submitted to the ARB for GHG emissions testing. The outline below is based on U.S. EPA guidance for source testing. It is likely that a GHG emissions source test plan would be approvable by the ARB if it included the EPA elements shown below, used the ARB recommended test methods, and conformed to the more detailed specifications in the EPA reference materials.

Detailed information on EPA source test plan guidance is available at the following location: U.S. EPA Emission Measurement Center Guideline Document (GD-042), Preparation and Review of Site-Specific Emission Test Plans, <http://www.epa.gov/ttn/emc/guidInd.html>

**Recommended Key Elements for a GHG Emissions Source Test Plan**

Below is a suggested outline for preparing a source test plan. Additional detail and examples are provided in the EPA document referenced above.

**1.0 Introduction<sup>1</sup>**

In this section, write a brief summary that identifies or states, as applicable, the following:

- Responsible groups or organizations
- Overall purpose of the emission test
- Regulations, if applicable
- Industry
- Name of plant
- Plant location
- Processes of interest
- Air pollution control equipment, if applicable
- Emission points and sampling locations
- Pollutants to be measured
- Expected dates of test
- Test program organizational chart with lines of communication
- Names and phone numbers of responsible individuals
- If necessary, a discussion of the specific organizational responsibilities

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<sup>1</sup> Descriptions excerpted from EPA's document, GD-042, listed above.

## 2.0 Source Description

### Process Description:

- Flow diagram (indicate emission and process stream test points) and general description of the basic process
- Discussion of unit or equipment operations that might affect testing or test results e.g., batch operations, high moisture or temperature effluents, presence of interfering compounds, and plant schedule
- List of key operating parameters and standard operating ranges, production rates, or feed rates, if available
- In the flow diagram, trace the process from the beginning to the end. Identify the major operations. Show only those gas, liquid, and solid flow streams that relate to the emissions test.

### Control Equipment Description:

- Description of all air pollution control systems
- Discussion of typical control equipment operation and, if necessary, a schematic
- Normal operating ranges of key parameters, if available

## 3.0 Test Program

### Include the following:

- Restate the overall purpose of the test program
- List (in order of priority) the specific objectives for both emissions and process operation data

### Include a table showing the following:

- Sampling locations
- Number of runs
- Sample type/pollutant
- Sampling method
- Sample run time
- Analytical method
- Analytical laboratory

## 4.0 Sampling Locations

### Flue Gas Sampling Locations (provide a schematic of each location), including:

- Duct diameter
- Direction of flow
- Dimensions to nearest upstream and downstream disturbances (include number of duct diameters)
- Location and configuration of the sampling ports
- Nipple length and port diameters
- Number and configuration of traverse points
- Confirm that the sampling location meets EPA criteria. If not, give reasons and discuss effect on results
- Discuss any special traversing or measurement schemes.

Process Sampling Locations. If process stream samples will be taken, include the following:

- Schematic of locations, if helpful
- Description of each sampling or measurement location
- Discussion on the representativeness of each of the process stream sampling locations

### 5.0 Sampling and Analytical Procedures

In this section, include the following:

- Schematic of each sampling train
- Flow diagram of the sample recovery
- Flow diagram of sample analysis
- Description of any modifications and reasons for them
- Discussion of any problematic sampling or analytical conditions
- Description of analytical, sampling, or other procedures for obtaining process stream and control equipment data

### 6.0 Internal QA/QC Activities

QC Procedures. Provide the following for each test method:

- Data sheets
- QC check lists, which could be part of the data sheets
- QC control limits
- Discussion of any special QC procedures

Examples of QC checks would be calibration of instruments, matrix spikes, duplicate analyses, internal standards, blanks, linearity checks, drift checks, response time checks, and system bias checks.

QA Audits. For each of the test methods for which an audit is to be conducted, list (if applicable) the following:

- Type of audits to be conducted
- Limits of acceptability
- Supplier of audit material
- Audit procedure
- Audit data sheet/QC check list

QA/QC Checks of Data Reduction. Procedure for assuring accurate transfer of raw data and accuracy of calculations, including data quality indicators, such as:

- Using  $F_o$  factors to validate Orsat, CEM  $CO_2/O_2$  data
- Comparing process  $O_2$  monitor and CEM  $O_2$  data
- Comparing flow rates measured at different locations or by different sampling trains
- Comparing relative concentrations at different sampling locations
- Comparison of data with previous field test results (if applicable)
- Running mass balances

Sample Identification and Custody Information:

- Person responsible

- Sample identification and chain-of-custody procedure
- Sample identification label
- Chain-of-custody form
- Sample log sheet

## 7.0 Reporting and Data Reduction Requirements

In this section include:

- Table of contents for the test report
- Data summary tables; include units (e.g., lb/mmBtu, lb/ton of product, dscm corrected to 6% O<sub>2</sub>)

## 8.0 Plant Entry and Safety

Identify the following individuals:

- Person responsible for ensuring compliance with plant entry, health, and safety requirements
- Facility person or safety officer who has the authority to impose or waive facility restrictions
- Tester who has authority to negotiate with facility person any deviations from the facility restrictions
- Test contractor's health and safety program
- List the facility's safety requirements and emergency response plan.
- Note any deviations from the safety requirements, discussions with the plant, and outcome of the discussions concerning the deviations.

## 9.0 Personnel Responsibilities and Test Schedule

This section includes:

- List of the key tasks and task leaders.

Construction of special sampling and analytical equipment:

- Description
- Dates for completion of work
- Responsible group

Modifications to the facility, e.g., adding ports, building scaffolding, installing instrumentation, and calibrating and maintaining existing equipment:

- Description
- Dates for completion
- Responsible group

Services provided by the facility, such as electrical power, compressed air, and water:

- List of all services to be provided by the facility
- Description of modifications or added requirements, if necessary
- Access to sampling sites
- Description If modifications are required, requirements and responsible group
- Sample recovery area and description
- If a mobile recovery area or laboratory is used, installation location, dates for installation, and responsible group

- Describe pre-test activities.
- Provide a table that lists staff assignments and responsibilities.
- Provide a table or text detailing the test schedule.

Appendix B  
ATTACHMENT 2  
GHG SOURCE TESTING LANGUAGE

Regulation for the Mandatory Reporting Of  
Greenhouse Gas Emissions

Source Test Language Excerpts

*95104(a)(9). Reporting Emission Factors.* Emissions data reports shall include, "Emission factors developed or measured by the operator using approved source testing as provided under sections 95125(b)(4) or 95125(h)(3). Emission factors shall be provided in units of emissions per amount of fuel consumed, where fuel is reported in units of either scf for gases, gallons for liquids, short tons for non-biomass solids, or bone dry tons for biomass-derived solid fuels."

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*Section 95125 (h)(3). CO<sub>2</sub> from Biomass and Waste-Derived Fuels.* In lieu of the method provided in section 95125(h)(1), operators of facilities that combust biomass solid fuels, waste-derived fuels, or municipal solid waste may elect to calculate CO<sub>2</sub> emissions using ARB approved source specific emission factors derived from source tests conducted at least annually under the supervision of ARB or the local air pollution control district or air quality management district. For fuels or fuel mixtures that contain at least 5 percent biomass by weight but are not pure biomass, the source test protocol shall include determination of the biomass-derived portion of CO<sub>2</sub> emissions as specified in section 95125(h)(2) if applicable. Upon approval of a source test plan by ARB, the source test procedures in that plan shall be repeated in subsequent years to update the source specific emission factors annually. In the absence of source specific emission factors approved by ARB, the operator shall determine CO<sub>2</sub> emissions using a method otherwise specified for the source in this article.

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*95111(i)(2). Geothermal CO<sub>2</sub>.* Operators of geothermal generating facilities may elect to calculate CO<sub>2</sub> emissions using ARB approved source specific emission factors derived from tests conducted at least annually under the supervision of ARB or the local air pollution control district or air quality management district. Upon approval of a test plan by ARB, the test procedures in that plan shall be repeated in future years to update the source specific emission factors annually. In the absence of source specific emission factors approved by ARB, the operator shall use the method specified above in section 95111(i)(1).

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*95125(b)(4). CH<sub>4</sub> and N<sub>2</sub>O Combustion Emissions.* "The operator may elect to calculate CH<sub>4</sub> and N<sub>2</sub>O emissions using ARB approved source specific emission factors derived from source tests conducted at least annually under the supervision of ARB or the local air pollution control district or air quality management district. Upon approval of a source test plan by ARB, the source test procedures in that plan shall be repeated in future years to update the source specific emission factors annually. In

the absence of source specific emission factors approved by ARB, the operator shall use the default emission factors provided in Appendix A."

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*95113(b)(5)(B). Refinery Sulfur Recovery Process Emissions, Molecular Fraction of CO<sub>2</sub>.* "As an alternative to using the default MF value, the operator may elect to calculate CO<sub>2</sub> emissions using an ARB approved, source specific molecular fraction of CO<sub>2</sub> in the sour gas, derived from source tests conducted at least once per calendar year under the supervision of ARB or the local air pollution control district or air quality management district. Upon approval of a source test plan by ARB, the source test procedures in that plan shall be repeated in subsequent years to update the source specific CO<sub>2</sub> molecular fractions annually. In the absence of source specific CO<sub>2</sub> molecular fractions approved by ARB, the operator shall use the default value provided in section 95113(b)(5)(A)."

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Full regulatory text here:

<http://www.arb.ca.gov/regact/2007/ghg2007/ghg2007.htm>