



Emissions Data Quality Assurance Section February 20, 2018



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Outline

- ▣ General Program Overview, Cal e-GGRT Updates and Key Dates
- ▣ Review of CARB Audit Findings
- ▣ Guidance and Tripping Hazards
- ▣ Timing, Accreditation and Verifier Training
- ▣ New Regulatory Requirements
 - ▣ Implementation Timing
 - ▣ 2017 data (now!)
 - ▣ 2018+ data



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2016 Reporting and Verification Recap

- ▣ 803 reports submitted
- ▣ 516 verifications, 170 site visits
 - ▣ Large number of these site visits were voluntary
 - ▣ 100% received positive or qualified positive emissions verification statement
 - ▣ CARB conducted 58 verification audits (26 included site visit)
- ▣ 2016 summary data posted for all reports here:
 - ▣ <http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/ghgreports.htm>



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Verification of 2017 Data in 2018

- ▣ Use the same COI/NOVS form
 - ▣ May include multiple operators on a single form
- ▣ Refinery verification statement form no longer different from standard form
 - ▣ One page for all Emissions; One page for all Covered product data
 - ▣ Remember: Only submit both forms if the entity has covered product data
- ▣ Consider contacting CARB staff more frequently with questions and drafts of your plans/reports



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Timing/Schedule Changes

- ❑ Verification Deadline August 10th
- ❑ 7th verification within 6 years less likely for 2017 data, and very rare for 2018+ data (full verification)
 - ❑ Requires separate CARB approval of plan if “close” to 6 years
- ❑ CARB COI review even quicker
 - ❑ Cal e-GGRT certification required before detailed data review
- ❑ NOVS: 14 days max, but immediate approval expected
- ❑ Potential adverse notice 14 days (not 10 working days) + LOI
- ❑ Set-aside does not trigger new VB for future verifications
- ❑ VB response to audit document request must be within 14 days (not 20 working days)



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Key Dates for 2017 Data in 2018

	Event
Early in the year	Submit conflict of interest forms; initiate verification services early
April 10	Reporting deadline for facility operators and fuel suppliers
June 1	Reporting deadline for electric power entities and those subject to abbreviated reporting
July 26	(14-day) Deadline for notification of possible adverse verification statement (CARB recommends much earlier notification)
August 10	Final verification statements and verification reports due; Verification documents for CARB audits due



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Review of CARB Audit Findings

Audit Findings Overview

- ❑ Half of all VBs subject to CARB audit had a verifier nonconformance for 2016 data
 - ❑ Most verifier nonconformances were administrative and did not impact data quality
 - ❑ Potential data errors investigated to ensure data integrity
- ❑ Findings sent in December
 - ❑ CARB plans to send audit findings to VB by December every year
- ❑ Send us your feedback so we can improve the process



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Conflict of Interest Submittals

- ❑ Multiple operators on same form is OK for the entire year (low COI risk)
- ❑ CARB is switching over to procedure where approval is simple email. We will make it clear when that occurs.
- ❑ Changes to verification team after CARB approval can be done via email - a new form is no longer required
 - ❑ Email subject line = Verification Team Change Requested – ARB ID#
 - ❑ Body of email: Existing lead verifier is X; new lead verifier is Y
 - ❑ CARB approval provided via email almost immediately
- ❑ New verification team member requires a new COI form



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Common Audit Findings (1 of 3)

- ❑ Documentation must allow for a transparent review of how a verification body reached its conclusion in the verification statement (§95131(b)(7)(G))
 - ❑ If CARB cannot determine the verifier's justification for a positive verification statement based on the provided documentation, CARB will request further documentation and interview the verification team (including the independent reviewer)
- ❑ The issues log (§95131(b)(11)) must include the regulatory section related to the nonconformance
 - ❑ Be as specific as possible. Citing §95153(c)(7)(A) is more helpful than §95153(c)



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Common Audit Findings (2 of 3)

- ❑ The sampling plan (§95131(b)(7)(D)) must include:
 - ❑ How product data was verified, and how risk of misreporting was addressed
 - ❑ Correct equations for material misstatement evaluation that include all covered product data or covered emissions
 - ❑ Explanation of the product data targeted for data review, and methods used for product data checks
 - ❑ A risk analysis that addresses all covered product data
- ❑ Discussion of an example sampling plan:
https://www.arb.ca.gov/cc/reporting/ghg-ver/verifiers/sampling_plan_template.pdf



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Common Audit Findings (3 of 3)

- ❑ The verification report (§95131(c)(3)) must include:
 - ❑ Explanation of data acquisition system and a detailed comparison of data checks
 - ❑ Detailed description about how data was traced to its origin during the verification.
- ❑ The verification team must include sector specialist in the verification team if applicable, but IR cannot be used to meet this requirement
- ❑ The verification body is required to submit the conflict of interest and notice of verification services to CARB at least 10 working days (but now 14 days) in advance of the new site visit



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Opportunities for Improvement (1 of 3)

- ❑ Editorial review is important before submitting verification report
- ❑ When submitting verification statement, the verification body should include a qualifying comment in both the attached and electronic verification statement
- ❑ The verification body should include additional clarification regarding whether each issue in the issues log has a bearing on nonconformance or material misstatement



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Opportunities for Improvement (2 of 3)

- ❑ Consider using a conformance checklist specific to different industry sectors, especially for petroleum refineries
- ❑ Verifiers should continue to confirm accuracy and appropriate methods of primary measurement devices
 - ❑ Verifiers are encouraged to make use of cross-checks to reduce risk and help confirm calculations
 - ❑ If operator has postponement request, obtain copy of approval; ensure approved methods for demonstrating accuracy were followed
- ❑ Ensure that missing data substitution is adequately described in the verification report



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Opportunities for Improvement (3 of 3)

- ❑ The verification body should consider scheduling site visits earlier in the verification season, to identify nonconformances and other data errors or discrepancies earlier in the verification season.
- ❑ The verification body should ensure raw CEMS data is being compiled, and the moisture adjustment can be reviewed more carefully for accuracy.
- ❑ During future conformance reviews of covered product data, the verification body should ensure each product matches the definition in §95102
 - ❑ Check new definitions



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Corrective Action for Verifier Nonconformance

- ❑ Verifier nonconformances require corrective action plan to be submitted to CARB
 - ❑ CARB requires notification of corrective action in other GHG programs within 20 days (§95132(c)(7))
- ❑ All CAPs were received for this year have been accepted as complete
 - ❑ Please revisit nonconformances and previous corrective actions before this year's verifications to avoid previous mistakes
 - ❑ CARB will monitor CAP implementation this year
- ❑ If you would like feedback on a checklist, plan, report, or template, please let us know - we are happy to provide you with informal feedback
 - ❑ Great way to avoid verifier nonconformances if CARB has already reviewed your template and given informal feedback



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VB Management System Audit Overview

- ❑ CARB is conducting management system audits for select VBs using same criteria to select annual audits. CARB staff evaluates VB's approach to managing verification tasks and quality systems:
 - ❑ Step 1: CARB notifies VB a month in advance of audit and sends questions and which of their previous verifications will be reviewed in more detail. VB is able to prepare for questions in advance
 - ❑ Step 2: During audit, VB responds to questions and describes verification process for verification identified in Step 1; one additional verification reviewed without prior notice to VB. Most VBs needed to follow-up with responses at a later date
 - ❑ Step 3: CARB provides feedback to each VB on opportunities for improvement; CARB then shares combined best-practices annually to all VBs
- ❑ CARB staff completed six VB management system audits in 2017
- ❑ CARB staff are planning to conduct more audits in fall 2018 and moving forward
- ❑ All the audited VBs have a well-documented system



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VB Management System Best Practices

- ❑ VB "best practices" currently being used:
 - ❑ Ask operator for root cause analysis when an error is identified in the emissions data report
 - ❑ Use multi-level COI review
 - ❑ Name of the city included as an additional check
 - ❑ System informs other staff in VB that they cannot contract with an existing GHG verification client until they communicate with the lead verifier
 - ❑ Ask operator to conduct their own COI evaluation
 - ❑ Require 2nd lead verifier review before final independent review
 - ❑ Get buy-in from independent reviewer on overall approach several weeks before deadline to avoid last-minute surprises
 - ❑ Create a communication log between lead verifier and independent reviewer



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VB Management System Best Practices (cont'd)

- ❑ Use robust and adaptable templates for developing sampling plan, verification report
 - ❑ Some sampling plans show great version control to clarify changes made during verification and from a previous year (new issues in red text), and how risks were addressed
- ❑ Non-accredited staff may provide assistance under direct supervision of an CARB verifier
 - ❑ VBs should have written procedure describing the roles of non-accredited verifiers-in-training or technical experts
- ❑ Several VBs structure their contracts to spread out the workload and avoid last-minute mistakes right before the deadline
 - ❑ VBs should consider implementing drop-dead dates for final revisions to emissions data reports



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Guidance and Tripping Hazards



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Verifier-Only Web Page

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

Ask CARB for password if you have forgotten it (again)

ARB-Accredited Verifiers of GHG Emissions Data Reports

- MRR Regulation (2014 and 2016 PDF versions, and MS Word copy of 2016 MRR)

- Contact info for operators; who needs a verifier?

- Training information; (new sector accreditation)

- Reccreditation exam

- Orifice meter guidance

- Sample calculation for tomato product data

This website is for ARB-accredited GHG verifiers for ARE's Mandatory Reporting Regulation. Please contact us at ghgverfy@arb.ca.gov with questions.

This page last revised January 31, 2018

Latest News

MRR Regulation (with referenced version of U.S. EPA's 40 CFR Part 98)

Quick Links: Underline/Strikeout Changes for 2016 MRR (2017 and later data years); Clean Version (PDF) (MS Word)

Cap-and-Trade Regulation (for 2017 and later data years)

List of Reporting Entity Contacts and COI Status

ARB Verification Services Audit Checklist

Verifier Training

New verifier accreditation training, as well as sector specialist training, will be held in the CalEPA HQ Bldg. in Sacramento on February 26 - March 2, 2018.

Training schedule

Course 1 - General Verification (posted by February 16, 2018)

Course 2 - Transactions (posted by February 16, 2018)

Course 3 - Oil&Gas (posted by February 16, 2018)

Exam Policy

Verifier Webinar (February 20, 2018 - Registration)

Slide Presentation (posted February 20, 2018)

Recording (will be posted February 21, 2018)

2018 Reccreditation Exam Guidance

Reporting guidance is posted on the guidance page.

Technical Guidance for Assuring Measurement Device Data Accuracy

Example Calculation for Verification of Reprocessed Tomato Product Data

Cal e-GRR Step by Step Guide for Verifiers (PDF) (Word) (updated May 2016)

Listserve Information

Listserve Announcement Archive (ghgverfy) (most recent listserve message)



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Guidance for Verifying Orifice Meters

- Several reporting entities have self-identified errors in the flow calculations that are used to determine fuel volume from orifice meters
 - Orifice plate degradation discovered two years after inspection was required causing multiple data years to be potentially invalid
 - These types of errors can lead to a set-aside of the verification statement and re-verification by a different VB
- CARB staff has developed guidance for verifiers to describe differential pressure measurements: <https://www.arb.ca.gov/cc/reporting/ghg-ver/verifiers/DP-meter-guidance.pdf>
 - Primarily for petroleum refineries and some oil and gas production facilities
- Operators must explain which factors and equations were used during meter selection and the determination of fluid properties
- Contact CARB staff for the most complicated flow calculations or where documentation is weak
 - CARB staff engineers can provide additional support to verification teams



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Examples of Verifier Tripping Hazards

- Tomato processors with complicated covered product data
 - Incorrect method used to calculate product data from reprocessed tomato products
 - See verifier guidance: <https://www.arb.ca.gov/cc/reporting/ghg-ver/tomato-calc.pdf>
- Landfill gas incorrectly reported as utility-purchased biomethane
- Gas processed vs gas purchased; associated gas reported as emissions and as product data - this can be complicated so ask CARB for assistance
 - Ensure units of measure are accounted for (Mscf and MMBtu)
 - NG Fractionators report gas purchased (Mscf) in Subpart NN, and gas processed (MMBtu) in Subpart W, but only gas processed can be reported as covered product data
 - LPG and non-LPG products can be complicated



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Regulatory Changes

- Review underline/strikeout changes first at: <https://www.arb.ca.gov/regact/2016/ghg2016/mrrfinalreg.pdf>
- Guidance for applicability of changes to data year is at: <https://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/applicability-year.xlsx>
- Adjust templates and procedures to include new requirements (for 2017 data)
 - \$95131(b)(4) requires NAICS review in sampling plan
 - \$95131(b)(2) requires draft plans before site visit
 - Product data definitions, new products, changes to existing products mostly (\$95115(n))
 - No process emissions specialist for paper production \$95131(a)(2)(c)
 - Method changes and calibration postponements require explicit review during site visit \$95131(b)(3)(c)(3)
 - Steam purchases also required to be reviewed (not just generation/disposition)
 - Notice of potential adverse MUST include a preliminary issues log



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Review of Covered Product Data (§95131(b)(14))

- ❑ Section 95131(b)(14) now requires all types of product data to be evaluated
- ❑ Verifiers are responsible for reviewing all types of covered product data
- ❑ Verifiers shall describe in the sampling plan how they did they determine that each product conforms to MRR
- ❑ In practice, this means that verifiers will confirm:
 - ❑ Each product type meets definition in MRR/C&T
 - ❑ Systems are in place for ensuring accurate measurement
 - ❑ Products are reported using methods that conform to regulation and guidance
- ❑ Verifiers not expected to meet absolute assurance. CARB still expects verifier to perform risk assessment to confirm no material misstatement.
- ❑ Review of raw data and tracing data to origin is still performed based on risk-based sample



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Covered Product Data for Refineries

- ❑ When reviewing product data for petroleum refineries, only review CWB products
 - ❑ Not covered data, so considered low risk; streamlined conformance review is sufficient
 - ❑ Next year (2018 data), a new category of products is called “Refinery Products” requires a conformance check only (CARB suggests only reviewing CWB data (+ covered emissions data))
 - ❑ Sulfuric acid regen now reported under Subpart A – not in CWB spreadsheet



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More Regulatory Changes

- ❑ Fuel cells will be COVERED for 2018+ data (previously not covered)
- ❑ Biomass power plants no longer required to demonstrate +/-5% accuracy for CH₄ and N₂O emissions if they are not already subject to C&T
- ❑ Renewable diesel purchases may be reported as delivered in that same calendar year
- ❑ Sampling plan should include risk of incomplete reporting
- ❑ Correctable errors no longer include non-covered emissions
- ❑ Issues log should include all changes (not just what verifier identifies) to emissions data report and any potential nonconformances, including whether uncorrected error would trigger an adverse verification statement



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Timing, Accreditation and Verifier Training



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Timing of Verifications

- CARB continues to streamline reporting and verification process
 - Cal e-GGRT access and Guidance posted earlier this year
 - Multiple operators submitted together on same COI form
 - Faster COI approval
 - Better outreach to VBs regarding verifier tripping hazards
 - CARB is working to notify facilities in advance if they are allowed to cease verification so you know if verification is actually required



Accreditation and Verifier Training

- 150 verifiers required to reaccredit after 3 years (H-15 EOs) by March 1
 - Submit exam and reaccreditation application; total time needed to submit application and exam is less than 1-2 hours
 - CARB staff may not approve COIs with verifiers not reaccredited by March 1
- Verifiers given opportunity to upgrade to lead verifier with requisite experience
- New verifier training in Sacramento, February 26-27th, 2018
 - Sector training in Sacramento, February 28-March 1st; Sector exams Friday, March 2nd



Verification Contacts

GHG Verification Assistance	Email	Phone
Manager – Emissions Data Quality Assurance (Verification) Section	Ryan Schauland	(916) 324-1847
Verification Requirements	GHG Verification Questions	
Process Emissions (cement, glass, paper, etc.)	Rania Heider	(916) 327-5615
Petroleum Refineries and Hydrogen Plants	Samir Sleiman	(916) 327-2965
Oil and Gas Production	Chris Halm	(916) 323-4865
Fuel Suppliers - Transportation Fuels, Natural Gas, LPG	Farshid Mojaver	(916) 323-7043
Electric Power Entities (Importers, Exporters, Retail Providers, Electricity Marketers)	Abajh Singh	(916) 322-8276



Questions

