CALIFORNIA
AIR RESOURCES BOARD

Verifier Accreditation Training for Mandatory GHG Reporting

General Verification

Course 1.1 - Verification Context, Principles, and Program Overview

Welcome and Introductions

- CARB Management Team:
  - Ryan Schauland, Manager, Verification Section
  - Syd Partridge, Manager, Reporting Section
  - Greg Mayeur, Chief, Program Planning and Management Branch

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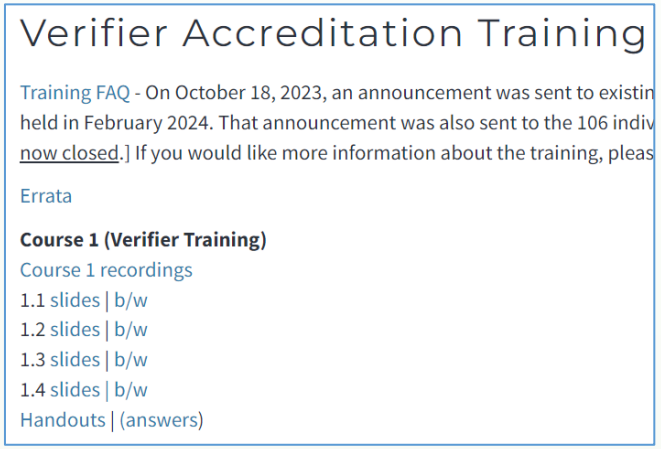
Electric Power Entities (Importers, Exporters, Retail Providers, Electricity Marketers)	Abajh.Singh	(279) 208-7116

Updated from 2020 training

https://ww2.arb.ca.gov/mrr-contacts

Training Expectations

- View ALL training videos prior to the exam date
  - You will attest that you viewed all videos
  - Exam will have questions related to each module
- Make note of all questions to ask during your review/Q&A session
- Pause videos at any point—this is necessary to work through case studies and under tricky material


Verifier Accreditation Training

Training FAQ - On October 18, 2023, an announcement was sent to existin
held in February 2024. That announcement was also sent to the 106 indiv
now closed.] If you would like more information about the training, pleas

Errata

Course 1 (Verifier Training)
Course 1 recordings
1.1 slides | b/w
1.2 slides | b/w
1.3 slides | b/w
1.4 slides | b/w
Handouts | (answers)

MRR Verifier Accreditation - Course Content

- Course 1: General Verification for Mandatory GHG Reporting
  - **1.1 Verification Context, Principles, and Program Overview**
  - 1.2 Stationary Fuel Combustion and Sorbent Sources
  - 1.3 Accuracy & Product Data
  - 1.4 Electricity Generating Units & Cogeneration
- Course 2: Transactions Specialty
- Course 3: Oil and Gas Systems Specialty

Disclaimer

This accreditation training is intended to provide administrative detail and recommended practices for compliance with the verification provisions of the California Air Resources Board's (ARB) Regulation for the Mandatory Reporting of Greenhouse Gas (GHG) Emissions (Regulation) (Title 17, California Code of Regulations, §95100-95158).

Unlike the Regulation itself, this training and associated materials do not have the force of law. The training and associated materials are not intended to and cannot establish new mandatory requirements beyond those that are already in the regulation, and they do not supplant, replace or amend any of the legal requirements of the regulation. Conversely, any omission or truncation of regulatory requirements does not relieve verification bodies, lead verifiers, verifiers of emissions data reports, or reporting entities of their legal obligation to fully comply with all requirements of the regulation.

Note: CARB verification accreditation exams are not limited to this verification accreditation training or associated materials. The exams may test on anything contained in the regulation, this accreditation training, and associated materials.

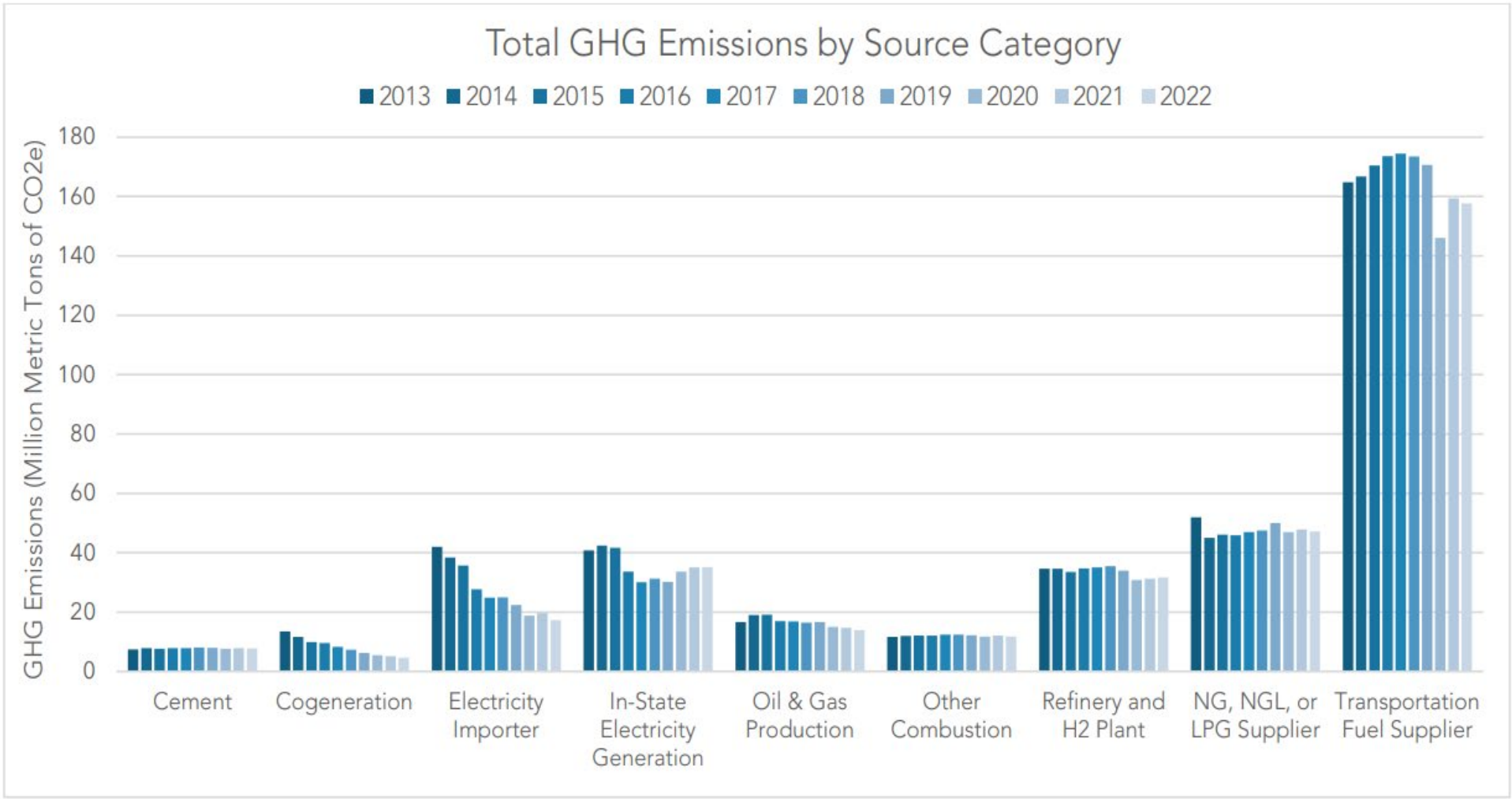
Approximate Number of Reports Expected to be Verified in 2024

Source Type	Facilities	Source Type	Facilities
EGUs/Cogen	127	Hydrogen production	8+
Other Combustion	101	Cement manufacturing	7
Fuel suppliers[1]	68	Glass production	9
Electric power entities	106	Iron and steel production	2
Oil and gas extraction	30	Lead production	1
Petroleum refineries	16	Lime manufacturing	1
Pulp and paper	5		

[1] Transportation fuels and NG/LNG/LPG suppliers

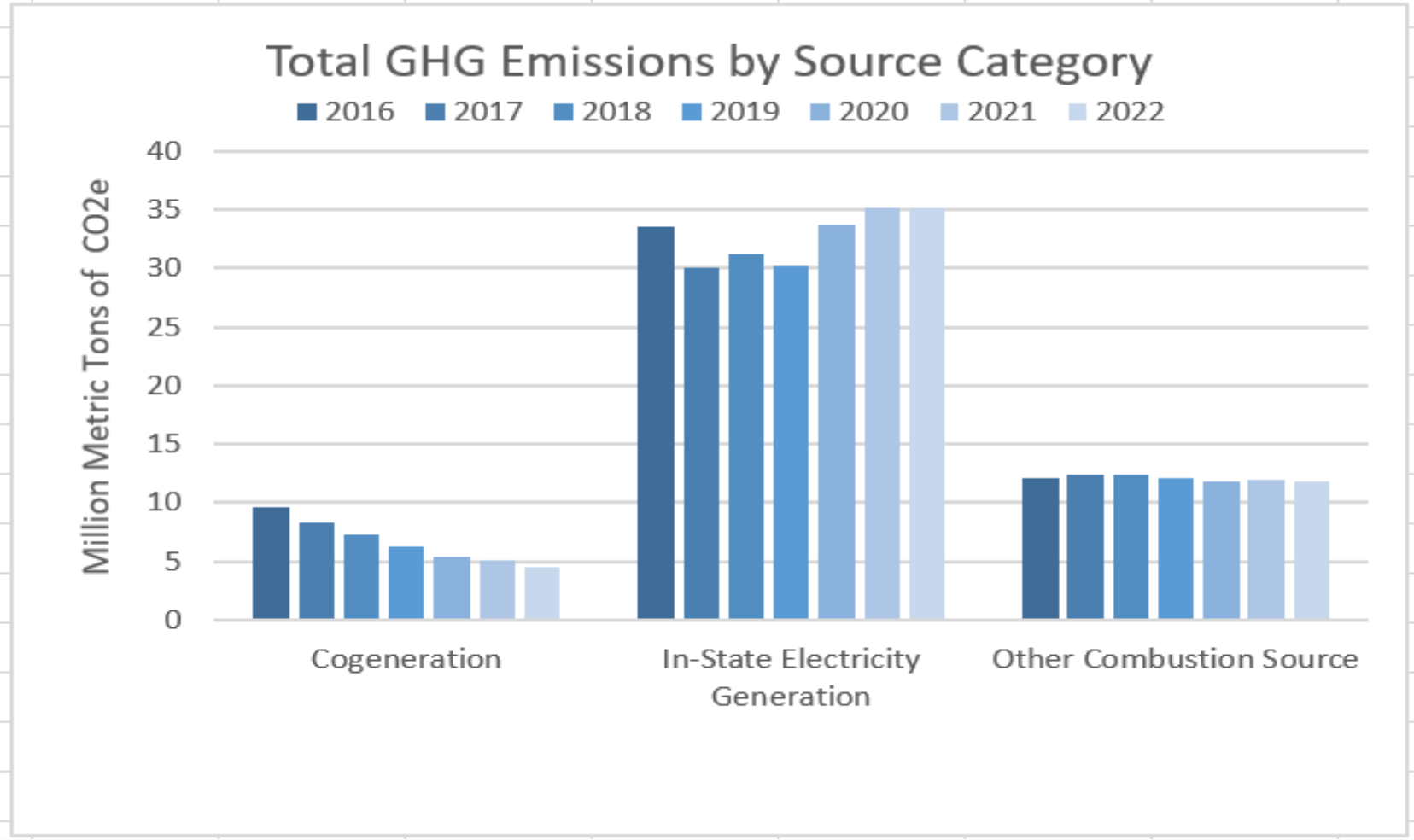
Updated from 2020 training. See errata.

GHG Emissions Comparison



Updated from 2020 training. See errata.

GHG Emissions Comparison (Course 1 Sectors)



Updated from 2020 training. See errata.

Mandatory Reporting Regulation (MRR) Requirements Included in Course 1

Subarticle 1:

§95101 - Applicability

§95102 - Definitions

§95103 - General Requirements

§95104 - Emissions Data Report

§95105 - Recordkeeping

§95106 - Confidentiality

§95107 - Enforcement

§95109 - Standardized Methods

Subarticle 2:

§95115 - Stationary Fuel Combustion (SFC) and Sorbent Sources

§95112 - Electricity Generation Units (EGUs) and Cogeneration

Subarticle 3:

§95129 - Substitution of Missing Data for SFC and CEMS

Subarticle 4:

§95130 - 95133 - Verification

Specialist Accreditation Training

Course/Specialty	Sub-specialty
Course 2 **Transactions**	• Electric Power Entities • Suppliers of Transportation Fuels • Suppliers of Natural Gas, Natural Gas Liquids, and Liquefied Petroleum Gas • Suppliers of Carbon Dioxide
Course 3 **Oil and Gas Systems**	• Petroleum and Natural Gas Systems • Petroleum Refineries • Hydrogen Production

Verifier Exams - Scope

- All Exams will be based on:
  - Training coursework
  - CARB's Mandatory GHG Reporting Regulation (MRR)
  - Relevant portions of EPA's 40 CFR Part 98 (Part 98)
- 120 minute written exam (+ 5 minutes)
  - 10 multiple choice (20%)
  - 10 short answer (50%)
  - 2 long answer (30%)
- Complete all questions (exam is time-constrained)
- Partial credit given

Verifier Exams - Tools

- For the general verifier exam, have access to:
  - 2018 Mandatory Reporting Regulation (digital or paper)
  - 40 CFR Part 98 Subparts A, C, and D posted on CARB webpage https://ww2.arb.ca.gov/mrr-regulation
  - Training slides
  - Calculator or Excel (avoid the internet, it won't be helpful)
  - Any of your own notes from training videos and Q&A sessions
- See exam policy: https://www.arb.ca.gov/cc/reporting/ghg-ver/exam_policy_2020.pdf

Verifier Exams - Scoring

- Exams scored within two weeks
- Results
  - Greater than 70% (unweighted) = pass
  - ≤ 70% = fail
- May discuss topics with CARB staff if you do not pass the exam
  - One exam retake possible

Remote Exam Policy and Logistics (1 of 2)

- At start time, exams will be emailed by CARB staff to the email address listed in the application
- Exams will be in Word (.docx and PDF). May be returned in Word or PDF. Contact CARB if you require a different format or reasonable accommodation
- Exams must be emailed to ghgverify@arb.ca.gov by the end time (five minute grace period)
- Exam time is 120 minutes (30 minutes longer than normal to account for logistics)
- By emailing completed exam to CARB, you attest to having viewed all training videos, participated in review/Q&A, and that you completed the entire exam without outside assistance

Remote Exam Policy and Logistics (2 of 2)

- Think ahead about the best way for you to complete the exam
- Some options:
  - Best: Print exam, handwrite answers, scan and email
  - Acceptable: Fill in what you can in Word doc (bold or circle multiple choice, type in written answer). For questions that are easier to handwrite (equations, etc), use scratch paper and indicate “see attached”. Email exam plus scan/photo of handwritten pages
  - Acceptable only if necessary: Handwrite answer on separate pages and be extremely clear about what questions you are answering

Course 1.1 Handouts

1.1.1 - Exam Policy - already discussed

1.1.2 - Excerpts from Cap-and-Trade Regulation

1.1.3 - Verification Process Diagram

1.1.4 - Issues Log Examples

Verification Principles, and Program Overview

- Overview of AB 32 Climate Change Programs
  - Scoping Plan
  - Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR)
  - Regulation for the California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms (C&T)
- Verification Principles and Process Overview
- General Reporting and Verification Requirements
- Verification Process
- CARB Oversight

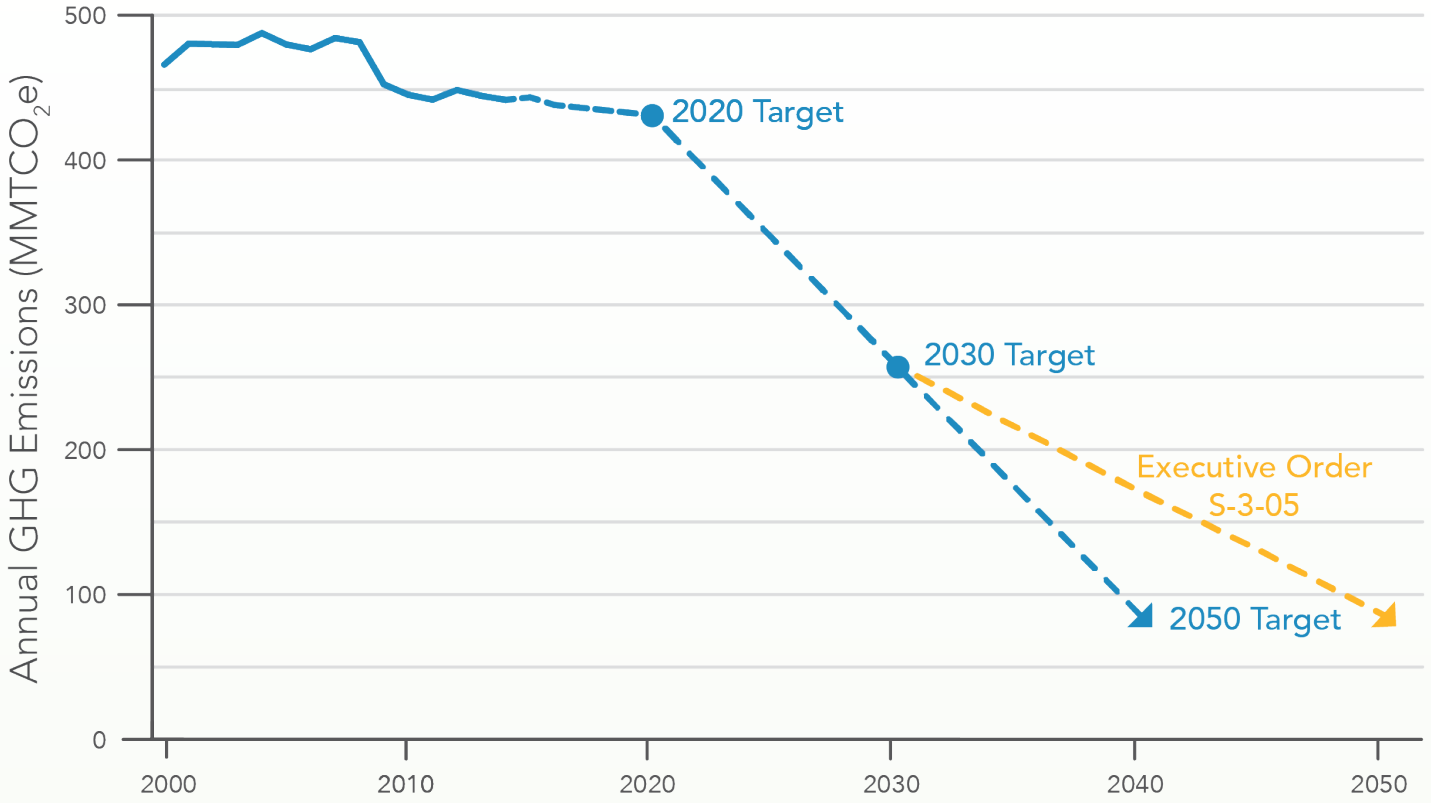
AB 32 Overview

- California Global Warming Solutions Act of 2006
  - (Assembly Bill 32, Nuñez, Statutes of 2006, Chapter 488)
- "Early action" reductions
- Required CARB to write a "Scoping Plan" to reduce statewide emissions to 1990 levels by 2020
  - Governor's Executive Order to achieve 80% reduction of 1990 levels by 2050
- Adopted
  - GHG emission reduction measures
  - Requirements for GHG reporting and verification
  - Cost of Implementation Fee Regulation

AB 32 Scoping Plan

- Outlines strategy for reaching 2020/30 targets
- Strategy combines
  - Technology-forcing standards
  - Market mechanisms
  - Incentives
  - Voluntary programs
- Creates conditions to spur growth in California's clean technology businesses and jobs
- Updated most recently in 2022
  - https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents

California GHG Reduction Targets



Source: CARB, 2017

CARB's Climate Portfolio for 2030 Target

Double building efficiency

More clean, renewable fuels

Cleaner zero or near-zero emission cars, trucks, and buses

Walkable/bikeable communities with transit

Cleaner freight and goods movement

60% renewable power

Slash potent "super-pollutants" from dairies, landfills and refrigerants

Cap emissions from transportation, industry, natural gas, and electricity

Invest in communities to reduce emissions

Protect and manage natural and working lands

Cap-and-Trade Program Background & Goals

- Critical part of State strategy to achieve AB 32 and SB 32 GHG reduction targets
  - Ensure GHG reduction targets are realized through a strict limit
  - 2017 Scoping Plan that includes Cap-and-Trade is four times less costly than alternatives
- Works in concert with other complementary air quality and climate policies
  - Program designated in AB 398 to reduce GHG emissions for oil and gas extraction and refinery sectors
  - Provide compliance flexibility to achieve cost-effective reductions
  - Facilitate integration of regional, national, and international GHG reduction programs

Cap-and-Trade: Facts and Figures

- Covers ~80% of State's emissions
- ~450 covered entities in the Program
  - Large industrial sources & electricity generators with emissions ≥ 25,000 MTCO2e per year
  - Electricity importers, natural gas suppliers, and transportation fuel suppliers
- 31 auctions held to-date (23 joint-auctions)
  - First joint auction with Québec was held in November 2014
- Over $13 billion generated for California Climate Investments
  - ~50% of investments are benefiting disadvantaged communities

C&T Covered Sectors (C&T §95811)

- Stationary sources ≥25,000 MT CO_2e in a calendar year
  - Large industrial sources
    - e.g., cement, refineries, oil and natural gas producers
  - In-State electricity generation
  - <25,000 MT CO_2e may also be required to report prior to meeting criteria for cessation
- Fuel Suppliers (e.g., transportation or natural gas fuel suppliers)
- Importers of electricity
- Opt-in covered entities

Cap-and-Trade: Compliance Obligation

- Compliance obligation = total covered emissions for calendar year
- Covered entities in C&T must surrender compliance instruments equal to their covered emissions
- Compliance instruments are
  - Allowances
  - Offsets
- Verified data determines compliance obligation and direct allocation of allowances from CARB to certain industrial entities
  - Verified covered emissions → compliance obligation
  - Verified NAICS code and, as applicable, verified covered product data → allowance allocation

MRR Regulation

- Satisfies AB 32 requirements to estimate, report, and track GHG emissions
- Provides accurate, verified, and reporting entity-specific GHG emissions and covered product data
- Original regulation adopted by CARB in 2007
- Updated in 2010 to support the Cap-and-Trade Program and harmonize with U.S. EPA Greenhouse Gas Reporting Rule
- Subsequently updated in 2012, 2013, 2014, 2016
- 2018 MRR – current update effective April 2019
- Supports California's GHG emissions inventory

U.S. EPA Federal Regulation - 40 CFR Part 98

- Mandatory reporting of GHGs on a facility basis
  - Rule published in October 2009
  - 2010 first emissions reporting year
- Applies to
  - Direct greenhouse gas emitters
  - Industrial gas suppliers
  - Fossil fuel suppliers
- Summary emissions data available to the public
  http://www.epa.gov/ghgreporting/ghgdata/reportingdatasets.html

MRR and 40 CFR Part 98 (1 of 2)

- Harmonized calculation and reporting requirements
  - MRR incorporates many provisions of Part 98 by reference
  - Must use the specific version of 40 CFR 98 posted on CARB's website
- Key MRR additions to Part 98 requirements:
  - Lower reporting threshold:*
    10,000 MT CO2e vs. EPA's 25,000 MT CO2e threshold
  - Applicability threshold evaluation includes
    - Biogenic emissions
    - Geothermal emissions
    - Fuel cell emissions

* Note verification threshold is ≥ 25,000 MT CO_2e, with some exceptions.

MRR and 40 CFR Part 98 (2 of 2)

- Key MRR additions to Part 98 requirements:
  - More rigorous missing data provisions
  - "Higher tier" monitoring requirements for fuels with variable carbon
  - Requirements for reporting covered product data
  - Third-party verification of emissions and product data:
    - Sources ≥ 25,000 MT CO_2e
    - Cap-and-Trade covered entities
  - Changes to adapt reporting to geographic boundary
    - Fuel and electricity imports applicable to state-specific program

Verification Principles and Process Overview

- Overview of AB 32 Climate Change Programs
- **Verification Principles and Process Overview**
  - Reporting and verification standards
  - Key terms and concepts
  - Overview of verification process
  - Skills and responsibilities
  - Assurance and verification statement
- General Reporting and Verification Requirements
- Verification Process
- ARB Oversight

MRR Definition of Verification §95102(a)

- A systematic, independent and documented process for evaluation of a reporting entity's emissions data report against CARB's reporting procedures and methods for calculation and reporting of GHG emissions and product data.
  - Systematic: organized, rigorous and thorough
  - Independent: based on fact, unbiased, objective
  - Documented: process, records, findings
  - Judged against a set standard and to a given level of assurance
  - Findings based on examination of objective evidence

Verification Standards and GHG Emissions

- Standard stipulates level of accuracy and level of assurance to be achieved
- Specifies an approach to be followed
- Other GHG programs use other reporting standards

  Examples include

  - CARB Compliance Offset Protocols
  - CARB Low Carbon Fuel Standard
  - The Climate Registry (TCR) General Reporting Protocol
  - CDP, VCS, Canadian Provincial Rules, etc.

MRR as a Reporting Standard

- Specific emissions monitoring and reporting requirements
  - Reporting threshold of 10,000 MT CO_2e per calendar year
  - Verification threshold of 25,000 MT CO_2e per calendar year with some exceptions
    - All C&T covered entities subject to verification
    - C&T opt-in covered entities also require verification (see C&T §95814)
    - Continued reporting and verification during cessation period
- Defines material misstatement (+/-5% error)

MRR as a Verification Standard

- Establishes accreditation program for individual verifiers and verification bodies
- Requires “reasonable assurance,” which means “a high degree of confidence that submitted data and statements are valid”
- Requires separate verification statements for emissions data and for product data

Scope of Verification

- GHG Emissions
  - Carbon dioxide, methane and nitrous oxide
  - Data, data collection, calculations, and data report
  - Material misstatement and conformance with regulation
  - Review covered and non-covered emissions
  - Covered emissions data are reviewed for accuracy and conformance with the regulation
  - Non-covered emissions are reviewed for conformance with the regulation only, not reviewed for material error
- Covered Product Data - Course 1.3

Covered Emissions

- Defined in MRR §95102(a): "Covered emissions" mean all emissions included in a compliance obligation under C&T sections 95852 thru 95852.2
  - Listed in Handout 1.1.2 Cap and Trade Regulation Excerpts
- For facilities (sectors) covered in this course, determine a reporter's Cap-and-Trade compliance obligation:
  - Covered entities (C&T §95811)
  - Emissions with and without compliance obligation (C&T sections 95852-95852.2)
- Verified for material misstatement and for conformance (measured and calculated following MRR procedures)

Non-covered Emissions

- Emissions without a compliance obligation (C&T §95852.2)
- Partial List of "non-covered emissions":
  - Exempt biogenic emissions
  - Geothermal emissions
  - Fugitives and some vented emissions from oil and gas production
- Verified for conformance with MRR
- No material misstatement assessment

Skills and Responsibilities of an Effective CARB-Accredited Verifier (1 of 2)

- Understand and adhere to MRR and associated regulations and laws
- Understand reasonable assurance and how it applies to emissions data report verification
- Prepare, plan, stay organized, and keep good records
- Communicate effectively with reporting entities and CARB
  - Listen, ask questions
  - **Do NOT give advice**
  - Contact CARB for guidance, as needed

Skills and Responsibilities of an Effective CARB-Accredited Verifier (2 of 2)

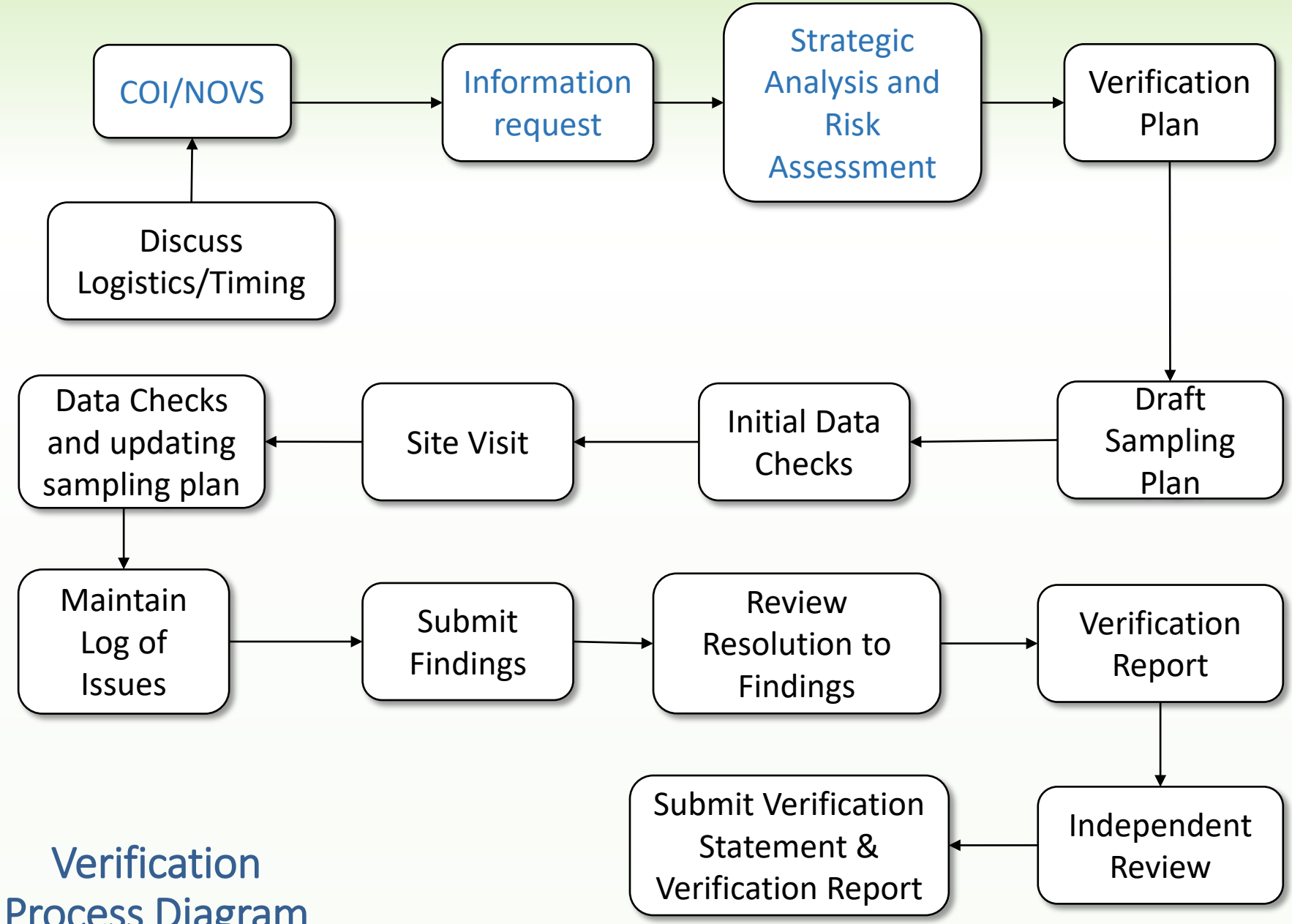
- Maintain independence and objectivity
- Act with integrity and honesty
- Review emissions data reports on behalf of CARB
- Focus on rigor and efficiency
- Be safe!

The Importance of Impartiality

- Conflict between self-interest and ability to maintain independence and objectivity
- Conflict of interest can be real or perceived
- Perceived COI can undermine public support and confidence in the quality of the reported data
- Conflict of interest can damage the reputation for impartiality of a verification body or verifier, and lead to loss of accreditation
- Conflict of interest is assumed to impair the quality of verification

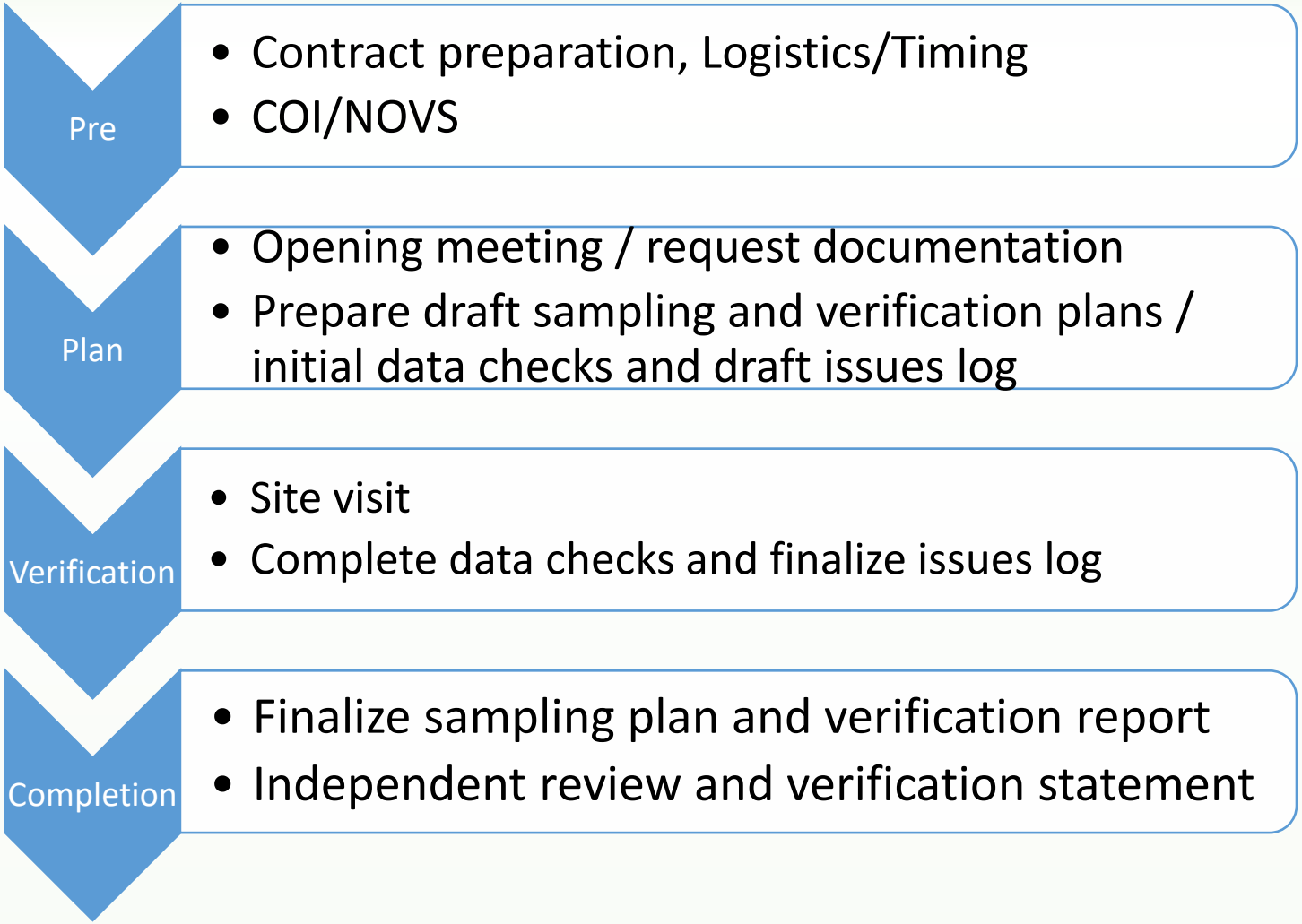
Data Confidentiality §95106

- Verifier can review all relevant data
  - Verifiers and verification bodies are responsible for maintaining confidentiality
- Facility-level emissions data, after release by CARB, is public information
  - Process rates and fuel characteristics can be marked confidential by reporting entities
- Similarly, data released by U.S. EPA is public information



Verification Process Diagram

Verification Process Diagram, Alternate View



Overview of Verification Process (1 of 2)

- Pre-Verification Services
  - Determine scope of verification services
  - Secure contract with reporting entity
  - Submit conflict of interest (COI) self-assessment and Notification of Verification Services (NOVS) for CARB approval
    - Wait for CARB approval before beginning verification services (as defined in §95102(a))
- Planning Verification Services
  - Review GHG monitoring plan and emissions data report, confirm verification scope, send data request
  - Conduct preliminary data review, strategic risk analysis, write verification plan and sampling plan
  - Identify any immediate issues in preliminary issues log

Overview of Verification Process (2 of 2)

- Conducting Verification:
  - Complete site visit to evaluate data management systems, emissions sources, and product data (if applicable)
  - Check data to identify errors and provide issues log to reporter (this may be an iterative process)
- Completing Verification:
  - Complete verification report summarizing resolution of issues
  - Conduct independent review—Independent Reviewer assesses procedures, judgment, and conclusions of verification team
  - Submit emissions data verification statement to CARB
  - Submit separate product data verification statement, but only if applicable

Conflict of Interest (COI) / Notice of Verification Services (NOVS) Forms §95133

- Combined online submittal of COI/NOVS forms after the VB holds the verification contract
  - CARB response required within 20 days
  - May not begin work without CARB approval
  - CARB approval required if change in lead verifier or independent reviewer, or change to higher risk, or adding team member

Types of Conflict of Interest

High COI: §95133**(b)**	**Medium COI:** §95133**(d)**	**Low COI:** §95133**(c)**

• Providing listed services within 5 years
  ○ air emissions or GHG reduction project consulting
  ○ IT systems services
 	
• Sharing of staff between reporting entity and Verification Body (VB)
 	
• Providing non-monetary incentive to secure a verification contract
	• When high or low COI does not exist
	  ○ Water-quality
	  ○ Construction
	  ○ Other consulting that is <u>not</u> high risk
	
	• Personal or familial relations between VB and reporting entity management
	• COI <u>mitigation plan</u> is required
		• No High-COI conditions exist AND
		• Any non-verification services provided within the last 5 years are less than 20% of verification contract value
		• Verification services are provided within 6 calendar years, or following 3 year break
		• Verification that follows CARB COI requirements

Emerging Conflict of Interest §95133(g)(3)

- Emerging COI appears during or after verification services are provided
  - Notify CARB within 30 days
  - If the Medium emerging COI can be mitigated, submit mitigation plan
  - If the Medium or High emerging COI CANNOT be mitigated, stop verification services
  - Verification Body may be subject to revocation of accreditation under section 95132(d)

Operational Control

- Operational Control for reporting entity, means the authority to introduce and implement operating, environmental, health and safety policies
- If control is shared the entity holding the permit to operate from the local air district is considered to have operational control

COI Examples

- VB consults for Company A headquarters. Company A owns five power plants; each with separate operational control at the facility level
  - Consulting work for Company A is disclosed to CARB, but verification of all five power plants is low COI risk
- Verification body hires a former engineer from Company B; engineer did not conduct any high COI activities for Company B within previous 5 years; VB wants to verify Company B's emissions data report
  - Verification body mitigates medium COI risk of shared staff by separating engineer from verification team, and CARB would approve
- Verification body provided high risk COI consulting to Company C; wants to provide verification; verification fee is >80% of total fee
  - High risk COI verifications are <u>always</u> high risk; only medium risk can be designated as low risk if fee for verification is high compared with total fee. CARB would not approve COI.

More COI Examples

- Company D has two manufacturing facilities with shared operational control; verifier wants to verify each facility for 3 years
  - Acceptable as long as the 6-year limit is not exceeded for any individual facility, and a 3-year break is taken when a different VB verifies each facility
- Non-GHG staff of verification body provided water quality consulting work to a facility 3 years ago; VB wants to verify the facility's emissions data report
  - Likely medium COI, but acceptable if the verification team is separated from the consulting staff, and it is clear no high COI consulting work was included
- Verification team member is hired by Facility 6 months after verifier provided verification services
  - VB must notify CARB (§95133(g)(2)); CARB reviews quality of verification; no additional verifications may be initiated for that facility for 5 years; possibility to "set aside" verification if new work determined to affect previous verifications

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Assurance

- Intended to increase user confidence in data and information
- Three types of assurance:
  absolute, reasonable and limited
  - Reasonable assurance for MRR
- Financial audits have high level of rigor
  - Covered emissions and covered product data have financial implications and must have same level of rigor

Levels of Assurance

- Absolute assurance
  - 100% certainty that data/reports are correct because all data are checked
  - Considered onerous
- Limited assurance
  - Limited review of data and controls
  - Assurance is given in the negative: "nothing has come to our attention that causes us to believe that the emissions data report is not materially correct"
  - Relatively weak confidence in completeness and accuracy

Reasonable Assurance

- Reasonable assurance is used in MRR §95102(a)
  - High degree of confidence that submitted data and statement are valid
  - Same as financial accounting standard
- If reasonable assurance of no material misstatement is not demonstrated by the reporting entity, results in adverse verification statement
  - Data Sampling
  - Conformance Checks

Establish Reasonable Assurance of No Material Misstatement §95131(b)(12)

- Material Misstatement: Any discrepancy, omission or misreporting (or combination) that leads the verifier to believe that the total reported covered emissions or covered product data have errors > +/-5%

$$Percent\ error = \sum \frac{[Discrepancies + Omissions + Misreporting] \times 100\%}{Total\ reported\ Covered\ emissions}$$

$$Percent\ error = \sum \frac{[Discrepancies + Omissions + Misreporting] \times 100\%}{Total\ reported\ Covered\ product\ data}$$

Examples of Discrepancies, Omissions, and Misreporting of Emissions

Discrepancies **Differences between what was reported and what verifier calculates**	**Omissions** **Missing data that should have been reported**	**Misreporting** **Data that should or should not have been reported**
• Error in calculations • Use of incorrect data	• Source not reported • Period of time missing	• Duplicated emissions • Excluded source reported

Material Misstatement Assessment

- To calculate percent error (which is applied to covered emissions and covered product data), the following formula convention should be used:

$$\% \text{ Error} = 100 \times \frac{Reported\ Value - Verifier\ Value}{Reported\ Value}$$

- This formula results in a positive error if emissions were over-reported (reported GHGs too high)
- This formula results in a negative error if emissions were under-reported (reported GHGs too low)
- Neither over-reporting nor under-reporting is acceptable!

Establish Reasonable Assurance that Report is in Conformance with MRR Requirements

- "Nonconformance" means the failure to use the methods or emission factors specified to calculate emissions, or the failure to meet any other requirements of the regulation (§95102(a))
- Verifier must have reasonable assurance that methods specified in MRR to calculate emissions and covered product data are followed
- Verifier must consider the scope of the conformance review of other reported information in the risk assessment, and discussed in the sampling plan

Examples of Nonconformance

- Incorrect emission factor used
- Fuel bill did not include 10 days in December
- Stationary combustion emissions reported under wrong subpart (hydrogen production)
- Small boiler observed on-site was not included (incomplete reporting)
- The sum of fuel meters double-counted a fuel stream
- Incorrect substitution of missing data
- Fuel flow measurement that represents half of total facility emissions has 10% error
- Incorrect product reported and/or product specification does not meet MRR definition

Emissions Data Report Non-conformances vs. Other Regulatory Non-conformances

- Your verification statement applies to (a) statements made by reporting entity in the emissions data report, and (b) conformance with GHG Monitoring Plan requirements
- Your verification statement does not include:
  - Identified non-conformances with the regulation that are NOT included in the entity's GHG report (e.g., records related to GHG emissions not kept for 10 years)
  - Weaknesses
- Weaknesses should be considered in risk assessment and sampling plan and documented in issues log, e.g.:
  - GHG Monitoring Plan includes staff training section, but not all relevant training is included
  - New staff unfamiliar with monitoring procedures

Types of Verification Statements

- Positive
  - A site visit is not required for the year following a positive verification statement
- Adverse
  - Due to material misstatement
  - Due to correctable error
  - Both
- Qualified Positive
  - No material misstatement
  - Other nonconformances
- Separate Verification Statements are rendered for emissions and product data
  - Both emissions and product data are included in emissions data report (in Cal e-GGRT)
- A qualified positive or adverse verification statement requires full verification the following year

Effect of Nonconformance on Verification Statement ("VS")

- If not corrected, reporting non-conformances lead to either a qualified positive VS or an adverse VS
- If non-conformance is a "correctable error" and not corrected, verifier must submit an adverse VS (§95131(b)(9))
- Note:
  - All nonconformances should be included in the issues log and sent to reporting entity to be addressed
  - Include all nonconformances observed based on original certified emissions data report, even when the reporting entity identifies the error

Correctable Errors (1 of 2)

- Section 95131(b)(9) states "the verification team must document the source of any difference identified, including whether the difference results in a correctable error"
- Correctable errors means "errors identified by the verification team that affect covered emissions data or covered product data in the submitted emissions data report that result from a non-conformance with this article." (§95102(a))
  - Most errors that affect emissions or covered product data are considered correctable and lead to an adverse VS, if not addressed
- If not fixed, results in adverse verification statement
- Contact ARB staff if there is a question whether an error is correctable

Correctable Errors (2 of 2)

- Not all differences in data checks are errors and not all errors are correctable errors
  - Reasonable differences from rounding or truncation are acceptable (not considered an error)
  - If verifier sampling plan called for an additional cross-check of data (in addition to recalculating a portion of the data), differences might not represent correctable errors
  - If error does not affect covered emissions, non-covered emissions or covered product data (e.g., net electricity generation), it is not a "correctable error", but may still be a non-conformance that results in a qualified positive VS
- Verifier should investigate differences and justify in sampling plan whether observed difference was a correctable error

Examples of "Correctable Errors"

- Natural gas bills used to report emissions spanned December 15, 2018 to December 14, 2019 and were not prorated for calendar year, resulting in a 0.15% difference
- Operator did not report emissions from natural gas space heating, resulting in a 0.08% difference
  - Source has to be included
- Operator used data from an incorrect year from a database
- Operator improperly included pass-through natural gas
- Missing data provisions used incorrectly
- NAICS code listed in Table 8-1 of Cap-and-Trade Regulation does not represent facility activities (§95131(b)(4))

Examples of Other Nonconformances that Result in Qualified Positive VS if not Addressed

- The following non-conformances are not considered part of the "correctable error" definition but still must be addressed to avoid a qualified positive VS
  - Operator reported net electricity generation as kWh instead of MWh
  - The GHG Monitoring Plan did not include required elements outlined in §95105(c)
  - Required calibration was not performed on a given meter used to calculate emissions

Examples of Issues that DO NOT Affect VS

- Rounding differences - Verifier's data check includes a difference from the emissions data report, which is due to reasonable differences in rounding
- Late Reports - Emissions data report submitted after the reporting deadline or verifier submits the verification statement after the verification deadline
  - Addressed as part of CARB enforcement activities
- Recordkeeping requirements
  - Previous emissions data reports not kept §95105(a)
  - GHG Monitoring Plan includes all required elements outlined in §95105(c) but does not explain all methods and procedures completely

If not corrected, what Verification Statement is issued, absent other issues?

Issues	Positive	Qualified Positive	Adverse
Incorrect emission factor used for covered data, leading to 0.4% error that is not fixed			X
GHG Monitoring Plan missing a required element		X	
Small natural gas heater that only emits 4 MT is not being reported			X
Rounding error leads to difference of 3 metric tons, 0.001%	X		
Incorrect missing data substitution procedures used			X
Net electricity generation does not include month of January		X	
NAICS code incorrectly reported			X

Reporting in Cal e-GGRT §95104(e)

- All required information must be reported in the reporting tool (Cal e-GGRT)
- However, reporting entities are not responsible for reporting data required under this article that cannot be reported in the reporting tool
- If the reporting entity states that they cannot report some required information in Cal e-GGRT, **always contact CARB for confirmation**
  - In these cases, CARB will provide written confirmation and issue can be resolved by citing §95104(f) in the issues log

General Reporting and Verification Requirements

- Overview of AB 32 Climate Change Programs
- Verification Principles and Process Overview
- **General Reporting and Verification Requirements**
  - **Thresholds, cessation, deadlines**
  - **GHG Monitoring Plan**
  - **Standardized methods**
  - **Changes in emissions calculation method**
  - **Recordkeeping requirements**
  - **Accreditation requirements for verification bodies and use of subcontractors**
- Verification Process
- ARB Oversight

Reporting Thresholds §95101

- Reporters with no threshold that have not met cessation criteria
  - Includes refineries, cement plants, nitric acid production, and others
  - Electricity importers
- Operators with emissions >10,000 MT CO_2e from stationary fuel combustion and process emissions
  - Includes biomass-derived fuels, geothermal sources, and fuel cells
  - Excludes vented and fugitive emissions
- Operators and suppliers with emissions >25,000 MT CO_2e
  - Includes vented and fugitive emissions
  - Includes flare emissions for oil & gas data (§95101(e))
  - Includes portable non-self-propelled equipment from oil and gas
- Abbreviated (simplified) reporting allowed for operators with 10,000 - 25,000 MT CO_2e
  - Not subject to verification
  - Not allowed for operators with a compliance obligation or who have not met verification cessation requirements

MRR and C&T Applicability Terms

- Entities and sources reporting under MRR but not subject to C&T referred to as “non-covered”
- Non-covered “exempt” emissions still reported and verified
  - Geothermal electricity generation emissions
  - Exempt biomass-derived fuel combustion emissions
  - Fuel cell emissions are covered starting 2019 data year
- MRR §95103(l) Must estimate excluded covered product data *(Course 1.3)*
- MRR §95101(f) excludes sources from reporting such as
  - Emergency generators designated in air quality permits
  - Fire suppression systems and equipment
  - Agricultural irrigation pumps

Reporting and Verification Cessation §95101(h)-(i) and C&T §95812(e)-(f)

- Covered entities are subject to both C&T and MRR
- If subject to C&T, verification required until emissions below 25,000 MT CO_2e for entire compliance period
- MRR requirements apply if no longer subject to C&T
  - If emissions drop below 10,000 MT CO_2e, report for 3 years, then cessation allowed
  - If emissions drop below 25,000 MT CO_2e, verify for that year
  - Report and verify for year of shut down
  - Report (showing zero emissions) for first full year after shut down, but verification not required
  - Staff recommends checking with CARB in cases of cessation for appropriate applicability of the rules

Deadlines for Submitting Reports and Verification Statements §95103(e)

Source Type or Conditions	Reporting Deadline	Verification Deadline
All source types, excluding electric power entities and abbreviated reporters	April 10	**August 10**
Electric power entities	June 1	
Abbreviated reporters	June 1	N/A
Abbreviated reporters must correct cumulative errors that (§95103(a)(8)): • Exceed 5% of total CO_2e reported, OR • Result in total emissions ≥ 25,000 MT CO_2e	Within 90 days of discovery of error	• N/A • Case-by-case

If a reporter subject to a compliance obligation under the Cap-and-Trade Program fails to submit their emissions data report OR obtain a positive or qualified positive emissions data verification statement by the deadlines, then an emissions level will be assigned by the Executive Officer (§ 95103(h); § 95131(i)(5)(A)-(C)).

GHG Monitoring Plan Requirements for Facility Operators § 95105(c)[1]

- Identification of fuel use and covered product data measurement devices and locations
  - Reference to one or more simplified block diagrams required
- Training practices of personnel
- Identification of any low-flow cutoffs
- Dates of measurement device calibration and scheduled re-calibration
- Equations used to calculate mass or volume flows
- Records of most recent orifice plate inspections
- Copies of methods used for fuel-based emissions analyses and standardized methods chosen
- Missing data procedures
- Original equipment manufacturer (OEM) documentation related to instrument accuracy, maintenance, calibration
- Fuel monitoring plan (optional weekly fuel meter check to reduce risk of missing data)
- Monitoring plan is not required for abbreviated repots

[1]Different requirements for suppliers (40 CFR § 98.3(g)(5)) and electricity importers or exporters (§ 95105(d))

Standardized Methods Incorporated by Reference §95109 and 40 CFR 98.7

- Methods must be documented in a GHG Monitoring Plan (§95105(c))
  - Verifier reviews a copy of Plan prior to site visit
  - Verifier documents areas where
    - Monitoring Plan deviates from MRR requirements
    - Actual operations deviate from Monitoring Plan and MRR
- Fuel characteristics for gaseous fuels may be determined by gas chromatograph (40 CFR 98.34)
- Alternative methods allowed but must be pre-approved by CARB Executive Officer §95103(m)

Changes in Emissions and Covered Product Data Calculation Method § 95103(m)

- Methods chosen for monitoring or emissions calculations for emissions data cannot be changed, except
  - To improve methods (e.g., move to higher tier), or
  - To avoid missing data or comply with missing data provisions (e.g., replace monitoring system and move to higher tier)
  - For temporary methods allowed to avoid missing data
  - After receiving specific CARB pre-approval
- Changes to covered product data calculation method require CARB pre-approval
- If change allowed/approved by CARB
  - Must demonstrate the difference between old and new method
  - Can only be implemented after the completion of a data year
  - New explicit notification requirement for covered product data
- Verification issues
  - Monitoring plan must describe change and reason
  - New method must comply with missing data procedures (emissions only)

Recordkeeping Requirements

- Does not impact verification statement
- For reporters (§95105), duration is
  - 10 years if entity has compliance obligation
  - 5 years if reporter has no compliance obligation under the Cap-and-Trade Regulation
- For verifiers (§95131(b)(7)), duration is
  - 10 years
  - Applies to sampling plan, and all material reviewed, or generated as part of rendering a verification statement
    - Retain summary description of data and ways to identify specific records reviewed (e.g., invoice type and date) if data are confidential and not taken off-site

Verification Body Accreditation and Renewal Requirements §95132(b)-(d)

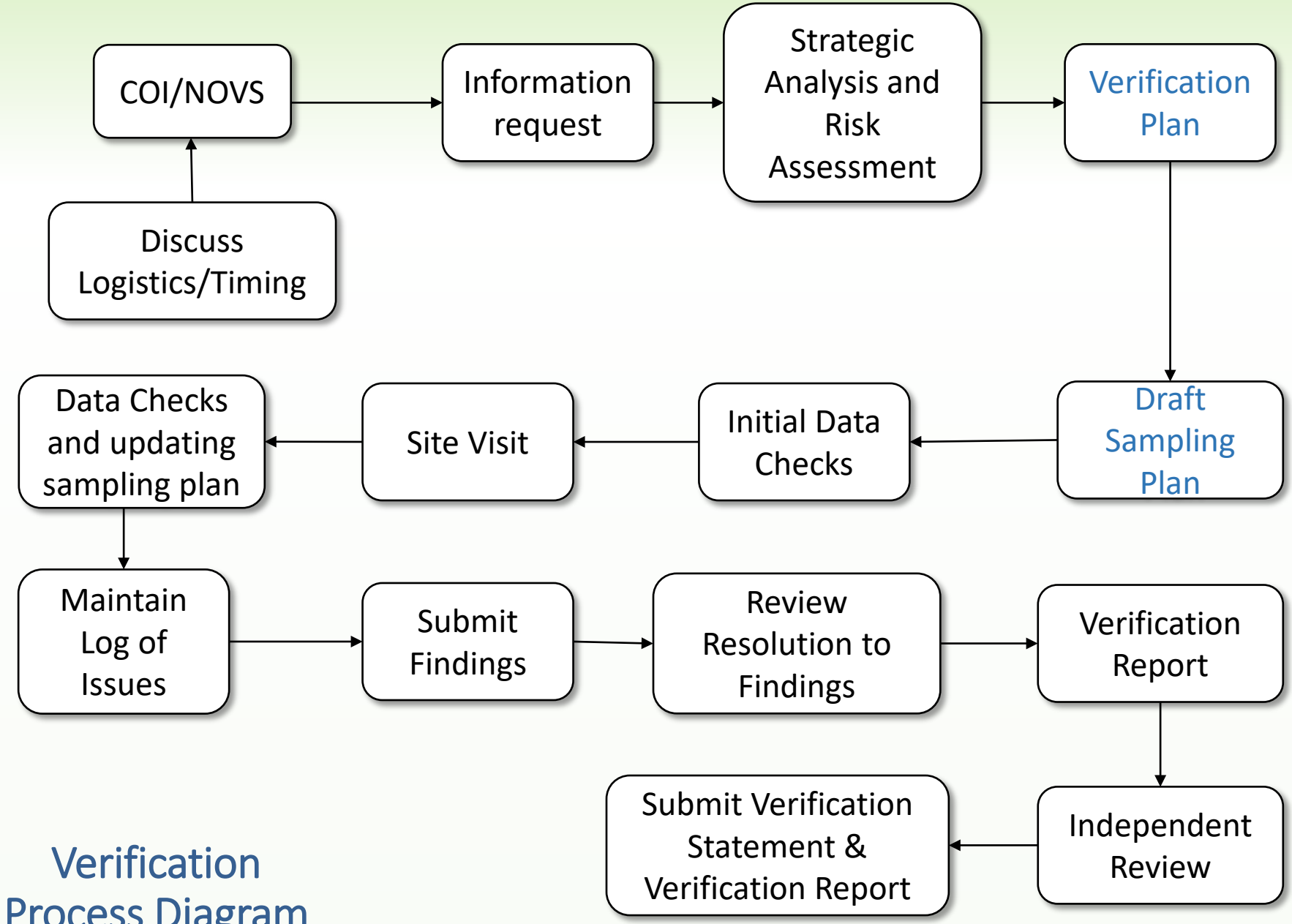
- VB submits application to CARB
- VB discloses staffing plan, professional liability insurance, COI prevention policies
- For VB re-accreditation, CARB conducts performance review
- Professional liability insurance may not be general or umbrella
- Simple process to voluntarily withdraw from CARB's verification program

Subcontracting Verification Services §95132(e)

- Subcontractors must be CARB-accredited
- Subcontractors can serve the functions of
  - Verifiers or Lead Verifiers
  - Transactions, Oil and Gas Systems, or Process Emissions Specialists
- Subcontractors cannot
  - Be used to meet minimum of 5 staff and 2 Lead Verifiers required
  - Serve as independent reviewer
  - Further subcontract any verification services for a reporting entity

Questions

- Overview of AB 32 Climate Change Programs
- Verification Principles and Process Overview
- General Reporting and Verification Requirements
- **Verification Process**
  - **Pre-verification activities**
  - **Planning verification services**
  - Conducting verification
  - Completing verification
- ARB Oversight



Verification Process Diagram

The Verification Team §95131(a)(1)-(2)

Verification Body (VB)	A firm accredited by CARB according to MRR.
Verification Team:	All persons working for a VB, including subcontractors, who conduct verification activities for a reporting entity.
Lead Verifier	A person accredited by CARB according to MRR to perform verification services, who may act as a lead verifier or an independent reviewer.
Verifier	A person accredited by CARB according to MRR to perform verification services.
Sector Specialist	A person accredited by CARB according to MRR to perform verification services, who is either a verifier or lead verifier, and is accredited in: • Transactions • Oil and Gas Systems • Process Emissions
Independent Reviewer	An employee of the VB who: • Is a lead verifier • Has not been involved in the verification activities for a reporting entity • Conducts an independent review of verification services performed for the reporting entity.
Subcontractor	A person who is not an employee of the VB, who is hired by the VB, is accredited as either a lead verifier, verifier, or sector specialist, and conducts verification work as part of a verification team.

Verification Plan §95131(b)(1)

- Scope of verification activities
- Schedule of activities (date of site visits, completion of services)
- Verifier requests information on which to base the verification plan:
  - Sources, boundaries (**GHG Monitoring Plan**)
  - Expertise of personnel responsible for emissions and covered product data reporting
  - Methodologies for emissions and covered product data
  - Any data necessary to develop the verification plan
  - Information on emissions data management system
  - Previous verification reports
- Revisions, as necessary throughout the verification
- Reporting entity must make all information and documentation available to the verifier (§95131(b)(5))

Planning Meeting §95131(b)(2)

- Discuss Verification Plan (via phone)
  - Review scope of verification
  - Discuss site visit logistics and planned interviews and participants
  - Develop a detailed agenda/schedule for the site visit - send to client in advance
- Ask questions about data already provided
- Describe types of information that are still needed
  - For example, elements of GHG Monitoring Plan, including
    - Equipment and processes (PFD, P&ID)*
    - Location and types of fuel and process meters
    - Any other emission sources
    - Data reporting responsibilities of staff

* PFD, P&ID = Process flow diagram, Piping and Instrumentation Diagram

Purpose of a Sampling Plan

- Overall, sampling plan sets context and outlines verifier's path to reasonable assurance
  - Of no material misstatement *AND*
  - Of conformance with MRR (includes information that is additional to emissions and covered product data)
- Assess uncertainty associated with all emissions and all covered product data sources
  - Include all applicable upstream data handling and management
- Explain what data sources are targeted for review
  - How does that mitigate risk?
- Revise to incorporate outcome of review
  - Is more review necessary or did everything meet standards?

Contents of Sampling Plan §95131(b)(7)

- Must describe how risks uncovered after data review and after site visit were addressed (explain and justify your actions)
- Rankings
  - Rank emissions based on amount of contribution to total CO_2e
  - Rank emission sources with largest calculation uncertainty
  - Rank covered products with largest calculation uncertainty
- Narrative of approach to uncertainty assessment for
  - Monitoring/measurement equipment
  - Data sampling, frequency
  - Data processing, tracking
  - Emissions calculations
  - Covered product data
  - Data reporting
  - Management policies and practices

The Sampling Plan is not just a plan that you create and then set aside before you conduct a site visit! You must document what you found, explain how you dealt with risks, and then finalize your Sampling Plan.

Preparing a Sampling Plan (1 of 2)

- Review emissions data report (Cal e-GGRT) and any data collected prior to site visit, especially
  - GHG Monitoring Plan
  - Data management systems
  - Inputs for development of emissions report
  - Records related to operation and maintenance of equipment/systems to develop data (e.g., instrument calibration, etc.)
- Brief discussion during opening meeting
- Use verification team knowledge of sector and, if applicable, prior experience with reporting entity

Preparing a Sampling Plan (2 of 2)

- Include listings of (as applicable)
  - Emissions sources
  - All covered product data, other production data
  - Data sources and transactions to be targeted for records review, and why they are targeted (risk analysis)
- Update the Sampling Plan to show
  - Results of the risk assessment and how the identified risks were addressed
  - Completed tasks and issues that emerge related to misstatements and nonconformance
- Retain Sampling Plan for at least 10 years

Sampling Plan and Risks

- Materiality guides approach and focus
- Sampling plan should address three types of uncertainty risks
  - Inherent (type of industry, complexity of emission sources)
  - Control (types of internal control)
  - Detection (failure to identify material misstatement)
- Sampling plan should also address risk of misreporting
  - Emissions from largest sources
  - *Any and all* covered product data

Sampling Plan - Qualitative Risk

- GHG Monitoring Plan does not include information on CEMS testing, calibration, short tons to metric tons, etc.
- Boilers are not properly identified in Monitoring Plan and may not be separately metered or accounted for
- Reporter does not have clear documentation on purchase of fuel from utilities - missing invoices
- There have been significant changes in personnel since the last reporting period
- Others?

Sampling Plan Considerations

WEAK	STRONG
Generic	Specific and industry-specific
Quantitative only	Includes consideration of qualitative risk
Little or no need for revision	Dynamic - Reporter-specific issues are taken into account, often leading to revised sampling plan
Little consideration for sources	Documents “drill down” to sources and document data checks required

Log of Issues §95131(b)(11)

- Note any issues uncovered that may affect determinations of material misstatement and nonconformance
- Indicate whether failure to resolve the issue may lead to adverse verification statement
- State specific regulatory provision (citation) in question
  - Could include sub-sub paragraphs
- Describe if and how the reporter corrected the problem
- Justify to your independent reviewer that major issues and required corrections have been addressed by the reporter
- Assist next year's verification team in understanding issues
- Provide documentation of verifier and reporter actions in case of CARB audit

Issues Log: Group Participation Exercise 1.1.1 - Handout 1.1.4 (1 of 2)

Reporting Entity: ACME Combustion (ARB ID# 100999)

Subparts Reported: C

Year of Emissions Data: 2016

Lead Verifier: Mary Smith

#	Date	Description of Issue/Source	Regulation Citation	Potential Impact upon GHG Data	Action Required by Reporting Entity	Resolution
1	4/23/2016	GHG Monitoring Plan (1)	MRR §95105 (2)	Meter and calibration issues may affect report. (3)	Correct error. (4)	**Resolved. (5)**
2	5/15/2016	Propane heaters (6)	MRR §95115 (7)	Non-conformance (8)	Report emissions from propane as De Minimis.(9)	**Reporter used verifier calculations (10)**
3	5/15/2016	The reporting entity calculated emissions from RUZ10 boiler burning non-pipeline quality natural gas using the default high heating value of 1,028 Btu/scf for pipeline quality natural gas.	MRR §95115(c) and 40 CFR §98.33(b)	Non-conformance; correctable error.	Provide the regulation citation that allows for the use of a Tier 1 calculation for non-pipeline quality natural gas. Please determine if §95115(c)(4) applies to your facility and revise your emissions data report by 5/30/2014. Please contact ARB staff if you have questions about which Tier to use to report your emissions data.	**Resolved on 5/25 via email.** Reporting entity revised their emissions calculation to use Tier 3. Calibrations, MW calcs, flow measurements and corrections are all provided in GT40-GHGdata.xlsx spreadsheet. Calculation is in conformance (EDR certified in Cal e-GGRT 5/24).

Issues Log: Group Participation Exercise 1.1.1 - Handout 1.1.4 (2 of 2)

ABC Verification Company, Inc.

Two Issues Logs for Verification of ACME Combustion (2014)

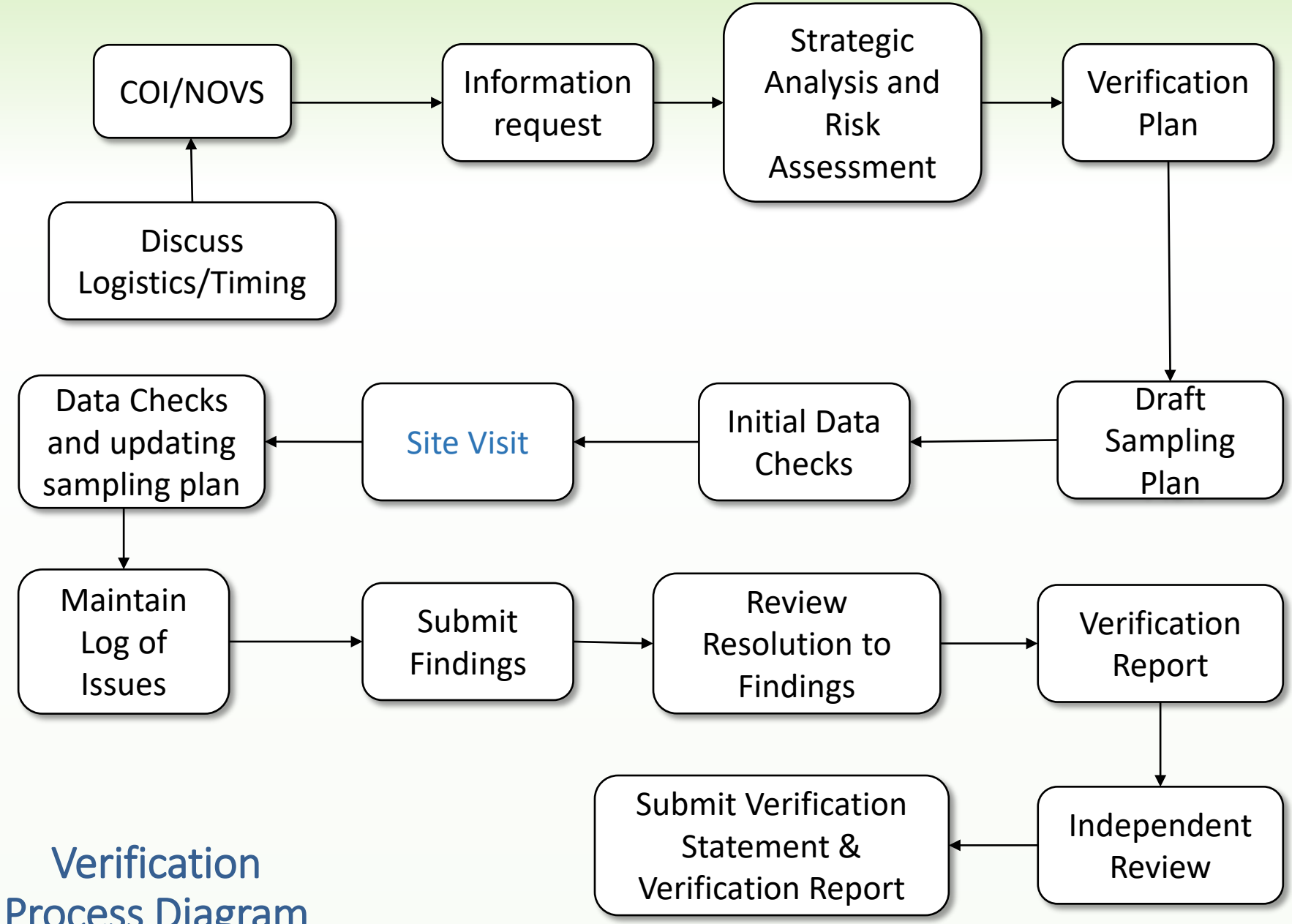
Example #1

Reporting Entity: ACME Combustion (ARB ID# 100999)
Subparts Reported: C
Year of Emissions Data: 2016
Lead Verifier: Mary Smith

#	Date	Description of Issue/Source	Regulation Citation	Potential Impact upon GHG Data	Action Required by Reporting Entity	Resolution
1	4/23/2017	GHG Monitoring Plan incomplete.	MRR §95105(c)	Meter location, description, and calibration records not made available. Non-conformance if not provided.	Please email these documents to me before the site visit on May 15, 2014. Failure to demonstrate accuracy may result in possible material misstatement and an adverse verification statement.	**Resolved on 5/10 via email.** Revised Plan emailed on 5/10 and was found to be complete.
2	5/15/2017	Emissions from propane heaters in Bldg. 54-A not reported.	40 CFR §98.32, and MRR §95115	Non-conformance; correctable error.	Provide invoices from 2012 and 2013 that includes the delivery date and amount of fuel delivered. Report propane emissions in Cal e-GGRT. This error must be fixed, or an adverse emissions data verification statement would be triggered.	**Resolved on 5/20 via email.** Invoices clearly showed fuel usage for 2013, and were clearly billed starting on the first day of each month. Propane emissions reported as de minimis. Calculation method is reasonable (Tier 1); emissions confirmed to be <3% of total and <20,000 MT CO2e.
3	5/15/2017	The reporting entity calculated emissions from RUZ10 boiler burning non-pipeline quality natural gas using the default high heating value of 1,028 Btu/scf for pipeline quality natural gas.	MRR §95115(c) and 40 CFR §98.33(b)	Non-conformance; correctable error.	Provide the regulation citation that allows for the use of a Tier 1 calculation for non-pipeline quality natural gas. Please determine if §95115(c)(4) applies to your facility and revise your emissions data report by 5/30/2014. Please contact ARB staff if you have questions about which Tier to use to report your emissions data.	**Resolved on 5/25 via email.** Reporting entity revised their emissions calculation to use Tier 3. Calibrations, MW calcs, flow measurements and corrections are all provided in GT40-GHGdata.xlsx spreadsheet. Calculation is in conformance (EDR certified in Cal e-GGRT 5/24).

Verification Process

- Pre-verification activities
- Planning verification services
- **Conducting verification**
  - **Site visits**
  - **Detailed review of data**
  - **Assessing material misstatement and conformance**
- Completing verification



Verification Process Diagram

Full Verification - Site Visit Required §95130(a)(1)

- 1st year of operation ≥ 25,000 MT CO_2e
- 1st year of each compliance period under cap-and-trade
  - 2021 emissions data reported in 2022 (4th)
- Change in Verification Body
- If operational control changes
- "Adverse" or "qualified positive" emissions/product data verification previous year
- If verification body concludes that full verification is warranted
- Conditions for "less intensive" verification (§95102(a))
  - 2nd and 3rd years of each compliance period AND
  - None of the conditions listed above

Site Visits §95131(b)(3)-(5)

- Conduct at least one site visit each year for full verification
- Who attends?
  - At least 1 accredited verifier *(different from LCFS)*
  - Sector specialist, if applicable
  - **Facility personnel** responsible for data collection/management
  - ARB staff if verification is being audited
- Independent reviewer does not attend site visit

Conducting a Site Visit - Planning

- Written agenda
  - Activities and participants
- Prepare a checklist and interview questions specific to the reporter and the emissions data report - provide a copy in advance if possible
- Plan your day allowing some flexibility
- Use your draft sampling plan as a guide
- Ensure you will have access to areas/equipment/meters as needed
- Ensure availability of key facility personnel
- Know what safety equipment you need to take, incl. water

Conducting a Site Visit - Opening Meeting

- Safety briefing
- Confirm availability of personnel
- Discuss site visit plan with reporter
- Request site plan and/or system diagrams
- Identify outstanding data requests
- Take notes and add to your issues log

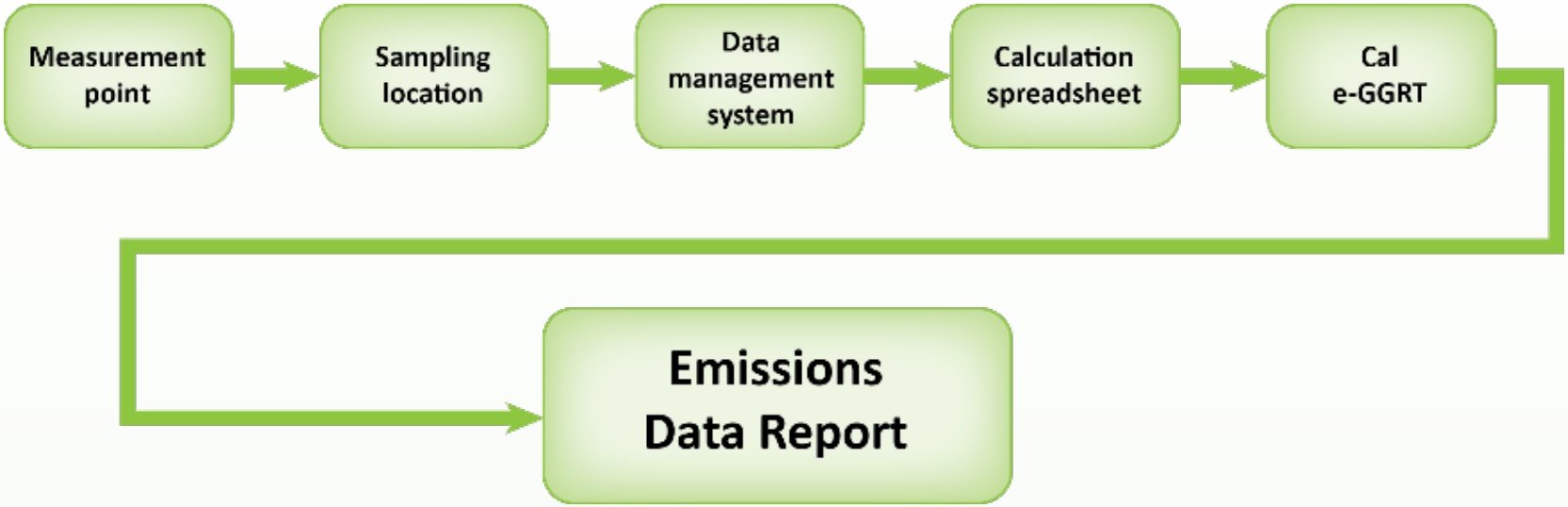
Conducting a Site Visit - Physical Inspection and Interviews (1 of 2)

- Confirm all emissions sources and covered product data reported
- Observe major and high-risk sources
  - Take pictures (after asking permission)
- Follow the audit trail
  - Ask how the reporter arrived at numbers in report and supporting summary spreadsheets
  - What are primary sources of data?
  - Trace data (all the way…way…way) back to its origin

Conducting a Site Visit - Physical Inspection and Interviews (2 of 2)

- Follow the audit trail (graphic on next slide)
  - Ask contact to reproduce a source report used to complete CARB report
  - Observe on-line data acquisition systems and other fuel and emissions reporting software **in action**
  - Review QA/QC records
- Ask questions!

Tracing Reported Emissions to their Origin



Less Intensive Verification for 2023 Data §95130(a)(1)

- Site visit not required after a full verification if:
  - Received positive verification statement
  - Same verification body (VB)
  - No change in operational control
  - Not first year of compliance period
  - Verifier chooses not to conduct a site visit

4th compliance period (Data Years)			5th compliance period (Data Years)		
2021	**2022**	**2023**	**2024**	**2025**	**2026**
Full Verification	Less Intensive*	Less intensive*	Full Verification	Less intensive*	Less intensive*

*Eligible for less-intensive verification, subject to § 95130(a)(1)
Updated from 2020 training. See errata.

Conducting a Site Visit - Closing Meeting

- Discuss GHG Monitoring Plan
  - Identify areas where MRR, the Monitoring Plan, and actual practice appear to deviate
  - Identify areas where more detail may reduce verification uncertainty (weaknesses)
- Discuss outcomes of site visit
  - Any outstanding or additional data requests
  - Any issues uncovered during the visit
- Review next steps in the verification process
  - Log of issues
  - Focus on correctable errors
- Follow up in writing

Verifying an Emissions Data Report §95131(b)(8) (1 of 2)

- Ensure all applicable sources were reported
- Confirm appropriate measurement and calculation methods were used
- Check calculations and ensure equation inputs are substantiated
- Start to document your data review at the very beginning of the process, for later review by CARB staff as part of a verification audit
  - Note which numbers you reviewed, which emissions sources, and from whom you received information verbally

Verifying an Emissions Data Report §95131(b)(8) (2 of 2)

- Tools to use
  - GHG Monitoring Plan
  - Sampling Plan
  - Emissions Data Report
  - System diagrams
  - Site visit observations
  - MRR and 40 CFR 98
  - Training materials
  - MRR Guidance
- Track reported emissions/covered product data to its origin

Evaluate Data Management System(s) §95131(b)(1)(A)(4)

- Initial review for developing Verification Plan
  - Strategic analysis and risk assessment
- Detailed review
  - Understand the reporting entity's systems that track, quantify and report GHG emissions and product data
- Document findings in Issues Log and Sampling Plan
  - Resolution of any problems found must be documented in Verification Report
- Document detailed description of data acquisition, tracking and calculation system for emissions and product data in the verification report
- May help to point to nonconformances with regulation
  - Incorrect methods
  - Oversight of sources
  - Missing data

Recalculate Emissions §95131(b)(8)(G)

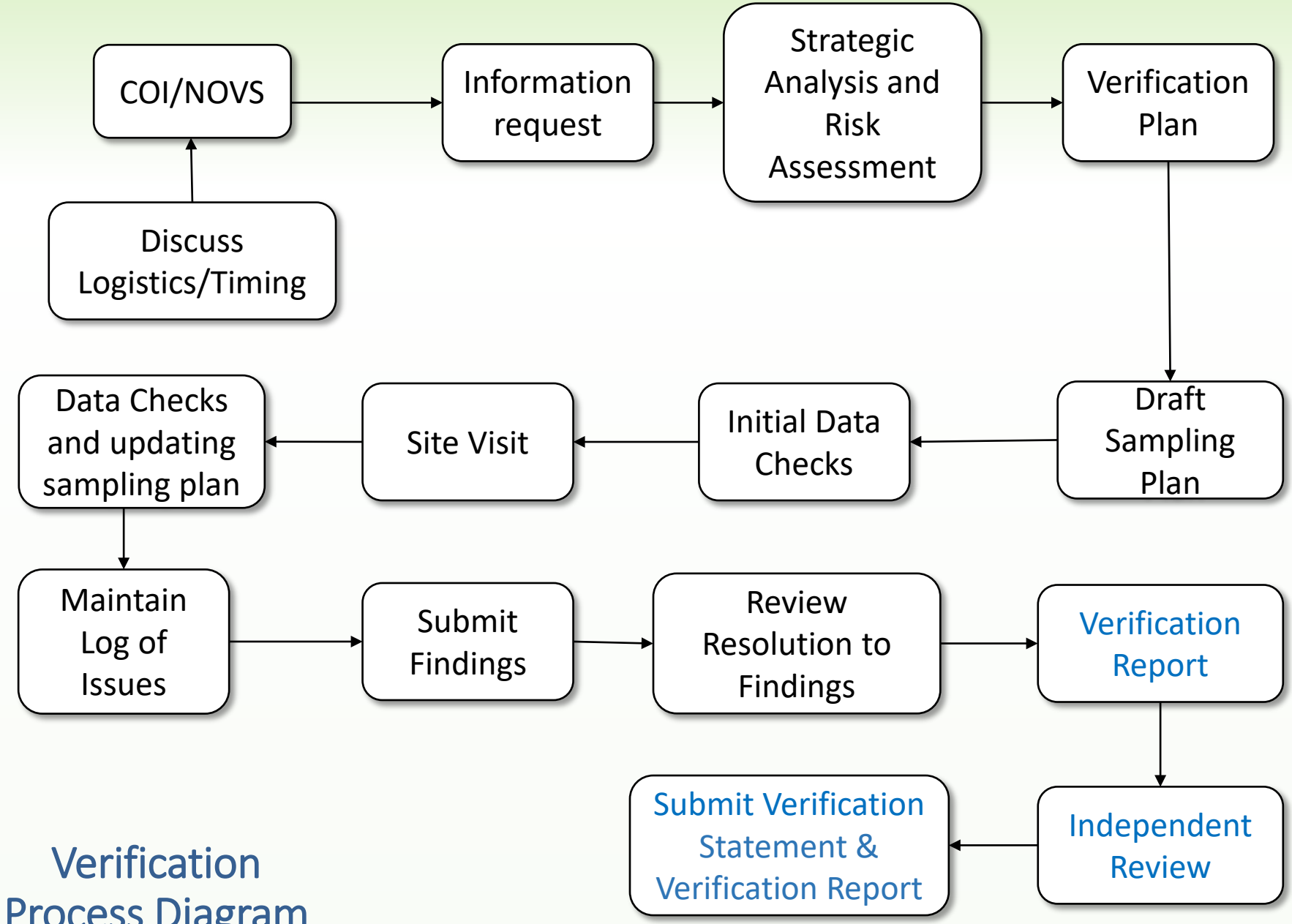
- Evidence to request
  - Documentation of selection of methods
  - Inputs to Cal e-GGRT
  - Spreadsheets with documentation on calculations
  - Records of fuel usage, receipts
- How to evaluate evidence
  - Data Checks: re-calculate emissions for selected sources
  - Check for proper unit conversions, including pressure and temperature compensations for fuel volume
  - Compare to emissions data report
- Document in issues log any differences in methods

Compare Results

- Compare verifier's calculated results to reported results
  - Investigate all discrepancies (§95131(b)(8)(F))
- Narrative of the comparison between verifier's and reporter's results for verification report
  - Which transactions were checked
  - Quantity of data evaluated
  - Percentage of total emissions and total product data covered by the data checks

Verification Process

- Pre-verification activities
- Planning verification services
- Conducting verification
- **Completing verification**
  - **Verification Report**
  - **Independent review**
  - **Verification statements**



Verification Process Diagram

Verification Report §95131(c)(3)

- Report objective - Provide a comprehensive description of the process followed during verification and of the findings
- The verification report is submitted to the reporter after independent review and before (or with) the verification statement
- The verification report is submitted to CARB upon request

Verification Report Contents

The report must contain, at minimum, detailed descriptions of the following:

1. Emissions sources and covered product data
2. Data management system(s)
3. Verification Plan (updated. as necessary, to reflect new information gained during verification services)
4. Data checks and comparisons
5. Issues log
6. Any qualifying comments, including comments about revisions made through the verification process
7. Material misstatement assessment calculation of percent error for covered emissions and covered product data, using MRR formula
8. Optional - data packet with all materials used in verification

Role of the Independent Reviewer (1 of 2)

- Protects VB risk/liability
- Provides final objective review of strategy of verification team (§95131(c)(2))
  - Identifies errors in planning and data sampling
  - Evaluates judgment of verification team based on entire evidence package
- May require multiple reviews until every issue has been fully resolved
  - Review sampling plan during interim review to provide feedback on general approach

Role of the Independent Reviewer (2 of 2)

- Data needed for Independent Reviewer
  - Verification report, sampling plan, verification plan, issues log, site visit notes, reporter data
- Independent Reviewer activities
  - Review risk assessment and sampling plan (first step)
  - Review issues log and request additional information if unclear
  - Review verification report and confirm materiality calculations
  - Confirm that verification report and Cal e-GGRT numbers match
  - Optional but recommended: Create a review log

Emissions Data Report Verification Statement §95131(c)(1)

- Prepare separate verification statements for emissions and product data
- Submit to Independent Reviewer
- Submit to reporting entity and CARB by deadline

Emissions Data Verification Statement

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
CALIFORNIA AIR RESOURCES BOARD

MRR VERIFICATION STATEMENT FORM

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EMISSIONS DATA REPORT

For assistance completing or submitting this report, contact ghgverify@arb.ca.gov.

PART I: EMISSIONS DATA REPORT INFORMATION

Reporting Year:

PART II: VERIFICATION BODY INFORMATION

Verification Body Name:

PART III: REPORTING ENTITY INFORMATION

Name of Reporting Entity:	CARB ID Number:

PART IV: VERIFICATION STATEMENT INFORMATION

1. This verification statement attests that the submitted data are (check one):
   - ☐ Reasonably assured of being free of material misstatement
   - ☐ NOT reasonably assured of being free of material misstatement
2. This verification statement attests that the submitted data are (check one):
   - ☐ Reasonably assured of being in conformance with the regulation
   - ☐ NOT reasonably assured of being in conformance with the regulation
   - ☐ NOT reasonably assured of being in conformance with the regulation, including NOT in conformance with §95131(b)(9): failure to correct data errors discovered during data checks
3. As a result of the selections above, the final verification statement is (check one):
   - ☐ Positive: Reasonably assured of no material misstatement and in conformance with the regulation
   - ☐ Qualified Positive: Reasonably assured of no material misstatement, but not reasonably assured in conformance with the regulation
   - ☐ Adverse: Not in conformance with §95131(b)(9) and/or not reasonably assured of no material misstatement

Adverse Emissions Data Verification Statement §95131(c)(4)

- As soon as this appears probable, consult with CARB
  - Especially if reporter is unresponsive and error is correctable
- If unable to resolve
  - VB required to formally notify reporter and CARB in writing (via email) of potential adverse verification statement
  - Data reporter must be given at least 14 calendar days to correct misstatements or nonconformances
    - VB determines the timing to allow for timely verification statement
- If reporter makes corrections, verification is complete and verification statement is either positive or qualified positive

Reminder - Adverse Verification Statement and Required Modifications

- Section 95102(a) "Adverse emissions data verification statement" means a verification statement rendered by a verification body attesting that the verification body cannot say with reasonable assurance that the submitted emissions data report is free of material misstatement and is in conformance with §95131(b)(9) for the emissions data.
- Section 95131(b)(9) Emissions Data Report Modifications. As a result of data checks by the verification team and prior to completion of a verification statement(s), the reporting entity must make any possible improvements or corrections to the submitted emissions data report, and submit a revised emissions data report to CARB.

Questions

- Overview of AB 32 Climate Change Programs
- Verification Principles and Process Overview
- General Reporting and Verification Requirements
- Verification Process
- **CARB Oversight**
  - **Verification statement petition and set-aside process**
  - **Audits**
  - **Maintaining accreditation**

CARB Oversight

- Verifiers are crucial to ensuring data quality
- Petition and set-aside processes provide additional mechanisms for CARB data quality assurance
- CARB maintains quality standards that all verification bodies must meet
- VB audits and verification audits by CARB
  - Verification body audits include a review of management systems to inform oversight and other audit activity

Petitioning an Adverse Verification Statement §95131(c)(4))

- Reporting entity that disagrees with VB has the option of petitioning CARB BEFORE the verification statement is submitted by the VB
  - Based on disagreement with the requirements of the regulation
  - Important for VB to give reporting entity 14 days to petition CARB
    - Failure to provide required time to reporting entity is a serious non-conformance by a VB
- CARB determines accuracy of report
  - The report was actually correct: VB submits positive statement
  - The report was actually incorrect: Report is updated and re-verified: VB submits statement
  - If no time left to revise report, VB submits adverse, CARB assigns emissions level (AEL)

Verification Statement Set Aside §95131(e)

- A verification statement may be set aside if
  - An error that impacts data quality was identified by CARB, the reporting entity, or the VB
  - The accreditation of the verification body is revoked because of a serious lapse in judgment for that, or a different verification
  - A high level of COI is discovered or emerges after verification statement is submitted
- Requires the report to be re-verified by a new VB

ARB Oversight - Verification Audits

- Approximately 10% of all verifications are audited by CARB staff
  - Most active VBs are audited more frequently
  - Some include a site visit observation by CARB
  - All include review of your verification report, sampling plan, data checks, and material misstatement evaluation
- Audits are chosen based on VB, reporting sector (subpart), lead verifier, geographic coverage statewide, and to ensure consistent quality across verifications

ARB Oversight - Verification Body Management System Audit

- Active VBs will be audited every 4-5 years
- CARB staff ask questions to understand VBs management system for handling verifications, such as:
  - How is COI managed? How does the VB determine the scope of services in proposals? How does VB ensure competency of staff?
- VB staff walk CARB staff through two example audits
- CARB can make recommendations based on audit; also provides CARB with examples of best practices (what VBs do well)

Maintaining Your Accreditation

- Complete verifications by deadline
- Document your verifications and be subject to CARB audits
  - Verifier nonconformances must be addressed by a corrective action by VB (most do not impact quality of emissions data report but represent risk)
- Attend ongoing webinar trainings
- Be in close contact with CARB staff to ensure you follow CARB Guidance
- Poor performance (lack of quality control) is grounds for accreditation modification, suspension, or revocation

Course 1: General Verification

Complete:

- 1.1 Verification Principles, Requirements, and Procedures

Next:

- 1.2 Stationary Fuel Combustion and Sorbent Sources
- 1.3 Accuracy and Product Data
- 1.4 Electricity Generating Units and Cogeneration