California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

2013 Product Data Reporting: Complexity Weighted Barrels (CWB) for Petroleum Refineries

March 20, 2014
Presentation Slides Available Here:
http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-training.htm
Outline

• Background
• Metering requirements for CWB throughputs
• Calculating and reporting total CWB
Background:
Complexity Weighted Barrel
• Mandatory Reporting Regulation (MRR): 
  http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-regulation.htm

• § 95113(l)(3) requires refineries to report CWB starting with 2013 data reported in 2014

• Beginning in 2014, Cap-and-Trade Regulation will use reported CWB along with CWB-based benchmarks to calculate allowance allocation to refineries

• CWB unit throughputs are covered product data
  — Total CWB is subject to material misstatement
Complexity Weighted Barrel

• Metric of GHG efficiency for petroleum refineries developed by Solomon Associates:
  – CWB factors represent GHG intensity for processes at average efficiency level for standard fuels
  – CWB factors expressed relative to atmospheric crude distillation
CWB Component Equations

• Process CWB

\[ CWB_{proce} = (CWB_{ctor} \times Throughput) \]

• Offsites CWB

\[ CWB_{o\,ite} = (0.327 \times Total\,Refinery\,Input) + (0.0085 \times CWB_{proce}) \]

• Noncrude Sensible Heat CWB

\[ CWB_{noncrude} = (0.44 \times Noncrude\,Input) \]
Total CWB Equations

• Total CWB for MRR verification:

\[ CWB_{tot} + CWB_{proce} + CWB_{ite} \]

• Total CWB for Cap-and-Trade allocation:

\[ CWB_{tot} + CWB_{proce} + CWB_{ite} + CWB_{noncrude} \]
Metering Requirements for CWB Throughputs
CWB unit throughputs are covered product data and evaluated for conformance
  – ±5% accuracy

2013 data: Operators may use Best Available Methods to report throughputs
  – Engineering methods, mass balance, strap-on meters

2014 data and beyond: Throughputs subject to metering requirements in §95103(k)(1)-(10)
  – Calibration frequency and methods
Complying with Metering Requirements

• Under certain circumstances, reporters may request ARB approval of:
  – Calibration postponements per §95103(k)(8)-(9)
    • Must assure accuracy during postponement period
    • Submit request by April 10, 2014 for reporting in 2015
  – Alternative measurement methods per §95103(m)
    • Must be approved prior to the year implemented
    • Applicable for future years, barring regulatory changes

• Reporters may exclude inaccurate covered product data per §95103(l)
  – Must describe and estimate magnitude of excluded data
  – Allowances will not be allocated for excluded data
CWB Reporting Spreadsheet
Reporting Spreadsheet Overview

• Download:
  
  http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions

• Enter data:
  1. Info and Instructions
  2. CWB Worksheet: Input and Calculation
  3. CWB Data Table (No user input)

• Submit:
  
  https://ssl.arb.ca.gov/Cal-eGGRT/login.do
• Download:
  http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions
  – scroll down to middle of page

• Save file to computer before entering data
  – Filename: Refinery_name_2013_CWB.xlsx
Enter Facility Name, Facility ARB ID and Reporter Name in blue cells

Follow the instructions
CWB Worksheet Tab

• Enter throughputs and Total CWB is automatically calculated

• Most CWB Units need only two input steps:
  1. Choose the CWB Unit from drop-down menu in column A
  2. Enter throughput for that CWB Unit in column H
CWB Worksheet Tab: Example

• Step #1: Choose a CWB unit from drop-down menu in column A

  – Throughput basis, CWB factor, and unit of measure completed automatically
CWB Worksheet Tab: Example

• Step #2: Enter throughput
  – CWB for that CWB unit is calculated in column I

<table>
<thead>
<tr>
<th>CWB unit</th>
<th>BIA Number</th>
<th>Throughput basis</th>
<th>CWB Factor</th>
<th>Coke-on-Catalyst Factor</th>
<th>Coke-on-Catalyst % by Volume</th>
<th>Unit of Measure</th>
<th>Throughput</th>
<th>CWB (CWB/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmospheric Crude Distillation</td>
<td>401</td>
<td>Feed</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>thousands/year</td>
<td>34,567.00</td>
<td>34,567.00</td>
</tr>
</tbody>
</table>

• Throughput must be:
  – Fresh feed/product only, excluding recycled material (don’t double-count material that passes through the unit more than once)
  – Entered at most to two digits after decimal point
  – Entered in the units stated in column G
CWB Worksheet Tab: Example

• If facility has more than one unit of the same type:
  – Sum the throughputs for these units of the same type
  – Report this sum in a single row of the worksheet
  – Do not select any CWB Unit from the drop-down menu more than once

• For example, a refinery with two atmospheric distillation columns would report the sum of their throughputs in one row of the worksheet
Repeat for each CWB unit at the facility

- AVOID DOUBLE COUNTING: No single refinery activity may be reported under more than one CWB Unit
FCC units need a third step of entering coke-on-catalyst volume percent
- Enter as a percent (5.67%), not a decimal fraction (0.0567)
- Enter two digits after the decimal point
**CWB Worksheet Tab: Example**

- Process CWB is calculated in cell I40

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>233,364.52</td>
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</table>

- Enter Total Refinery Input in cell I41 and Non-Crude Input in cell I42 (defined in §95102(c))
  - Total: crude, condensate, additives, antiknock compounds, cetane improvers, crude diluents, etc.
  - Noncrude: excludes hydrogen, non-processed blendstock and returns from a lube refinery
• FINAL ANSWERS: Total CWB in yellow cells
  – Total CWB for MRR verification is cell I45
  – Total CWB for Cap-and-Trade allocation is cell I46

• Total CWB for MRR is subject to material misstatement
• H₂ production and coke calcining are NOT included in the Total CWB calculation because they are allocated under separate benchmarks
• For outputs (e.g., sulfuric acid, asphalt), report only the amount produced at the facility
CWB Calculation: Potential Errors

• Processes should be classified by their current function, not historic name
  - Definitions of CWB units are in §95102(c)
• Units: 1000 barrels/year, not barrels/day
• Units for fuel gas recovery: horsepower rating
• Standard conditions for gases: dry, 1 atm, 60 °F
• Noncrude Input only includes material put through a process unit, not just brought onsite
CWB Data Tab

- No user input needed on this tab
- This is a database of CWB factors, units of measure, and throughput bases for CWB units drawn from Table 1 in §95113(l)(3)
- This information is used by the CWB Worksheet tab to calculate CWB
Submitting the Spreadsheet

• Ensure data are accurate and complete
• Save spreadsheet
  – Filename: Refinery_name_CWB_(2013).xls
• Must include completed CWB spreadsheet as part of the 2013 data submittal
  - Due April 10, 2014
• Submit here:
  https://ssl.arb.ca.gov/Cal-eGGRT/login.do
Submitting the Spreadsheet

• Login, then OPEN Section 95113 (Subpart Y):

<table>
<thead>
<tr>
<th>2013 Reporting Source or Supplier Category</th>
<th>Validation Messages?</th>
<th>Subpart Reporting</th>
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<tbody>
<tr>
<td>Sections 95100-95108 (Subpart A)—General Information</td>
<td>None</td>
<td>OPEN</td>
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<tr>
<td>Section 95114 (Subpart P)—Hydrogen Production</td>
<td>View Messages</td>
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<td>Section 95113 (Subpart Y)—Petroleum Refineries</td>
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<td>OPEN</td>
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• Click BROWSE, find file, click UPLOAD:

Complexity Weighted Barrel Data

Report Complexity Weighted Barrel (CWB) information using the spreadsheet found at the link below. After completing the spreadsheet upload the file using the Browse and Upload buttons below.

Complexity Weighted Barrel Spreadsheet

Browse

Uploaded File Name
Attended By
Date
Delete

No file selected

Facility Overview
Schedule

• April 10: Regulatory deadline for reporting emissions and product data
• September 2: Verification statements due
Questions?
Web Resources

- Email questions: ghgreport@arb.ca.gov

- Reporting Guidance: CWB
  [Link](http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/cwb.pdf)

- Reporting Guidance: Applicability, Metering
  [Link](http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance.htm)

- Cal e-GGRT Tool Training: Registration, Subparts
  [Link](http://www.arb.ca.gov/cc/reporting/ghg-rep/tool/ghg-tool.htm)

- Cal e-GGRT Main Help Page
  [Link](http://www.ccdsupport.com/confluence/display/calhelp/Home)
<table>
<thead>
<tr>
<th>Division</th>
<th>Position</th>
<th>Name</th>
<th>Phone Number</th>
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</thead>
<tbody>
<tr>
<td>GHG Mandatory Reporting (General)</td>
<td>Manager</td>
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END