

California Global Warming Solutions Act of 2006

California Mandatory GHG Emissions Reporting and Verification Webinar

Preparing for the Verification of 2009 GHG Emission Data Reports

California Air Resources Board
1-4 pm January 27, 2010

<http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm>

Verification Issues

- Accreditation Program Update
- Introduction to Verification
- How to Prepare for Verification Services
- Verification Services
- Verification Opinion
- Questions

Verification Guidance Resources

- Verification FAQs (February 2010)
- Verification Guidance (February 2010)

<http://www.arb.ca.gov/cc/reporting/ghg-ver/ghg-ver.htm>

2010 Verification Requirements

- All GHG emission data reports must be verified in 2010*
- Only use an ARB-accredited Verification Body (VB)
- Adequate number of qualified VBs and verifiers

*ARB Mandatory GHG Reporting Regulation

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

Mandatory Reporting Verifier Accreditation Program Update

- 2009 - Completed nine 5-day training sessions for verifiers
- 34 Verification Bodies Accredited
- ~200 Accredited Verifiers
- Sector Accreditations
 - 50 cement specialists for 11 cement plants
 - 118 refinery specialists for 22 refineries/H2 plants
 - 104 power entity specialists for 85 retailers/marketers

Introduction to Verification

Verification - What is it?

- *Independent audit* of the emissions data report relative to a *standard (regulatory requirement)*
- Independent
 - 3rd party, truly independent
 - Conducted by ARB-accredited verifiers
- Audit
 - Objective assessment of the report
 - Is there reasonable assurance the emissions data report is accurate and conforms to the standard?
- Standard
 - ARB Mandatory GHG Reporting Regulation
(sections 95100 to 95133, title 17, CCR)
<http://www.arb.ca.gov/regact/2007/ghg2007/frofinoal.pdf>

Who is Involved

- Facility Operator / Reporter
 - Contracts with verification body for verification services
- Verification Body (VB)
 - Chosen by facility operator
- Verification Team
 - Chosen by VB
 - Must include accredited Lead Verifier and Independent Reviewer (accredited Lead Verifier)
 - Sector Specialist required for refineries, hydrogen plants, cement plants, and electricity transactions at power entities
 - May include other verifiers, subcontractors and (non-accredited) technical experts

Verification Timing

- Annual verification required for:
 - Refineries, hydrogen plants, electricity generators or cogens $\geq 10\text{MW}$ and burning fossil fuels, retail providers, marketers, and oil & gas sector
- Verification required at least once every 3 years for:
 - General stationary combustion facilities, cement plants, power generation $<10\text{MW}$ or burning biomass or geothermal facilities

Note: Full verification also required following an adverse verification opinion, or upon change in verifier

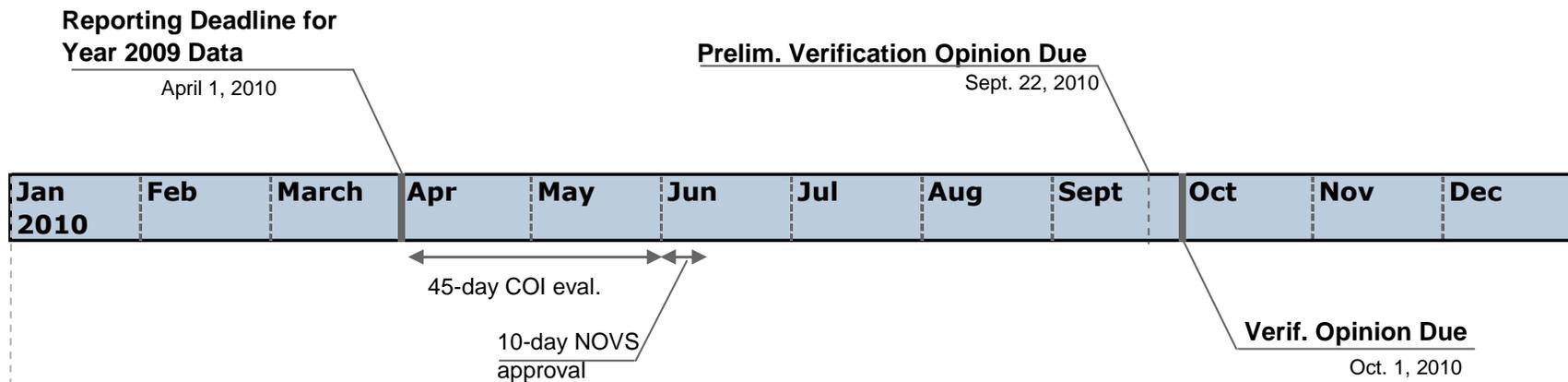
Verification Schedule

- Verification required within 6 months of reporting deadline
- Try to complete contract process soon to allow sufficient time to complete all required tasks
 - Even simple informal verifications in 2009 were more time consuming than anticipated

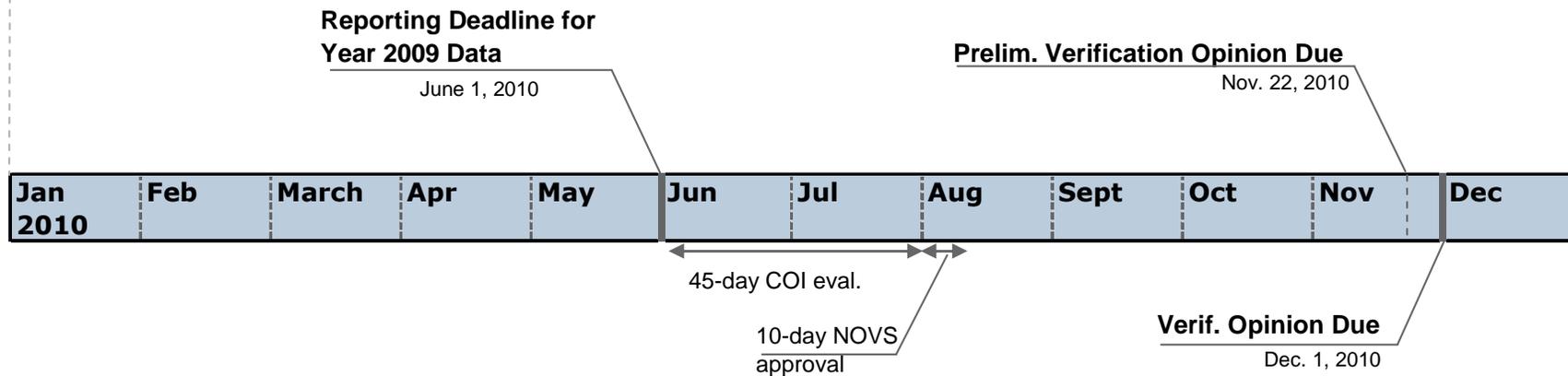
Verification Timeline

Timeline for Mandatory GHG Reporting and Verification

For Reports due April 1, 2010



For Reports due June 1, 2010



Preparing for Verification

What is the Verifier Looking For?



- Documented GHG inventory program
 - What and where is the data, who collects it and how...
- Description of internal audit (QA/QC) processes
 - Month-by-month data comparisons, spot checks, team review
- Clear documentation of data and methods used in emissions calculations
- The verifier **WILL NOT** accept the output of a data management system at face value
 - Be prepared to grant the verifier extensive access to the system for tracing data back to its origin
- Any GHG data submitted to EPA or any other agency is subject to ARB verification
 - Be prepared to provide the verifier with the raw data used to calculate emissions

Information/Data Requests from Verifier

■ Verifier will likely request:

- Data spreadsheets
- Process diagram of all emissions sources and fuel meters
- Data management system-description and access to system
- Instrument maintenance and calibration records (fuel meters)
- Fuel purchase and metering data
- Documentation of training for employees involved with fuel sampling
- Internal QA/QC procedures
- Change log describing all changes to methods/procedures for compiling GHG data

Access to Information

- Operators are required to make available to the verifier:
 - all information/documentation used to develop the emissions data report, and
 - needed to verify conformance with the regulatory requirements
- Verifiers will develop sampling plans to identify what data they will request
- Verifiers will need access to appropriate staff while they are conducting site visits

Voluntary vs. Mandatory Verification

- ARB verification is more intensive than voluntary verification (TCR/CCAR)
- Be prepared to provide more information
- A large portion of the verifier's time at the facility will be spent outside the office verifying conformance with the regulation
 - Verifier and facility operator communicate any safety or other requirements for the verifier to evaluate sources at the facility

Choosing a Verification Body (VB)

How Do I Select A Verification Body?

- Facility operator chooses an ARB-accredited VB
 - Don't have to wait until you certify your data
- All VBs identified within the Reporting Tool and listed on verification web page:

<http://www.arb.ca.gov/cc/reporting/ghg-ver/ghg-ver.htm>

How Do I Select A Verification Body? (2)

- Review the entire list of accredited VBs, look at their company websites
- Review the reputation & experience of the VBs
- Contract with a VB
 - Sole-source verification contracts
 - Competitive bids

Conflict Of Interest Assessment

- Prior to negotiating a contract, the VB evaluates its potential COI with the facility operator/entity
- COI forms are reviewed by ARB
- No verification services may begin until the VB has ARB approval
- Contracting process does not require ARB approval

COI Considerations

- VB reports potential for COI to ARB in standard form
 - VERIFIER MAY NOT HAVE PROVIDED SPECIFIED CONSULTING SERVICES TO OPERATOR IN LAST 3 YEARS
 - INFORMAL VERIFICATIONS THAT OCCURRED IN 2009 NEED TO BE DISCLOSED ON THE COI FORM
- VB monitors emerging conflicts for 1 year after verification
 - Must notify ARB of potential conflicts as soon as they are known
 - If verifier provides consulting within 1 year, data must be reverified by a new VB
- VB rotation required after 6 years

Review COI Closely

- Review the COI section of regulation closely before hiring a VB which has provided services for your facility
 - We have already had COI issues with reporters wanting to use a familiar VB

Notice of Verification Services (NOVS)

- Verifier provides a notice to ARB of VB's intention to initiate verification services
- Includes the expected date(s) of the site visit(s)
- ARB must receive the form at least 10 days prior to start date of services
- Operators need to consider the 10-day period when contracting services.

How Can I Provide My Verifier Access To My Reported Data?

- After VB receives approval to proceed:
 - Associating with a VB within the Tool is nearly the same as adding a facility contact
 - Step 1: Login to the Tool, access your facility, and click on the “Verification Bodies” Tab
 - Step 2: Click on the “Add Verification Body” button
 - Step 3: Choose your VB from the list and click on “Select”, and then confirm choice by clicking “Select” again
- See Verification web page for September 10, 2009 webinar recording for more details

<http://www.arb.ca.gov/cc/reporting/ghg-ver/ghg-ver.htm>

Verification Bodies Tab

Selecting a Verification Body

Verification Body Name	Verification Body Number	Begin Date
<input type="radio"/> Trusty Verifiers	CARB-237	11/19/2008

Use the radio button to select a specific Verification Body. Then use the buttons below the grid to perform a specific action for the selected verification body.

[Add Verification Body](#) [End Relationship](#) [Show History](#)

Use these buttons to Add, End Relationship or Show Current/Historical Verification Relationships.



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Facility Annual Reporting Reports

Logged in as Facility Manager (source) [Help](#)

Select Verification Body for Facility

Use the filter criteria to refine your search.

Facility Name: ABC Facility
ARB ID: 123456

Use this page to associate a verification body to your facility. On the following page, you will be asked to confirm the facility-verification body relationship.

Creating this relationship will grant the selected verification body read-access to your organization's data.

Use the Search Existing Records block to refine your search.

[Search Existing Records ▶](#)

Select Verification Body for Facility

Use the radio button to select a person.

Verification Body Name	Verification Body Number
<input type="radio"/> AAA Verification Co.	CARB-248
<input type="radio"/> Hurst Associates	CARB-249
<input type="radio"/> O' Dougherty Hicks and Fang	CARB-250
<input type="radio"/> Olsen Forte LLC	CARB-251
<input type="radio"/> Trusty Verifiers	CARB-252
<input type="radio"/> ...	CARB-253

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Confirming Verification Body Selection



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Logged in as Facility Manager (source)

[Help](#)

Confirm Facility - Verification Body Relationship

Confirm the entity-verification body relationship by clicking the Select button.

Warning: Creating this relationship will grant the verification body read-access to your organization's data.

Facility Name	ABC Facility
ARB ID	123456

Verifying Organization

Verification Body Name	Trusty Verifiers
------------------------	------------------

[Back](#) [Select](#) ← Click Select to confirm and continue.

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Questions?



Verification Services

What Does the Verifier Do?

■ Contract Review

- Evaluates COI and submits form to ARB for review
- Submits NOVS Verification Services
- Develops verification plan
- Conducts site visit
- Develops sampling plan
- Performs data checks
- Unlocks data report for modifications by operator, if necessary

■ Finalization

- Requests independent technical review by lead verifier
- Provides detailed verification report to facility operator
- Provides verification opinion to facility operator and ARB via Reporting Tool

Key Verifier Tasks

- Check that all required emissions sources are reported
- Verify sector reporting requirements
 - Refineries subject to section 95113, General Stationary Combustion (GSC) facility subject to 95115, etc.
- Evaluate materiality
 - Are total reported emission at least 95% accurate?
- Evaluate conformance
 - Fuel meter “fit-for-purpose” and meets 5% accuracy requirement
 - Correct emissions factors/equations used for calculations
- Provides timely feedback to allow problems to be fixed
 - 10-working day notification requirement before adverse opinion

Data Modifications

- Data changes before verification opinion
 - Iterative process between facility operator and verifier
 - Verifier required to make facility operator aware of data problems, but may not tell facility operator exactly how to fix them
 - Verifier unlocks data, facility operator makes changes, uploads new data, verification continues
 - All changes are logged, facility operator should not change any other data
- Data changes after positive verification opinion
 - If a mistake in GHG calculation is discovered after an opinion has been given, the facility operator may choose to make corrections and resubmit data
 - Requires re-verification

Consulting vs Leading/ Clarifying Comments

- Verifiers may not provide consulting services, but...
 - Verifier has to provide enough information to clearly identify a problem to allow the facility operator to correct it
 - Verifiers can not tell the facility operator how to fix the problem
- When in doubt, the facility operator should contact ARB

Findings – Issues Log

Source	Issue	Description	Reference	Resolution
Boiler #2	<u>Calculation Error</u>	2,364 MtCO ₂ e discrepancy between operator reported emissions and verifier calculated emissions for boiler #2	95125(c)(3)	Operator re-calculated emissions for the source and the discrepancy was resolved
Process Heater #1	<u>Non-conformance</u>	Incorrect emission factor used -- heater combusts distillate fuel oil but operator used the EF for motor gasoline	95125(a)	Operator re-calculated emissions using the appropriate emission factor
Diesel fuel tank	<u>Non-conformance</u>	Fuel meter on the diesel fuel tank does not meet +/-5% accuracy requirement <i>and</i> it has not been classified as a de minimis source	95103(a)(9)	Since the fuel tank results in <3% of total emissions and <20,000MtCO ₂ e, the source was classified as de minimis

Verification Report



- Describes the verification activities and outcomes
 - Sent to facility operator
 - Available to ARB upon request
- Detailed verification report includes
 - Verification plan
 - Summary of data checks
 - Issues Log
 - Qualifying comments and findings

Verification Opinion Based on Conformance and Materiality

- Verifier ensures that an operator's emission data report:
 1. Conforms to requirements of the regulation
 2. Is free of material misstatement (accurate within $\pm 5\%$)
- Failure to meet ***either*** of these criteria will result in an adverse verification opinion
- Opinion based on evidence in verification report

Conformance

- Verifiers must evaluate whether the emissions data report conforms to the requirements of the regulation
- Relates to issues such as:
 - Emission factors
 - Calculation methods
 - Fuel meter accuracy
 - Data capture requirements
- For example,
 - Did you use the proper procedures, methods and emission factors to calculate GHG emissions?
 - Are fuel meters used to calculate GHGs accurate within 5%?
 - Have all required emission sources been reported?

Materiality

- Based on the data checks by the verifier, and inaccuracies that haven't been fixed by the facility operator
- When the verifier adds up all of the uncorrected inaccuracies in calculations, do they represent more than +/-5% of the *total* reported emissions?
- ARB encourages all errors to be corrected to have the most accurate reported data

Verification Opinion Based on Conformance and Materiality

■ Positive opinion

- Emissions report conforms to regulation
- No material misstatement in emissions data



■ Adverse opinion

- Either
 - Non-conformance and material misstatement
 - Non-conformance and no material misstatement
 - Conformance and material misstatement



Verification Opinion

- Verifiers are *not* paid to render a positive opinion
 - their job is to impartially assess materiality and conformance
- Many issues affecting materiality and conformance can be corrected to avoid an adverse opinion
 - Verifier must give facility operator at least 10-working days to correct issues before issuing an adverse opinion
- Sometimes an adverse opinion cannot be avoided
 - Examples include fuel meter that was not accurate within 5%, or >20% missing data for a source

What If I Receive An Adverse Opinion?

- Evaluated on a case-by-case basis
- Mistakes required to be fixed for the next reporting cycle, if possible
- ARB Staff may contact operator to discuss possible improvements for the next year
- Forwarded to ARB Enforcement if needed

What If I Disagree With My VB about an Adverse Opinion?

- A dispute resolution process exists, must be requested before the verification deadline
- If needed, ARB's Executive Officer or delegate will act as arbiter
- All parties are held to the Executive Officer's findings

Operator/Verifier Relationship

- Not an adversarial process
 - Verifier is not your consultant
 - They are not there to catch you doing something wrong
 - They are there to protect the integrity of the system
- VB required to be responsive and transparent when providing verification services

Report Year 2008 Observations

Report Year 2008 Observations

- Fuel meters used in emissions calculations may not all be meeting the 5% accuracy requirement
- Emergency fire pumps are not emergency/backup generators
- If CO₂ emissions are reported using a fuel based method specified in 40 CFR 75, the meter accuracy is subject to the 5% requirement of the regulation

Report Year 2008 Observations

De Minimis

- No stigma associated with it
- Emissions still reported, alternative methods allowed
- Less prescriptive methods
 - Fuel measurement accuracy requirements are not specified
- Obvious places to use
 - Emergency fire pumps
 - Any sources below a cumulative 20,000 metric tonnes CO₂e and not more than 3% of total CO₂e emissions

Report Year 2008 Observations

GSC Natural Gas Volume Reporting

- Regulation requires natural gas (NG) consumption reported in MMscf
- Some retail bills provide NG consumption in terms of heat value (Btu or Therms)
- Need to convert to MMscf using one of the following methods to report fuel consumption:
 - A conversion factor from utility – usually on the bill
 - The default HHV (1027 Btu/scf)
 - A HHV measured by the facility

Report Year 2008 Observations

GSC Natural Gas Emissions Reporting

- GSC facilities (except NAICS 211111), calculate CO₂ emissions from natural gas retail meter using
 - If utility bill fuel usage in heat value (convert to MMBtu) use one of the following emission factors to get CO₂ emissions
 - Unspecified EF, 53.97 Kg CO₂/MMBtu (Appendix A, Table 4) – modified 95125(a)
 - Heat content specific EF (Appendix A, Table 4) – modified 95125(c)
 - If utility bill fuel usage in scf use one of the following methods to calculate CO₂ emissions
 - 95125(a) – *default heat value (1027 Btu/scf) and default EF (53.97 kg CO₂/MMBtu)*
 - 95125(c) – *measured heat value and corresponding heat content specific EF*
 - *HHV measured by reporter or provided by utility*
- If not using CEMS or co-firing fuels

Report Year 2008 Observations

Diesel Fuel Tank Reporting

- Using the stock method on a fuel tank is not a way around the 5% accuracy requirement
 - The stock method is still required to be 5% accurate for fuels
- Even if you are using #2 Diesel in your emergency fire pump or other stationary combustion source the fuel is reported as Distillate Fuel Oil from Appendix A Table 4

Operator Role-Summary

- Assists the VB with COI evaluation
- Hires the VB, selects them in the Tool
- Allows full access to data
- Revises data if requested
- Responds to questions from ARB if audited

ARB Oversight

- ARB has responsibility for implementation and enforcement of the GHG Mandatory Reporting Regulation
- ARB has full oversight of the reporting and verification program
- Goal is to ensure credible reporting program

ARB Oversight (2)

- Review COI/NOVS
- ARB staff audits VBs
 - Ensure reporters are treated fairly
 - Comparable levels of quality and rigor provided by all VBs
- ARB may choose to audit emissions data reports
- If needed, ARB's Executive Officer acts as arbiter

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GHG Verification Website

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Questions?

