

California Environmental Protection Agency
Air Resources Board

**2013 GHG Data Reporting
Petroleum and Natural Gas Systems
Subarticle 5**

March 13, 2014
Presentation Slides Available Here:
<http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-training.htm>

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Important Note

- **NOTE:** both the Emissions Reporting XML file and the Activity Data Reporting Excel file have been modified for reporting 2013 data
- Make sure you do not use an old copy of these files to report your 2013 GHG emissions
- Download the new files prior to starting your 2013 GHG emissions reporting
- They are here:
<http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions>

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Outline

- Regulation updates
- Reporting combustion emissions 95153(y)
- Reporting compressors \geq and $<$ 250hp
- Pneumatic pumps
- Emulsions reporting
- Flash liberation test (Appendix B)
- Well completions and workovers
- Revised Activity Data workbook
- Revised Reporting Matrix (guidance)

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**Updates to the Regulation
for 2013 Data Reporting**

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Regulation Updates

- Revisions went into effect January 1, 2014
- Regulation available here:
<http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-regulation.htm>
- Most updates are effective for 2013 data reporting (see section 95103(h))
 - Provisions requiring new data or methods are effective for 2014 data reporting or 2013, using best available methods for data
- See “Applicability of 2013 Revisions” guidance spreadsheet
 - Lists all regulation changes and when they become effective
 - Good reference for identifying areas with revisions

Applicability of 2013 Revisions

- Excerpt of guidance spreadsheet
- <http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-docs.htm>

Guidance for California's
Mandatory Greenhouse Gas Emissions Reporting
2/7/2014

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Revisions to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions:
Year of Implementation for 2013 Regulatory Amendments

*Note: 2014 = 2013 data reported in 2014, 2015 = 2014 data reported in 2015, and 2014 BAM means Best Available Methods may be used for 2013 data.

#	Regulation Amendment	Regulation Section	Description of the Regulatory Update	Year Provision is Effective* (2014/2015)	Affected Reporting Subpart
1	10k Threshold Clarification	95101(a)(1)(B)	Clarify CO ₂ , CH ₄ , N ₂ O included for 10k threshold	2014	General
2	Lead Reporting	95101(a)(1)(B)&, 95124	Require calculation and reporting of process emissions by lead producers	2014 BAM	Subpart R - Lead Production
3	Include Additional Subparts	95101(a)(1)(G)	Explicitly identify additional subparts for applicability, if they come to California	2014	General
4	Common Control / Ownership	95101(a)(3)	Specifies requirements for changing responsibility from/to owner to/from operator	2014	General
5	Reporting Threshold and Abbreviated Reporting Limitation	95101(b)(1)-(2)	Clarify CO ₂ , CH ₄ , N ₂ O included for threshold; disallow abbreviated if total >25k for a 10k facility	2014	General
6	Hydrogen Fuel Cell	95101(b)(6)	Fuel cell emissions must be included in applicability determination	2015	General
7	Operators of LNG Production Facilities	95101(c)(10)	Require reporting by operators of LNG facilities that produce LNG from NG from interstate pipelines	2015	Subpart NN - Natural Gas, NGL, LPG, CNG, LNG Suppliers

Requirements and Reporting GHG Data in Cal e-GGRT

Combustion Emissions – 95153(y)

- 2 Sectors - Onshore Petroleum and Natural Gas Production & Natural Gas Distribution sectors must use 95153(y) to calculate stationary combustion emissions
- For Fuels listed in Table C-1, including pipeline quality natural gas, reporters must use Subpart C methods
- For non-standard fuels including non-pipeline quality natural gas, reporters must use Equations 35, 36, 37

Combustion Emissions Data Entry for 95153(y)(2)

- If 95153(y)(2) is required, emissions are reported in Subpart C of the reporting tool
- Slightly modified reporting method to accommodate (y)(2)
- In the Subpart C module, create a Single Unit or Aggregation of Units configuration
- Name Unit: “Subpart W Combustion Sources 95153(y)” or similar to identify reporting sector
- If Single Unit, select Unit Type in configuration setup (may include multiple sources)
 - WSP (Subpart W, stationary AND portable equipment combined)
 - WSE (Subpart W, stationary equipment combined)
 - WPE (Subpart W, portable equipment combined)
- If Aggregation, select Unit “Other (none of the above)”

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Combustion Emissions Configurations for 95153(y)(2)

- Configuration Examples

Configuration Type: Single Unit Using Tiers 1, 2, or 3

Unit Name/ID: Subpart W Combustion Sources 95153(y) (40 characters maximum)

Description of the Unit or Unit Aggregation: Multiple units and sources reported under the requirements of 95153(y)

Unit Type: WSP (Subpart W, stationary AND portable e)

Maximum Rated Heat* Input Capacity: 5

Unit of Measure: mmBtu/hr

Configuration Type: Aggregation of Units

Group Name/ID: GP-Subpart W Combustion Sources 95153(y) (40 characters maximum)

Description of the Unit or Unit Aggregation: Aggregated Subpart W units

Highest Maximum* Rated Heat Input Capacity of any unit in the group: 5 (mmBtu/hr)

Type of Emission Unit* for this Group (Note: EQUICS must always be separated from other unit types): Other (none of the above)

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Combustion Emissions Fuels for 95153(y)(2)

- Add a Fuel – must be “Blend (Gas)” fuel type or only Tier 3 method available
- Select Tier – recommend Tier 1, because HHV, MW, or CC entry not required

⚠ If a fuel is not found among those listed, you can add it to the other fuels and blends list below.

OTHER FUELS AND BLENDS HIDE

- PSA Reject Gas - Other (gas) ✖
- Field Gas from Oil Production Sub W - Blend (gas) ✖

⚡ ADD an Other Fuel or Blend

CALCULATION METHODOLOGY

Indicate your calculation methodology for this fuel, for the Emissions Calculation Period specified

- Tier 1 (Equation C-1) - Annual fuel combusted, default heating value, and default CO₂ emission factor
- Tier 2 (Equation C-2a) - Annual fuel combusted, measured heating value, and default CO₂ emission factor
For use with any type of fuel listed in Table C-1, except for municipal solid waste (MSW)
- Tier 3 (Equation C-5) - Annual volume of gaseous fuel combusted, average carbon content of the gaseous fuel, and average molecular weight of the gaseous fuel
For use with gaseous fuels

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Combustion Emissions Fuel Emissions Data

- Use “Enter my own result” to enter emissions as calculated using equations 35, 36, 37
- Option to flag data as de minimis (data flagged here as de minimis should not also be reported in the de minimis sheet)

Emission Type	Fuel (1)	HHV (1)	EF	Calculated Result (metric tons)	Metric Tons of CO ₂ e
CO ₂					
What CO ₂ result do you want to report to CARB? <ul style="list-style-type: none"> <input type="checkbox"/> Use the calculated result rounded <input checked="" type="checkbox"/> Enter my own result (value will be rounded) 					
Annual CO ₂ emissions from combustion of the specified fuel: _____ metric tons					
Use this checkbox to claim the CO ₂ result being reported to CARB as de minimis. <input type="checkbox"/> Claimed as de minimis (do not report elsewhere)					
EQUATION C-4 SUMMARY AND RESULTS					
Equation C-4 $CH_4 \text{ or } N_2O \times 10^{10} \div \text{Fuel} \times 1919 \times EF$					
Report over an element in the equation above to reveal a definition of that element.					
Emission Type	Fuel (1)	HHV (1)	EF	Calculated Result (metric tons)	Metric Tons of CO ₂ e
CH ₄					
N ₂ O					
What CH ₄ result do you want to report to CARB? <ul style="list-style-type: none"> <input type="checkbox"/> Use the calculated result rounded <input checked="" type="checkbox"/> Enter my own result (value will be rounded) 					
Annual CH ₄ emissions from combustion of the specified fuel: _____ metric tons					
Use this checkbox to claim the CH ₄ result being reported to CARB as de minimis. <input type="checkbox"/> Claimed as de minimis (do not report elsewhere)					
What N ₂ O result do you want to report to CARB? <ul style="list-style-type: none"> <input type="checkbox"/> Use the calculated result rounded <input checked="" type="checkbox"/> Enter my own result (value will be rounded) 					
Annual N ₂ O emissions from combustion of the specified fuel: _____ metric tons					
Use this checkbox to claim the N ₂ O result being reported to CARB as de minimis. <input type="checkbox"/> Claimed as de minimis (do not report elsewhere)					

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Combustion Emissions Fuel Data

- Enter the quantity of fuel reported for the configuration
- Include average HHV
- Enter zeros for the EFs unless EFs available (entry required to clear system validation)

CONFIGURATION-FUEL PERIOD	
Unit or Group Name/ID	GP-Subpart W Combustion Sources 95153(y)
Configuration Type	Aggregation of Units
Fuel (Fuel Type)	Field Gas from Oil Production Sub W (Blend (gas))
Reporting Period	01/01/2013 - 12/31/2013

FUEL INPUT DATA FOR EQUATIONS C-1 AND C-8	
Mass or Volume of Fuel Combusted Per Year [Fuel]	50000 (scf)
High Heat Value [HHV]	0.001472 (mmBtu/short or mmBtu/scf or mmBtu/gallon)
Fuel Specific CO2 Emission Factor [EF]	0 Kg CO2/mmBtu
Fuel Specific CH4 Emission Factor [EF]	0 Kg CH4/mmBtu
Fuel Specific N2O Emission Factor [EF]	0 Kg N2O/mmBtu

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Updates to Cal e-GGRT Subpart W Reporting Spreadsheet

- Subpart W Excel reporting spreadsheet has substantial revisions
- Make sure you're using the most current sheet
- Data are entered into the sheet, saved as an xml file, and uploaded to Cal e-GGRT
- The current sheet is here:
<http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions>
- Items added to sheet to allow entry of data described on following slides

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Reporting Compressors by Horsepower (hp)

- Cal e-GGRT now has additional reporting fields for centrifugal and reciprocating compressors
- Compressors ≥ 250 hp use methods found in 95153(m)(1) and 95153(n)(1) for centrifugal and reciprocating compressors, respectively
- Small compressors less than 250hp
 - Centrifugal compressors - 95193(m)(6) use EF and Equation 22
 - Reciprocating compressors – 95153(n)(6) use EF and Equation 24

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Pneumatic pumps

- Spreadsheet updated to include fields for reporting of both metered (95153(a)) and non-metered (95153(b)) GHG emissions from high bleed and low bleed pneumatic natural gas driven devices and pumps
- Remember, by January 1, 2015, NG consumption must be metered for all high bleed devices and pneumatic pumps
- Four data fields
 - Metered high-bleed & Non-metered high bleed
 - Metered low-bleed & Non-metered low-bleed

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Emulsion Reporting

- Onshore Petroleum and Natural Gas Production must report the following:
 - Barrels of crude oil produced using both thermal and non-thermal EOR
 - MMBtu of associated gas produced using both thermal and non-thermal EOR
- Each of these reported values should include the crude oil fraction piped as an emulsion (for crude production) and the associated gas fraction piped as an emulsion (for associated gas production)

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ARB Flash Liberation Test

- ARB has developed a test procedure for determining emissions from produced water, crude and condensate for oil and gas producers
- Appendix B – “Flash Emissions of Greenhouse Gases and Other Compounds from Crude Oil and natural Gas Separator and Tank Systems”
- Reporters, verifiers and industry support personnel should direct technical questions to ARB Staff - Joe Fischer (jofisch@arb.ca.gov, 916-445-0071)

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Well Completions and Workovers

- Gas Well Venting During Well Completions and Well Workovers [95153(f)]
- Emissions must now be reported separately for:
 - Gas well venting during well completions w/ hydraulic fracturing
 - Gas well venting during well completions w/o hydraulic fracturing
 - Gas well venting during well workovers w/ hydraulic fracturing
 - Gas well venting during well workovers w/o hydraulic fracturing

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Revised Activity Data Workbook

- The Excel workbook where Activity Data is reported has been modified
- Edits were made to conform to section 95157 requirements
- The workbook is unlocked
 - Rows and columns should be added as needed to report multiple items
- It is okay to hide rows not used, but do not delete rows

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Revised Reporting Matrix

- The reporting matrix (found in guidance) has been modified to reflect the latest MRR changes
- The matrix is here: <http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-docs.htm>
- This matrix provides a handy reference for determining which emission sources your facility must report and what methodologies must be used to report these emissions

Revised Reporting Matrix (excerpt)

Subarticle 5: GHG Emission Sources and Industry Segment Reporting Applicability

GHG Emission Source	MRR Methodology Citation ¹	Individual Sources	Reporting Industry Segments ²
Metered natural gas pneumatic device and pneumatic pump venting	95153(a)		2,4,5
Nonmetered natural gas pneumatic device venting	95153(b)		2,4,5
Flare gas removal (AGRY) vents	95153(c)		2,3
Dehydrator vents	95153(d)		2,3
Well venting for liquids unloading	95153(e)		2
Loss well venting during well completions and well workovers	95153(f)		2
Equipment and pipeline blowdowns	95153(g)		2,3,4,5,6,7,8
Dump valves	95153(h)		2
Transmission storage tanks	95153(i)		4
Well testing venting and flaring ³	95153(j)		2
Associated gas venting and flaring ³	95153(k)		2
Flare stack or other destruction device	95153(l)		2,3,4,5,6,7,8
Centrifugal compressor venting	95153(m)		2,3,4,5,6,7
Reciprocating compressor venting	95153(n)		2,3,4,5,6,7
Equipment leaks - Leak detection and leakier emission factors	95153(o)	95152(o)(1), (6)(7), (6)(8), (7)(7), (9)(5), (9)(5), (9)(5), (9)(1)	2, 3, 4, 5, 6, 7, 8
Equipment leaks - Population count and emission factors	95153(p)	95152(o)(1), (6)(7), (9)(3), (9)(3), (9)(3), (9)(2), (9)(4), (5), (9)(9), (9)	2, 3, 4, 5, 6, 7, 8

Questions?

Additional Training Sessions

- ARB sector-specific training (check link for times) <http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-training.htm>
 - March 13 - General Information and Updates
 - March 13 - Petroleum and Natural Gas Systems
 - March 20 - Petroleum Refineries: Complexity Weighted Barrel
 - March 20 - Hydrogen Production: Product Data Reporting
 - March 20 - Fuel Suppliers: Transportation Fuels, Natural Gas, Others
- Contact ARB staff as needed for questions

Resource Web Sites

- Email reporting questions to: ghgreport@arb.ca.gov
- Reporting Guidance: Applicability, Metering
<http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance.htm>
- Cal e-GGRT Tool Training: Registration, Subparts
<http://www.arb.ca.gov/cc/reporting/ghg-rep/tool/ghg-tool.htm>
- Cal e-GGRT Main Help Page
<http://www.ccdsupport.com/confluence/display/calhelp/Home>

Key Reporting Dates

Date	Activity
February 1	Regulatory deadline: Due date for electric power entities to register specified facilities outside California
February 13	Public release of Cal e-GGRT
April 10	Regulatory deadline: Reporting deadline for facilities and suppliers of fuels and carbon dioxide, except when subject to abbreviated reporting
June 2	Regulatory deadline: Reporting deadline for electric power entities and those subject to abbreviated reporting
July 15	Regulatory deadline: Deadline for corrections to RPS Adjustment data required for electric power entity data reports
September 2	Regulatory deadline: Final verification statements due (emissions data and product data)

GHG Reporting Contacts

Subject Matter	Contact
GHG Mandatory Reporting (General)	Patrick Gaffney 916.322.7303
Reporting Requirements, Stationary Combustion, Other Sectors (cement, glass, pulp and paper, etc.)	Patrick Gaffney 916.322.7303
Reporting Tool Registration and General Questions	Karen Lutter 916.322.8620
Electricity Generation and Cogeneration Facilities	Patrick Gaffney 916.322.7303
Electricity Retail Providers and Electricity Marketers	Wade McCartney 916.327.0822
Fuel and CO ₂ Suppliers - Transportation Fuels, Natural Gas, LPG, CO ₂	Syd Partridge 916.445.4292
Petroleum Refineries, Hydrogen Plants, Oil & Gas Production	Byard Mosher 916.323.1185
Product Data – Refineries, and Oil & Gas	Byard Mosher 916.323.1185
Greenhouse Gas Report Verification	Renee Lawver, Manager 916.322.7062
Chief – Climate Change Program Evaluation Branch	Rajinder Sahota, Chief 916.323-8503

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