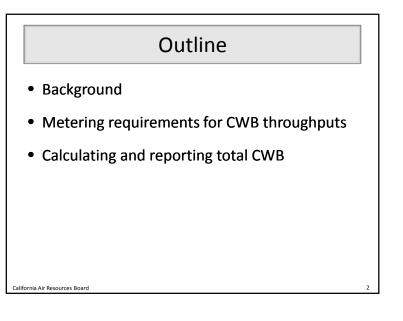
California Environmental Protection Agency

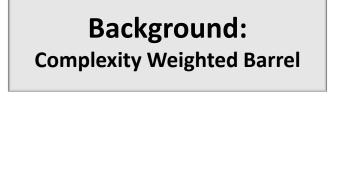
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California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

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

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





Background

- Mandatory Reporting Regulation (MRR): http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-regulation.htm
- § 95113(I)(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 <u>covered product data</u>
 Total CWB is subject to material misstatement

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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

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 CWB_{o} ite $(0.327 \times Total Refinery Input) + (0.0085 \times CWB_{proce})$

• Noncrude Sensible Heat CWB

 $CWB_{noncrude}$ (0.44 × Noncrude Input)

Total CWB Equations

• Total CWB for MRR verification:

 $CWB_{tot l}$ CWB_{proce} + $CWB_{o ite}$

• Total CWB for Cap-and-Trade allocation:

 $CWB_{tot l}$ CWB_{proce} + $CWB_{o ite}$ + $CWB_{noncrude}$

Metering Requirements for CWB Throughputs

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Metering Requirements

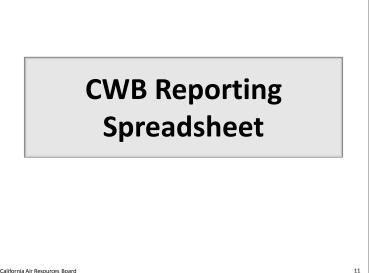
- CWB unit throughputs are covered product data and evaluated for conformance
 - ±5% accuracy
- 2013 data: Operators may use Best Available Methods to report throughputs
 - Engineering methods, mass balance, strap-on meters
- 2014 data and beyond: Throughputs subject to metering requirements in §95103(k)(1)-(10)
 - Calibration frequency and methods

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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(I)
 - Must describe and estimate magnitude of excluded data
 - Allowances will not be allocated for excluded data

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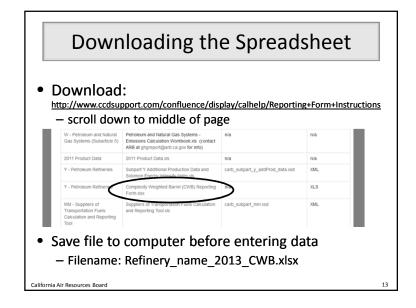
Reporting Spreadsheet Overview

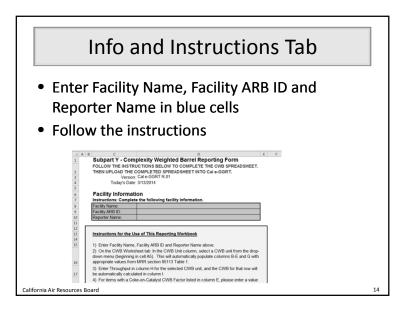
• Download:

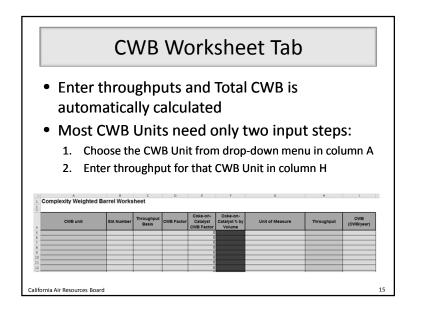
http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions

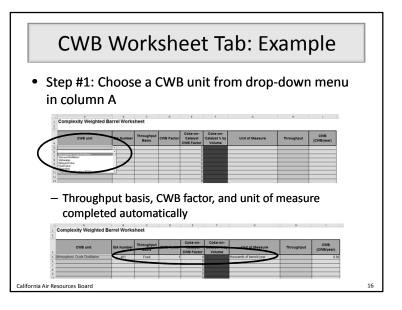
- Enter data:
 - 1. Info and Instructions
 - 2. CWB Worksheet: Input and Calculation
 - 3. CWB Data Table (No user input)
- Submit: <u>https://ssl.arb.ca.gov/Cal-eGGRT/login.do</u>

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CWB Worksheet Tab: Example

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



- Throughputs must be:
 - Fresh feed/product only, excluding recycled material (don't double-count material that passes through the unit more than once)

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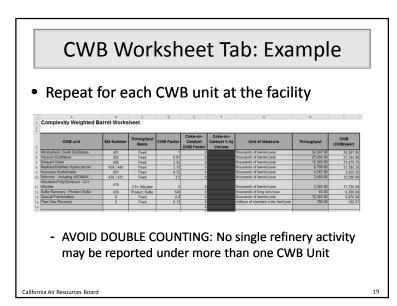
Calif

- Entered at most to two digits after decimal point
- Entered in the units stated in column G

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CWB Worksheet Tab: Example

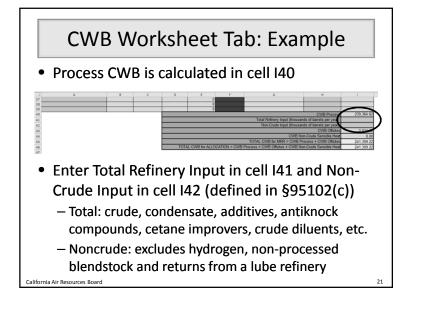
- If facility has more than one unit of the same type:
 - Sum the throughputs for these units of the same type
 - Report this sum in a single row of the worksheet
 - Do not select any CWB Unit from the drop-down menu more than once
- For example, a refinery with two atmospheric distillation columns would report the sum of their throughputs in one row of the worksheet



CWB Worksheet Tab: Example

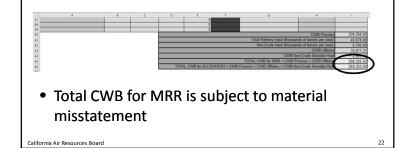
- FCC units need a third step of entering cokeon-catalyst volume percent
 - Enter as a percent (5.67%), not a decimal fraction (0.0567)
 - Enter two digits after the decimal point

A			Basis	CWB Factor	Catalyst CWB Factor	Catalyst % by Volume	Unit of Measure	Throughput	(CWB/year)
	tmospheric Crude Distillation	401	Feed	1	0		thousands of barrels/year	34,567.00	34,567.00
V	acuum Distillation	402	Feed	0.91	0	5	thousands of barrels/year	23,456.00	21.344.96
	elayed Coker	405	Feed	2.55	c	5	thousands of barrels/year	12,345.00	31,479.75
ī	aphtha/Distillate Hydrocracker	439/440	Feed	3.15	0	5	thousands of barrels/year	6,789.00	21.385.35
	erosene Hydrotreater	421	Feed	0.75	0	5	thousands of barrels/year	4,567.00	3,425.25
	eformer - including AROMAX	430 / 431	Feed	3.5	0	5	thousands of barrels/year	3,456.00	12.096.00
	lkylation/Poly/Dimersol - C5+ lkylate	415	C5+ Alkylate	5			thousands of barrels/year	2,345.00	11,725.00
	ulfur Recovery - Product Sulfur	435	Product Sulfur	140		1	thousands of long tons/year	45.00	6.300.00
	pecial Fractionation	0	Feed				thousands of barrels/year	12,345.00	9.876.00
ŋ	are Gas Recovery	0	Feed	0.13			Silons of standard cubic feet/year	789.00	102.57
	luid Catalytic Cracking (FCC)	407	Feed	1.15	1.41	5.67%	thou ands of barrels/year	12,345.00	87,062.74
1									
3 S F	pecial Fractionation lare Gas Recovery	0	Feed Feed	0.8	0	5.67%	thousands of barrels/year thousands of standard cubic feet/year		345.00 789.00



CWB Worksheet Tab: Example

- 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

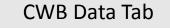


CWB Worksheet Tab: Notes CWB • H₂ production and coke calcining are NOT included in the Total CWB calculation because they are allocated under separate benchmarks • Process function • For outputs (e.g., sulfuric acid , asphalt), report only the amount produced at the facility • Units: 1 • Units for • Standar • Noncrue through • Noncrue

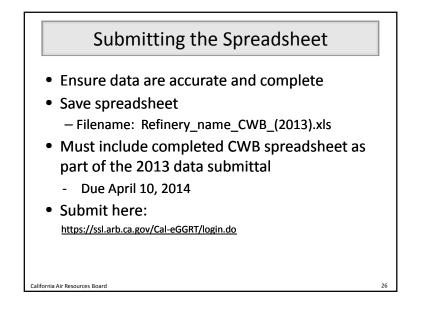
CWB Calculation: Potential Errors

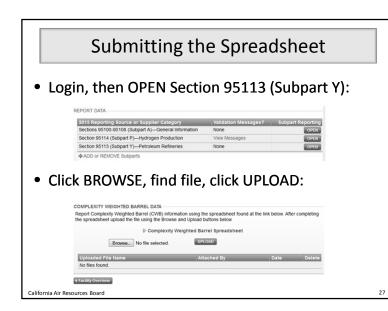
- Processes should be classified by their current function, not historic name
 - Definitions of CWB units are in §95102(c)
- Units: 1000 barrels/year, not barrels/day
- Units for fuel gas recovery: horsepower rating
- Standard conditions for gases: dry, 1 atm, 60 °F
- Noncrude Input only includes material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

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- 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(I)(3)
- This information is used by the CWB Worksheet tab to calculate CWB







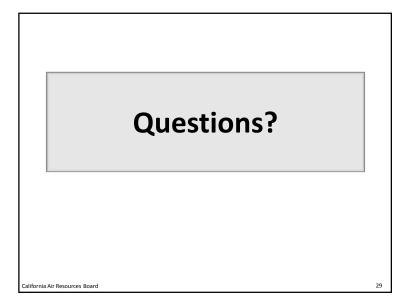
- April 10: Regulatory deadline for reporting emissions and product data
- September 2: Verification statements due

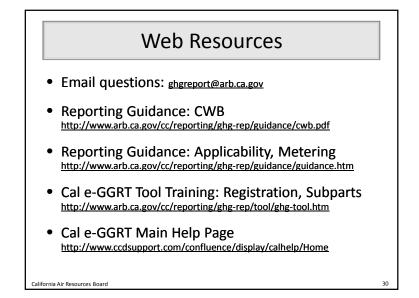
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