Introduction to RECLAIM

REgional CLean Air Incentives Market

A Market-Based Approach to Pollution Reduction

South Coast AQMD

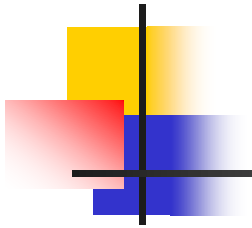
Agenda

Morning Session

- Introduction
- Program Overview
- RECLAIM Participants
  (Please Schedule Separate Meeting for a Detailed Discussion About An Individual Facility)
- Facility Permit
- Natural Gas Usage Calculations
- Monitoring, Reporting, and Recordkeeping for non-major sources
- RTC Trade and Reconciliation

Afternoon Session

- MRR for Major sources



PROGRAM OVERVIEW

Brett Kimberly

RECLAIM History

- Need to reduce emissions of NOx & SOx.
- Existing method was Command & Control (C&C) regulations.
- End result of C&C would have been multiple rules for different equipment and different industries with changing compliance dates.

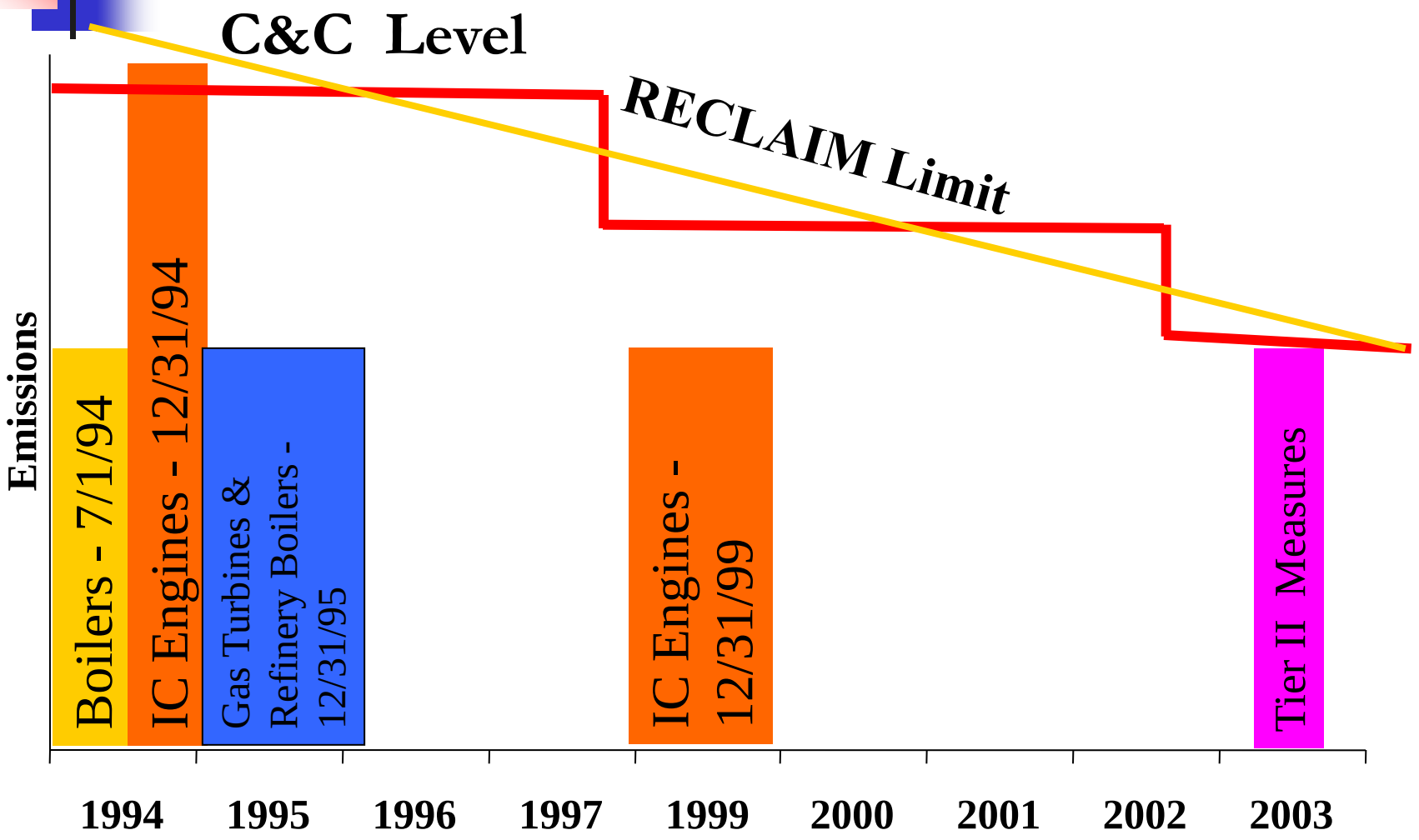
Sign of the Times

- Economic recession in early 1990's
- High abatement cost for C&C rules
- SCAQMD time & resources for adopting each C&C Rule
- Alternative compliance strategy options:
  - Emission Taxes/Fees or
  - Emission Trading

Program Objectives

- Same Level of Emission Reductions
- Same or Lower Cost
- Higher Compliance Confidence

Emission Reductions – C&C NOx Measures



Program Benefits

- For Facilities
  - Maximum Flexibility
  - Clear Emission Reduction goals
  - Lower Compliance Costs Through Credit Trading
  - Replaced 30+ Adopted and 12 Potential Rules
- For Environment
  - Certainty in Emissions Reductions
  - Higher Accuracy in Emission Data through Enhanced Monitoring

Primary differences between C&C and RECLAIM

- Individual device permits replaced by facility permit.
- C&C rules pertaining to NOx or SOx emission limits do not apply.
- RECLAIM includes substantial monitoring and reporting requirements.
- RECLAIM provides compliance flexibility in terms of managing emissions and implementation of controls.

Cap and Trade

- RECLAIM imposes overall mass emission limits (or emission cap)
- Emission reduction target set by decreasing level of allocations
- Each pound of emission is represented by one pound of RECLAIM Trading Credits (RTCs)
- Facility must have adequate RTCs to reconcile (offset) its quarterly and annual emissions
- Facility may choose to either install emission controls or buy additional RTCs to increase its allocation

Allocations Issued by SCAQMD

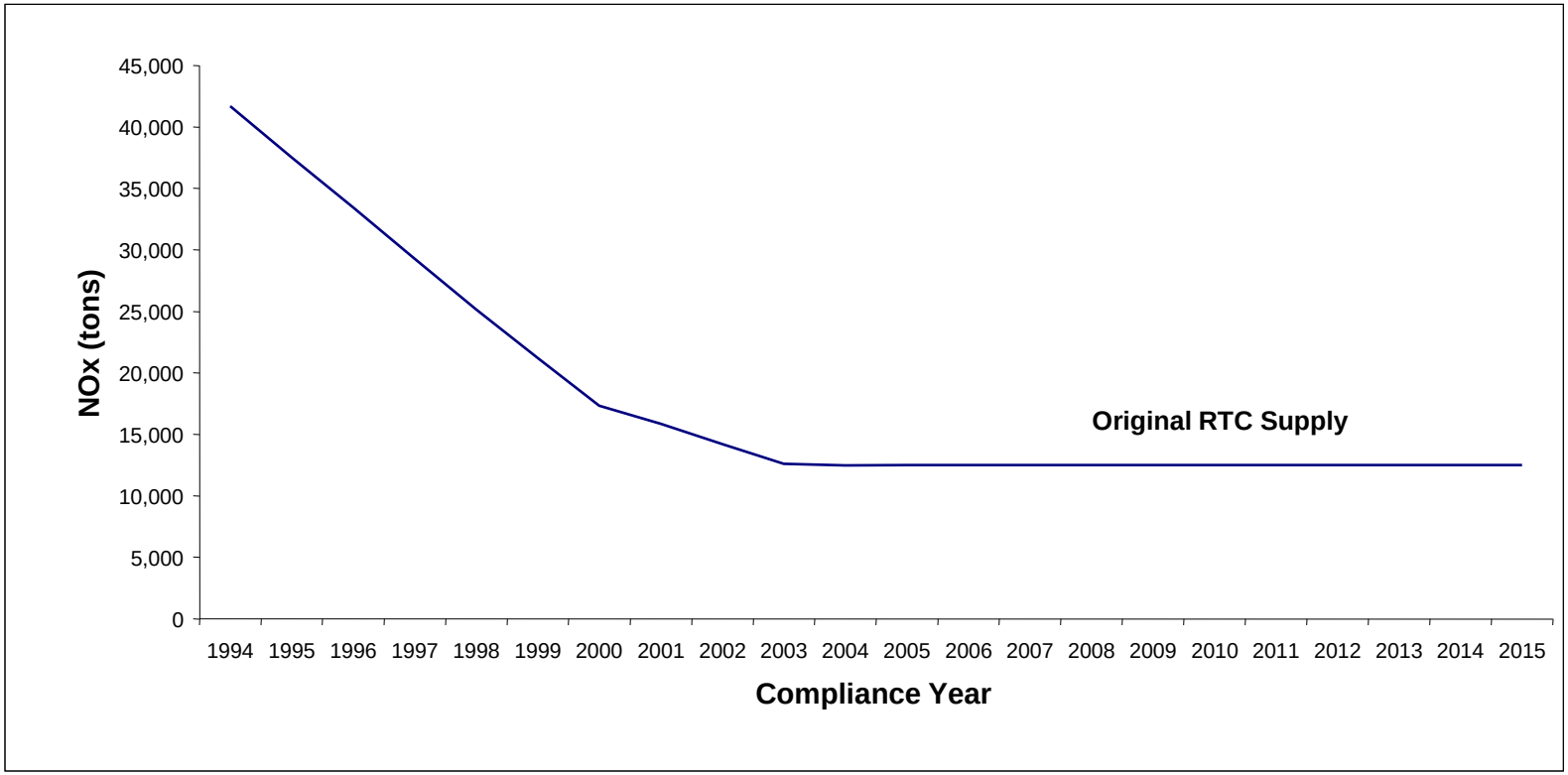
An annual allocation is the number of RECLAIM Trading Credits (RTC) a facility holds for a compliance year.

- Allocations issued are mainly based on highest production level from 1989 to 1992 (pre-recession).
- Any emission offsets previously provided for permits may be re-issued as RTCs
- Facilities new since October 1993 issued Allocations based only on offsets provided

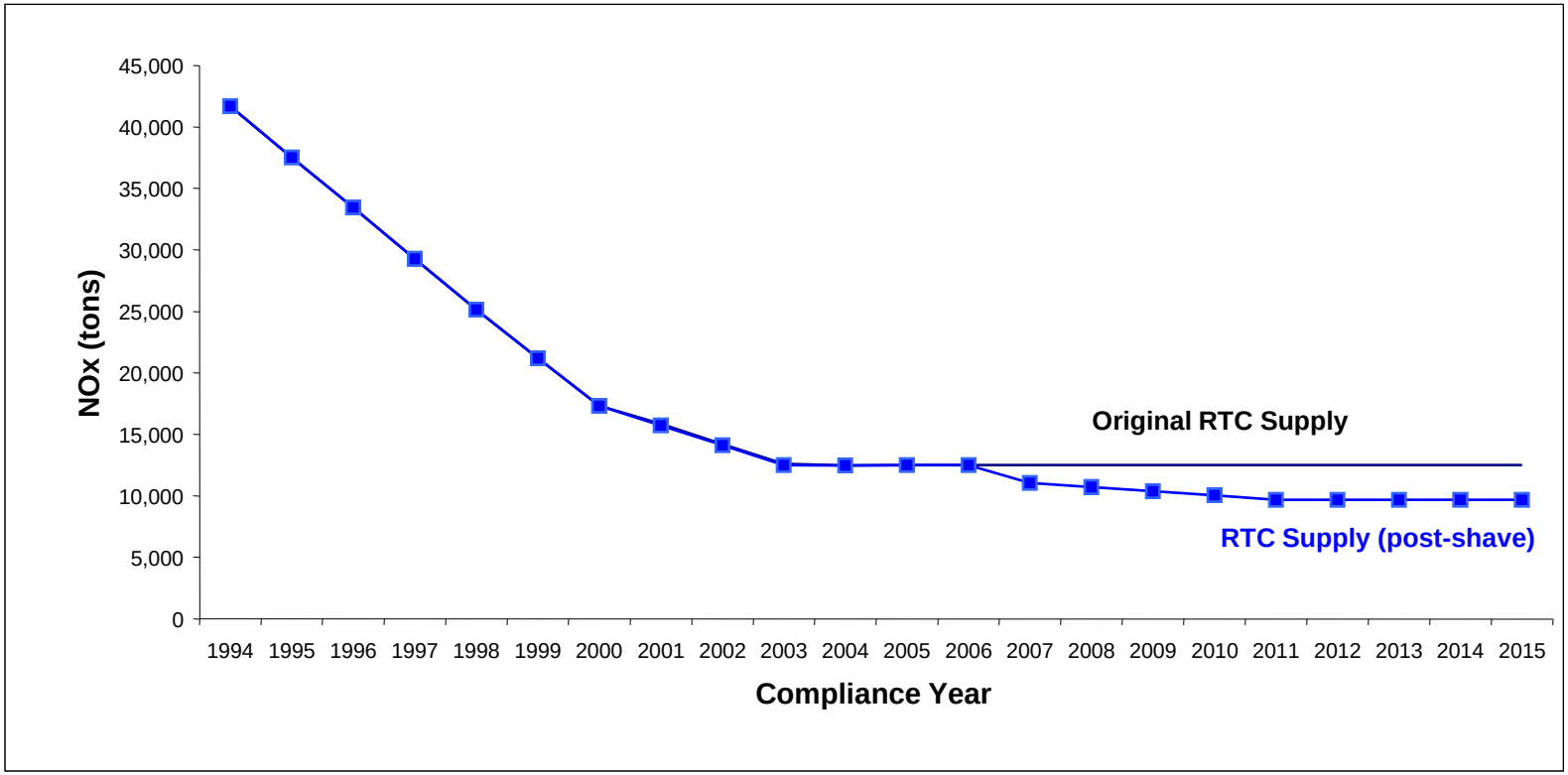
RECLAIM Trading Credits

- Initial allocation starts in 1994 and is reduced each year until 2003 when a steady-state was achieved.
- Allocations reduced periodically to implement Best Available Retrofit Technology as required by federal law ("Allocation shaves").
- One NOx shave and one SOx shave adopted to date; second NOx shave currently under development.

NOx Progress



NOx Progress



Cycles

Facilities divided into two Cycles:

Cycle 1 Compliance Year – January 1 to December 31, RTCs for applicable year expire on 12/31.

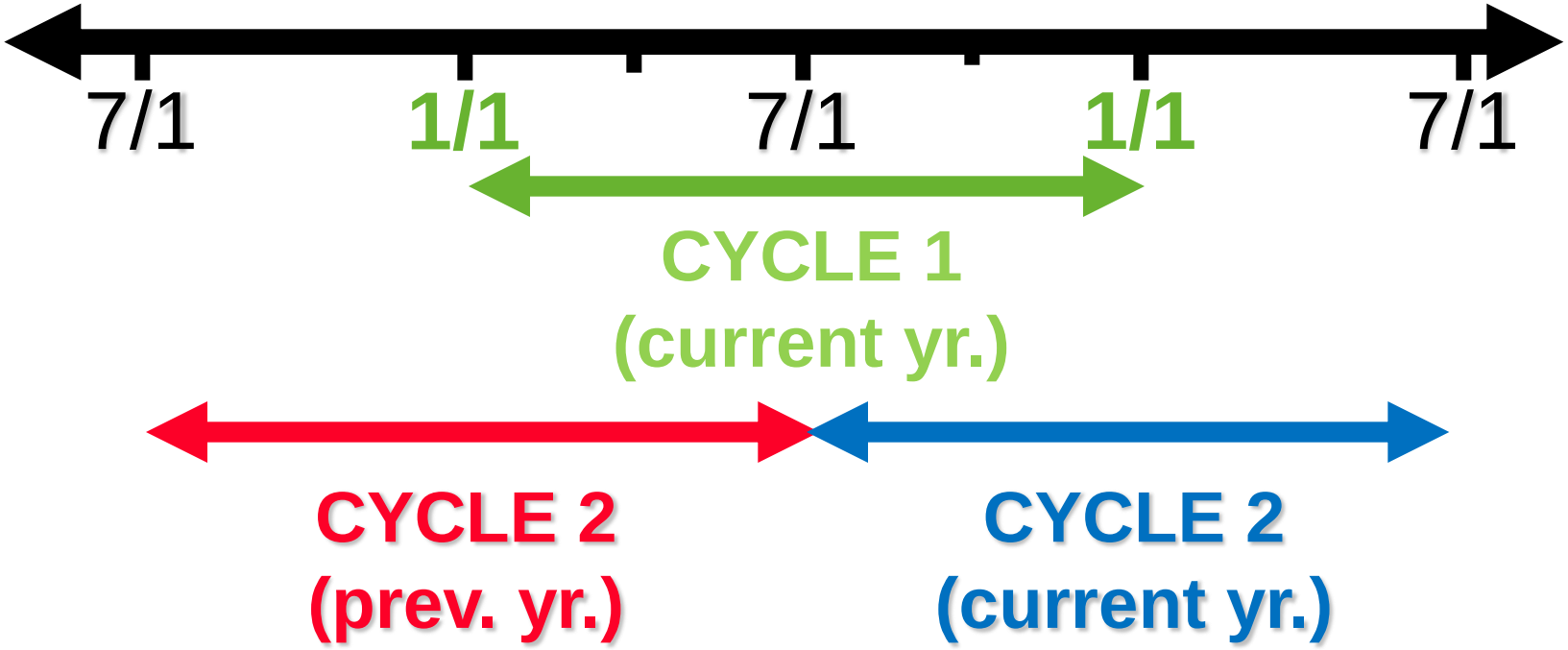
Cycle 2 Compliance Year – July 1 to June 30 of following year, RTCs for applicable year expire on 6/30.

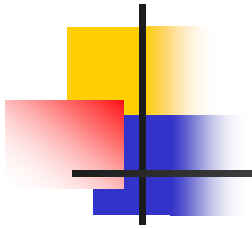
Compliance year is named for the year the cycle begins in.

Examples: 2013 Cycle 1 – starts 1/1/13, RTCs expire 12/31/13

2013 Cycle 2 – starts 7/1/13, RTCs expire 6/30/14

Cycles Timeline





RECLAIM PARTICIPANTS

Brett Kimberly

Facilities in RECLAIM

Facilities that reported 4 tons or more of NOx or SOx emitted in 1990 or any later year, not including emissions from:

- Rule 219 equipment
- rental equipment
- on-site mobile sources
- ships

Excluded Facilities

Prohibited from initial inclusion and cannot enter

Examples:

- dry cleaners
- landfill gas operations
- police facilities
- public transit facilities

Not Included Facilities but Allowed to Opt-in

Prohibited from initial inclusion but may opt to enter RECLAIM

Examples:

- hospitals
- prisons
- schools and universities
- ski resorts

FACILITY PERMIT

Brett Kimberly

RECLAIM Facility Permit

- Section A – Facility information (address, telephone, contact names, cycle, NOx/SOx, zone)
- Section B – Allocations – listing of year-by-year allocation as of permit issue date
- Section C – Plot Plan – never used

RECLAIM Facility Permit

Section D (designed as a table)

- Device description
- Device ID # (e.g. D5, D12, C25)
- Connection to basic or control device
- RECLAIM category (as applicable)
- Emission limits (RECLAIM, BACT, different fuels)
- Operation conditions

RECLAIM Facility Permit

Section D permit conditions are annotated as condition numbers, which are fully described at the end of Section D.

Example: Condition number - P10.1

Condition description – "This device shall not consume more than 7.2 mmscf of natural gas per month."

RECLAIM Facility Permit

- Section E – Administrative Conditions
- Section F – Monitoring & Source Testing Requirements
- Section G – Recordkeeping & Reporting Requirements

RECLAIM Facility Permit

- Section H – has the same format as Section D but includes devices under a Permit to Construct or a modification to the existing permit
- Construction of devices in Section H may not have been completed or even started yet.
- Conditions in Section H apply after construction is completed.

RECLAIM Facility Permit

- Section I – Plans and Schedules

  Examples may include:

  - Only applicable to a facility with a final Title V Permit
  - Rule 1407 – Non-ferrous metal melting
  - Rule 1132 – VOC emissions from high-emitting spray booths

- Section J – Air Toxics

  May include requirements from NESHAP or Federal CFR

RECLAIM Facility Permit

- Section K – Title V Administration

  Only applicable to a facility with a final Title V Permit

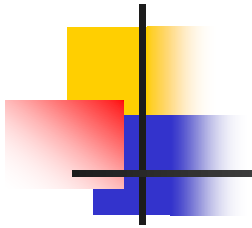
  - Shows deadlines for Semi-Annual and Annual Compliance Reports
  - Includes a Table of applicable regulations

- Appendix A – Exempt Equipment

  Lists Rule 219-exempt NOx and SOx emitting equipment

RECLAIM Facility Permit

- How to provide input into the permit.
  - REVIEW CAREFULLY
  - Contact SCAQMD permitting engineer
    - Administrative change
    - Permit appeal process
      - Rule 216 – 30 days from receipt of notification by SCAQMD



QUESTIONS?

Natural Gas as Fuel

- Natural gas is the most common fuel
- All emission calculations are based on standard conditions
- RECLAIM set standard conditions as 68^{o}F and 1 atmospheric pressure
- All fuel meters measure at actual fuel condition and must be adjusted to standard conditions

Abbreviations-Gas Volumes

cf = cubic feet

d = dry (absence of all water vapor)

s = standard conditions (for RECLAIM, 1 atmosphere of pressure and 68° F.

c = hundred

m = thousand

mm = million

h = per hour

Abbreviations-Examples

ccf = hundred cubic feet

mcf = thousand cubic feet

mmscf = million standard cubic feet

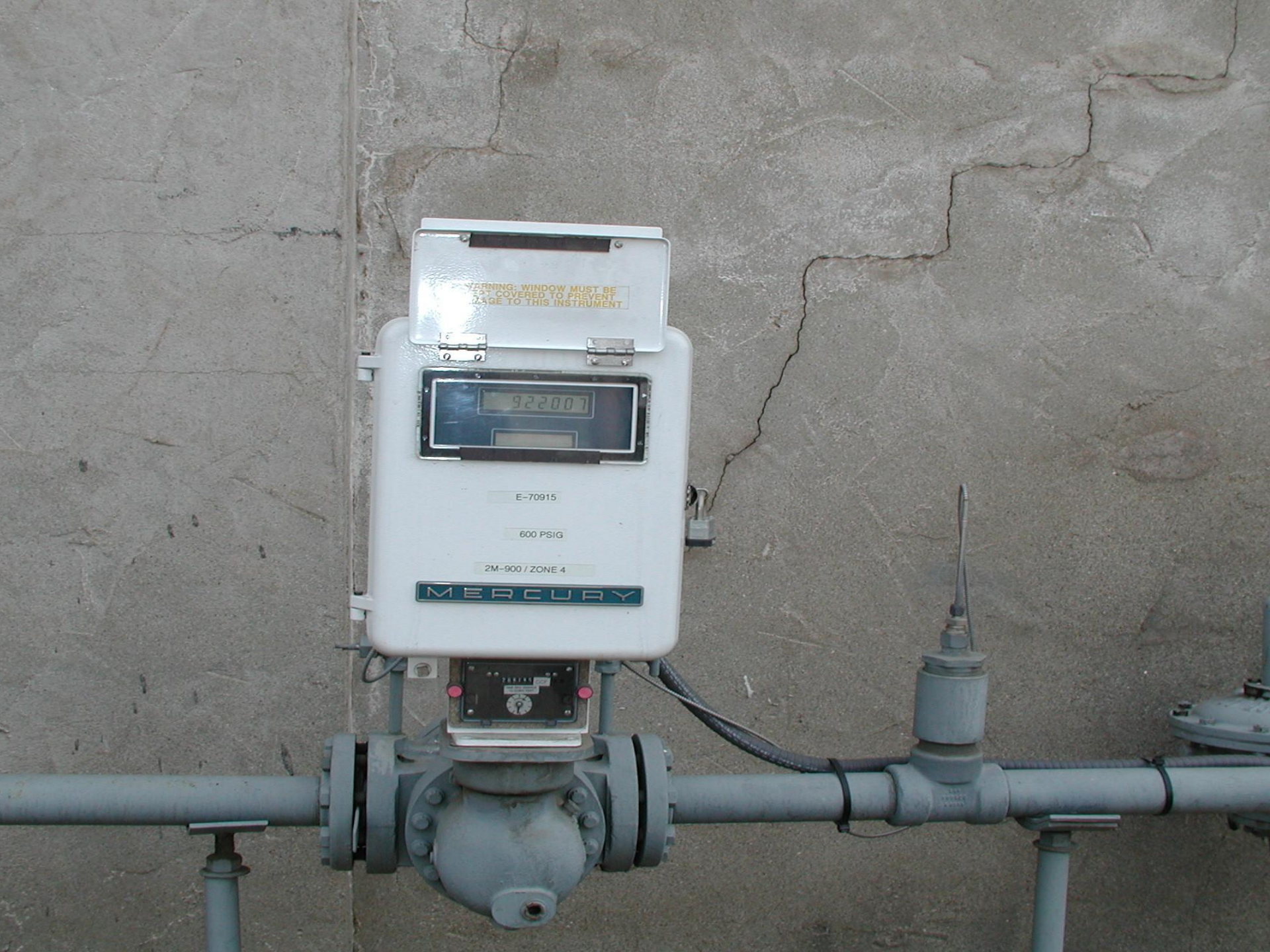
dscf = dry standard cubic feet

Other terminology

- Btu – British Thermal Unit, amount of heat needed to raise the temperature of 1 pound of water by 1 degree Fahrenheit.

  (how much heat a fuel will generate)
- therm – 100,000 btu or 0.1 mmbtu
- Higher Heating Value (HHV) – maximum amount of heat released by fuel combustion, has units of btu/unit of volume
- bhp – brake horsepower


4 5 2 3 6 3
CUBIC
FEET


922007
E-70915
600 PSIG
2M-900 / ZONE 4
MERCURY

Natural gas fuel meter at standard conditions

- Option 1 – use automatic electronic pressure & temperature compensator
  - $$
  - Very accurate
  - May involve battery replacement
- Option 2 – use manually-calculated pressure & temperature adjustment charts. Must install temperature gauge and pressure gauge (typically psi) on meter side of any pressure regulator
  - "Do the math"

Example Pressure Adjustment Chart

PSIG	Factor
1	1.045
2	1.113
3	1.181
4	1.249
5	1.317
6	1.385
7	1.453

Factor varies based on altitude of the facility.
Chart shown represents approx. 500 ft. altitude.

Example Pressure Adjustment Calculation

Beginning meter reading a	Ending meter reading b	Unadjusted fuel usage (cf) c=b-a	5 psi adjustment factor d	Adjusted fuel usage (scf) e=c*d
345000	456000	111000	1.317	146187

Example Temperature Adjustment Chart

Degrees F.	Factor
66	1.0038
67	1.0019
68	1.0000
69	0.9981
70	0.9962
71	0.9944
72	0.9925
73	0.9906
74	0.9888
75	0.9869

Example Temperature Adjustment Calculation

Beginning meter reading a	Ending meter reading b	Unadjusted fuel usage (cf) c=b-a	75 degree F adjustment factor d	Adjusted fuel usage (scf) e=c*d
345000	456000	111000	0.9869	109546

Combined Temperature/Pressure Adjustment Calculation

Beginning meter reading a	Ending meter reading b	Unadjusted fuel usage (cf) c=b-a	5 psi adjustment factor d	75 degree F adjustment factor e	Adjusted fuel usage (scf) f=c*d*e
345000	456000	111000	1.317	0.9869	144272

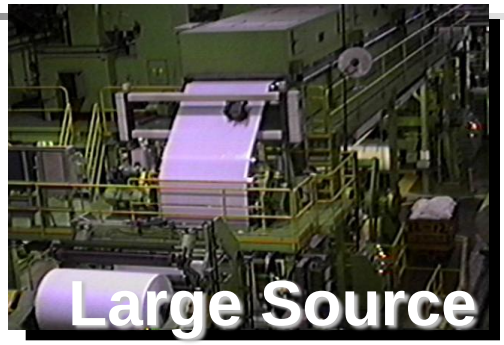
MONITORING, REPORTING, AND RECORDKEEPING FOR NON-MAJOR SOURCES

Shannon Lee

RECLAIM Device Classifications

- Rule 219-Exempt Equipment – equipment not otherwise required to have a permit
- Process units
- Large sources
- Other/misc.
- Major sources

Monitoring and Reporting



MONTHLY

Monitored by CEMS

DAILY

QUARTERLY

*Process Units and Rule 219-Exempt Equipment

Device Classifications
Rule 219-Exempt Equipment

Equipment exempt from requirement to obtain a permit due to very low emission potential.

Examples:

- External combustion device with max. capacity ≤ 2 mmbtu/hr
- Residential-type water heaters
- Internal combustion engine ≤ 50 bhp

Refer to Rule 219 for complete list

Rule 219 Equipment Monitoring, Reporting, & Recordkeeping (MRR)

- Monitored by fuel meter, timer, or main gas bill minus other metered equipment
- Based on emission factors (lb/mmscf or lb/mgal)
- Quarterly meter/timer readings.
- Emissions calculated by multiplying emission factor by fuel usage
- Quarterly electronic reporting to SCAQMD

Rule 219 Equipment Calculations

The default emission factor for Rule 219 external combustion equipment fired by natural gas is 130 lbs NOx/mmscf.

0.5 mmscf x 130 lbs/mmscf = 65 lbs NOx

Device Classifications Process Units

Process Units – devices with lower emission potential.

Examples:

- External combustion device with max. capacity between 10 & 40 mmbtu/hr and annual heat input ≤23 billion btu
- External combustion device with max. capacity >2 but < 10 mmbtu/hr
- Internal combustion engine between 200 & 1000 bhp and operated less than 2,190 hrs/year
- Internal combustion engine between 50 and 200 bhp

Process Unit MRR

- Monitored by fuel meter or timer (or rarely by stack flow monitor)
- Based on emission factor (lb/mmcf or lb/mgal) or a concentration limit (ppmv)
- Quarterly meter/timer readings. Quarterly electronic reporting to SCAQMD.
- Annual tune-up
- For devices with conc. limit, source test every 5 year window of time.

Process Unit Calculations

For devices with emission factor:

Multiply emission factor by fuel usage.

3 mmscf x 100 lbs/mmscf = 300 lbs NOx

For devices with concentration limit:

Use same equation as Large Sources with concentration limit, discussed later.

Process Unit Calculations - Engines

Most smaller engines are monitored by timers. Fuel use increases as load increases. Since it is not possible to continually monitor load, fuel usage determined by manufacturer specified maximum fuel consumption rate.

Process Unit Calculations - Engines

Example calculation – diesel engine, 469 lb NOx/mgal emission factor, 30 gal/hr maximum usage rate

Starting timer (hr)	Ending timer (hr)	Hours operated	Gallons used	mgal used	Lbs NOx
15	19	4	120	0.12	56.28

End minus start

Hours x max. rate

Gallons/1000

mgal x emis. fact.

Engine Calculation Alternative

If maximum fuel usage rate is unknown, an alternative method is found in Rule 2012, Appendix A, Chapter 4, equation 28.

This equation determines heat input based on engine bhp and an assumed efficiency factor.

Engine Calculation Alternative

If the engine is required by permit condition to have a fuel meter, use fuel meter readings to determine fuel use.

Device Classifications Large Sources

Large Sources – devices with moderate emission potential.

Examples:

- External combustion device with max. capacity ≥ 40 mmbtu/hr and annual heat input ≤ 90 billion btu
- External combustion device with max. capacity between 10 & 40 mmbtu/hr and annual heat input >23 billion btu
- Internal combustion engine ≥ 1000 bhp and operated less than 2,190 hrs/year
- Internal combustion engine between 200 & 1000 bhp and operated more than 2,190 hrs/year

Large Source MRR

- Monitored by fuel meter or stack flow monitor (or rarely by CEMS)
- Has concentration limit (ppmv) or, in fewer cases, an emission rate (lb/mmcf or lb/mgal)
- Monthly fuel meter readings
- Monthly electronic reporting to SCAQMD
- Semi-annual tune-up
- For devices with conc. limit, source test every 3 year window of time.

Large Source Calculations

For devices with emission rate:

fuel usage x emission rate

For devices with concentration limit:

Use equation based on mass per volume of stack flow.

Concentration Limit Calculations

MASS = CONC. x VOLUME

For systems with Stack Flow Monitor:

lbs. NOx = (NOx ppmv) x (Stack Flow) x 1.195 x 10^{-7}

For systems with Fuel Flow Monitor:

lbs. NOx = (NOx ppmv) x (Fuel Flow) x
[20.9/(20.9-b)] x F_d x V x 1.195x10^{-7}

Concentration Limit Calculations (Stack flow monitor)

$e = a \times c \times 1.195 \times 10^{-7}$

e = mass of NOx (lbs)

a = NOx conc. limit (ppmv)

c = stack volumetric flow (scf)

Example: a = 40 ppmv

c = 150,000 scf

e = 0.72 lbs

Large Source concentration limit - Equation 17, Rule 2012, App. A, Chap. 3

For system with Fuel Flow Monitor:

$E = (NOx\ ppmv) \times (Fuel\ flow) \times [20.9/(20.9-b)] \times F_d \times V \times 1.195 \times 10^{-7}$

E = mass of NOx (lbs)

NOx ppmv = conc. limit in permit

Fuel Flow = mmscf/month or mgal/month

b = standard oxygen % for device (3% for external combustion, 15% for engines and turbines)

F_d = oxygen-based dry F factor for fuel (dscf/mmbtu)

V = higher heating value of fuel (mmbtu/mmscf or mmbtu/mgal)

Equation 17, Rule 2012, App. A, Chap. 3

Example: Oven permitted at 45 ppmv burning 10 mmscf of natural gas in a month

$E = (NOx\ ppmv) \times (Fuel\ flow) \times [20.9/(20.9-b)] \times F_d \times V \times 1.195 \times 10^{-7}$

NOx ppmv = 45

Fuel flow = 10 mmscf/month

b = 3

F_d = 8,710 dscf/mmbtu (for natural gas)

V = default value of 1,050 mmbtu/mmscf

$E = 45 \times 10 \times [20.9/(20.9-3)] \times 8{,}710 \times 1{,}050 \times 1.195 \times 10^{-7}$

E = 574.22 lbs NOx

Implications of 3-year source test for Large source and 5-year source test for Process unit

- Example 1 – concentration limit is 30 ppm NOx. Test result = 25 ppm. Report emissions using 30 ppm. (Test <= conc. limit, report conc. limit)
- Example 2 – concentration limit is 30 ppm NOx. Test result = 35 ppm. Report emissions using 35 ppm until next source test. (Test > conc. limit, report test result until date of passing test)

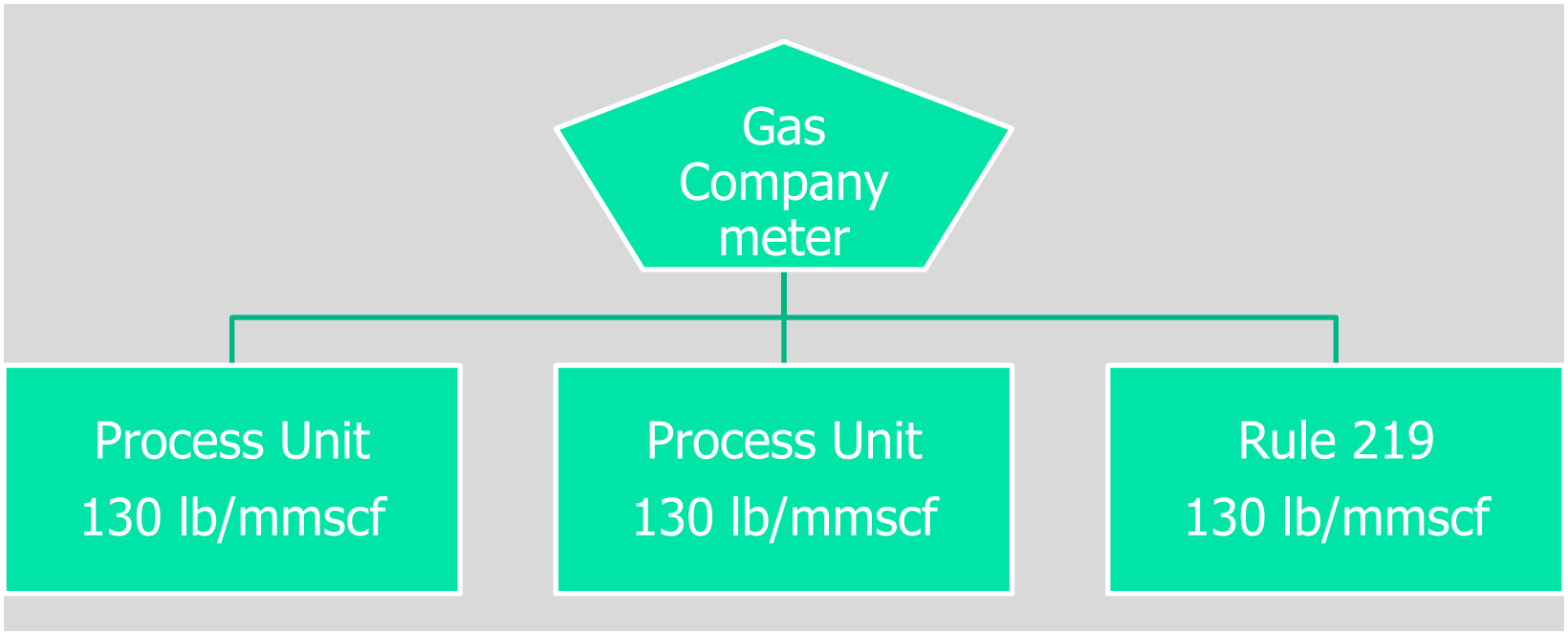
✦ Test result > concentration limit is a violation of a permit condition

Limitations On Fuel Meter Sharing (Non-Major Sources)

- The emission factor or concentration limit or emission rate must be the same, and
- The device(s) must have the same reporting frequency (i.e. monthly or quarterly)

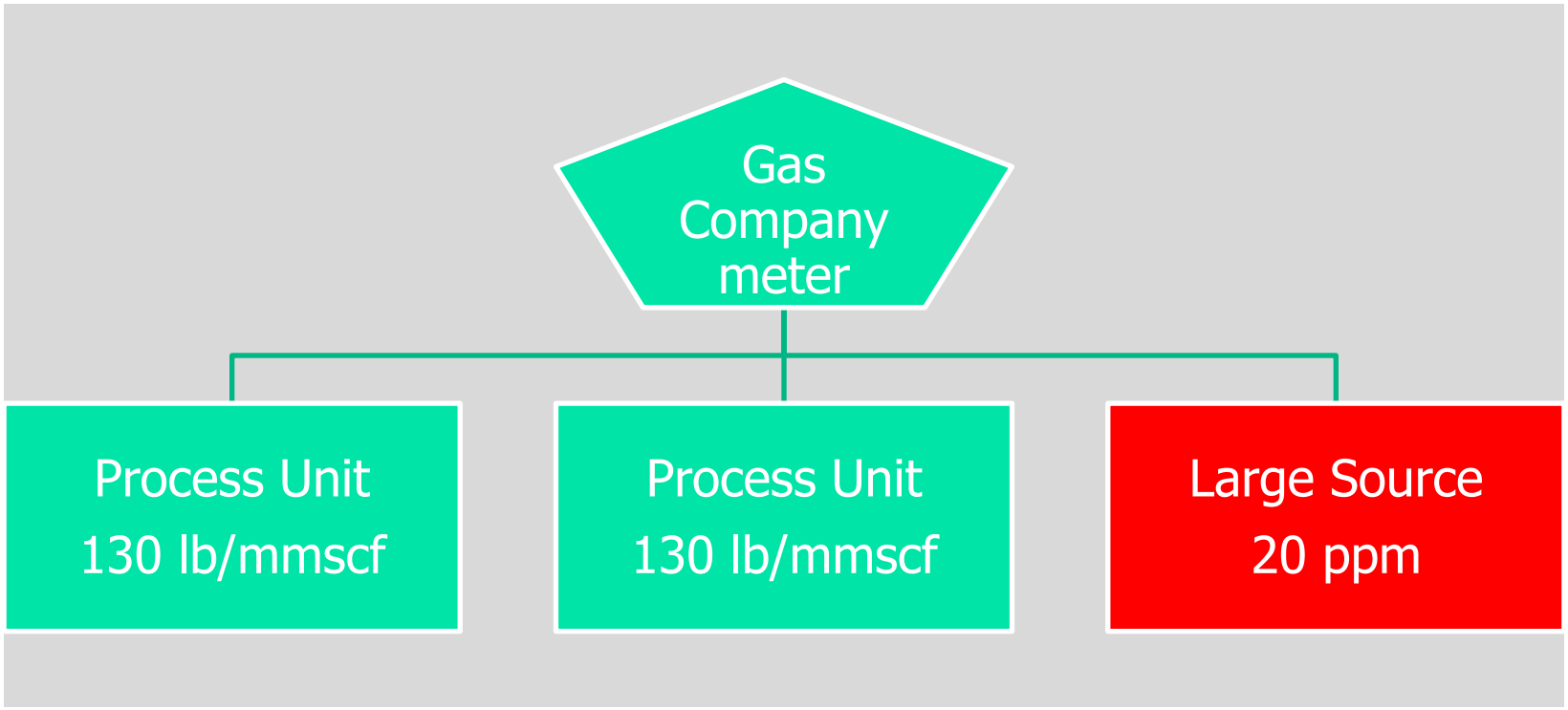
[Rule 2012(g)(6)]

Meter sharing examples



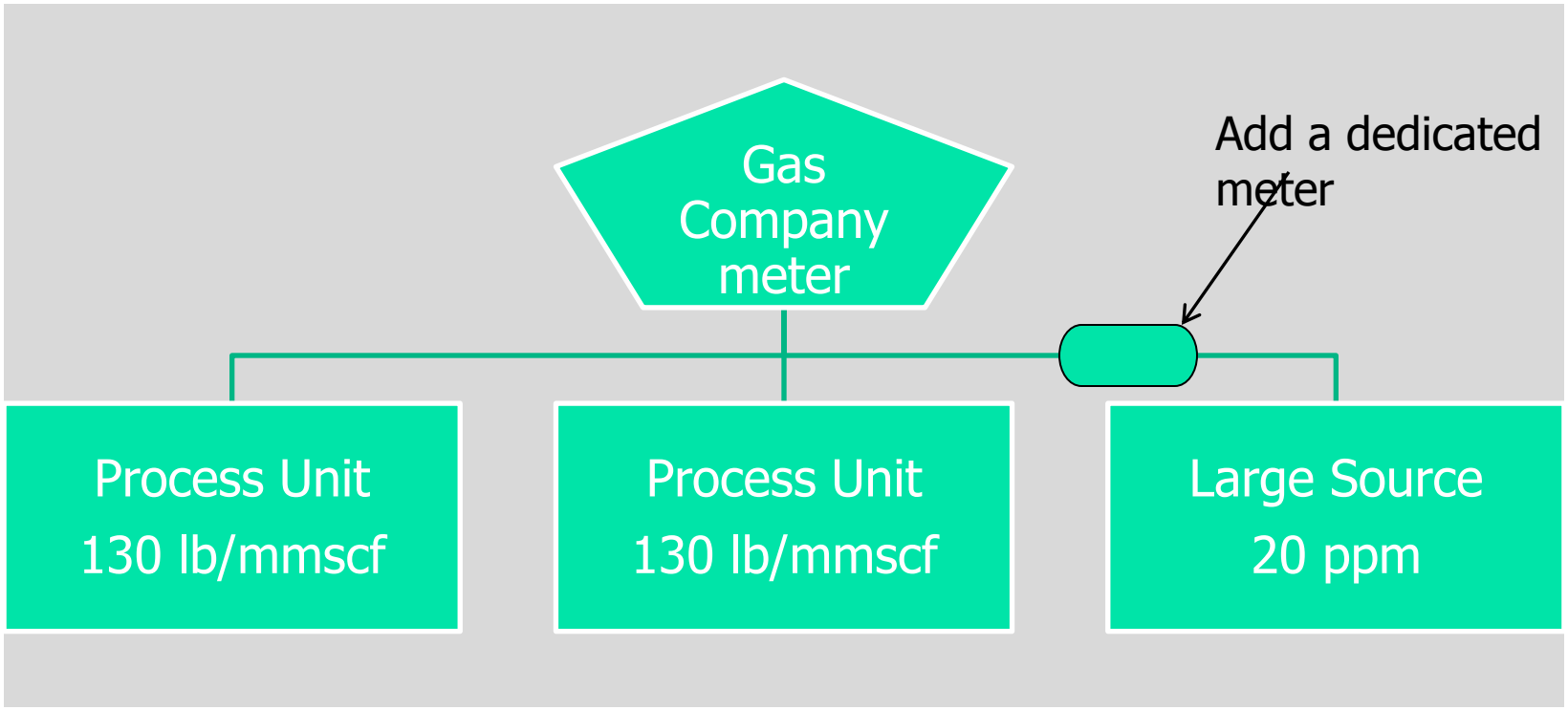
Proportion fuel using any logical means
(*e.g.* hours used or btu input)

Meter sharing examples



Not allowed (monthly and quarterly reporting frequency on same meter and/or different calculation basis)

Meter sharing examples



An option to fix the meter-sharing problem

Device Classifications Other/Misc.

- Various Locations equipment owned by & used at the facility
- Rental equipment used at the facility > 72 hours/quarter
- Equipment not possessing a valid permit

  Emissions calculated as if equipment had a permit.

Device Classifications Other/Misc.

Do not report emissions from:

- Rental equipment or Equipment Operated by a Contractor that is operated <= 72 hours in a quarter.
- Equipment operated by a contractor that does not contribute to the manufacturing process.
- Mobile equipment (forklift & similar vehicles whose engine drives its wheels).

Missing Data

Facility recordkeeping and monitoring will not always be perfect. RECLAIM provides for Missing Data Procedures (MDP) to substitute a value for an inaccurate or unknown value.

- Dependent on device classification
- Becomes more punitive as missing duration increases

Application of MDP for Non-Major Sources

- Rule 2011, App. A, Chapter 3, Par. G
- Rule 2012, App. A, Chapter 3, Par. I
- Rule 2012, App. A, Chapter 4, Par. G

Each has two sub-paragraphs

- Alternative, Equivalent Monitoring Device w/in ± 2% Accuracy (i.e. Gas Co. Meter)
- MDP based on duration of missing data period

Application of MDP for Non-Major Sources

Process Unit or Rule 219

- If missing data is **≤ 1** quarter* - use source's ***average*** quarterly fuel usage for the previous 4 quarters.
- If missing data is **> 1** quarter use source's ***highest*** quarterly fuel usage for the previous 4 quarters.
- If ***no records*** are available – assume source is operating ***24 hours a day at maximum*** rated capacity at an uncontrolled emission factor for each quarter of missing data. (NOx – Rule 2012, App. A, Chap. 4, subpart G)
  (SOx – Rule 2011, App. A, Chap. 3, subpart G)

*If any portion of a quarter is missing MDP applies to the entire quarter.

Application of MDP for Non-Major Sources

Large Source (NOx – Rule 2012, App. A, Chap. 3, subpart I)

- If missing data is **≤ 1** month* - use source's ***average*** monthly fuel usage for the previous 12 months.
- If missing data is **> 1** month use source's ***highest*** monthly fuel usage for the previous 12 months.
- If missing data is **≥ 2** months or no records are available – assume source is operating ***24 hours a day*** at ***maximum*** rated capacity at an uncontrolled emission factor for each month of missing data.

*If any portion of a month is missing MDP applies to the entire month.

Reporting (Interim)

From the date your RECLAIM permit is first issued, you have 12 months to install, operate, and implement all monitoring, recordkeeping, and reporting systems. During that time:

- Large source – submit a monthly paper emission report to SCAQMD, due by the 15th of the month following the emission month
- Process units & Rule 219 – submit a quarterly paper emission report to SCAQMD, to be included with the QCER (described later)

Reporting (Final)

No later than 12 months from RECLAIM permit issuance, a facility must fully implement all reporting procedures.

- Electronic reporting
- Paper certification reporting

Electronic Reporting

Remember this name!

George Haddad
SCAQMD Systems Analyst
909-396-2650
ghaddad@aqmd.gov

Contact Mr. Haddad to arrange for your initial password into the electronic reporting system and for information on any problems you may be having.

Electronic Reporting

2 reporting options for non-major sources

- Using a modem and communication software. Contact Mr. Haddad for details.
- Recommended option – over the Internet. The public interface with SCAQMD is known as WATERS (Web Access to Emissions Reporting System).
  - www.aqmd.gov/waters

Electronic Reporting Rule 2012, App. A, Chap.7

Electronic reporting codes, up to 4 columns:

1st column – transmission identifier

1 – original record, 2 – updated a record, 3 – to delete a record

2nd column – pollutant type

N = NOx, S = SOx

3rd column – RECLAIM category

M = major, L= large, P= process, R = Rule 219

4th column – reporting frequency or reporting description

M = monthly, Q = quarterly, F = by fuel type

Electronic Reporting Frequency

- Large source – monthly, report due by the 15th day of the following month.

  Report for each individual device by device ID and the monthly total for all Large sources (NLM code) (***see next slide)
- Process unit – quarterly, report due by the 30th day after the end of the first 3 quarters, 60th day after the last quarter

  Report for each individual device by device ID and the quarterly total for all Process units (NPQ code)
- Rule 219 – quarterly, report due by the 30th day after the end of the first 3 quarters, 60th day after the last quarter

  Report total aggregate emissions for each fuel type

  Example – NRF for natural gas or NRF for diesel

Electronic Reporting Frequency

*** At the quarterly level, also report quarterly emissions for Large sources and Major sources as applicable

- Quarterly aggregate emissions for all Large sources – NLQ
- Quarterly aggregate emissions for all Major sources - NMQ

Paper Certification Reporting

Quarters 1, 2, and 3 of Compliance Year (including the interim year)

Submit the **Quarterly Certification of Emissions Report** (QCER)

- One page document
- Blank form can be found at:

http://www.aqmd.gov/permit/Formspdf/RECLAIM/AQMDFormQCER.pdf

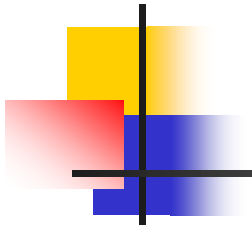
- Due 30 days after the end of the quarter
- You will NOT be reminded to submit this!!

Paper Certification Reporting

Final quarter of Compliance Year (including interim year)

Submit the **Annual Permit Emissions Program** report (APEP).

- SCAQMD will mail you the official APEP forms on colored paper
- You must return the colored papers with a "wet" signature by the responsible official
- Due by the 60th day after the end of the last quarter
- Other than receiving your paper APEP copy, you will NOT receive any other reminder!



QUESTIONS?

RTC TRADE AND RECONCILIATION

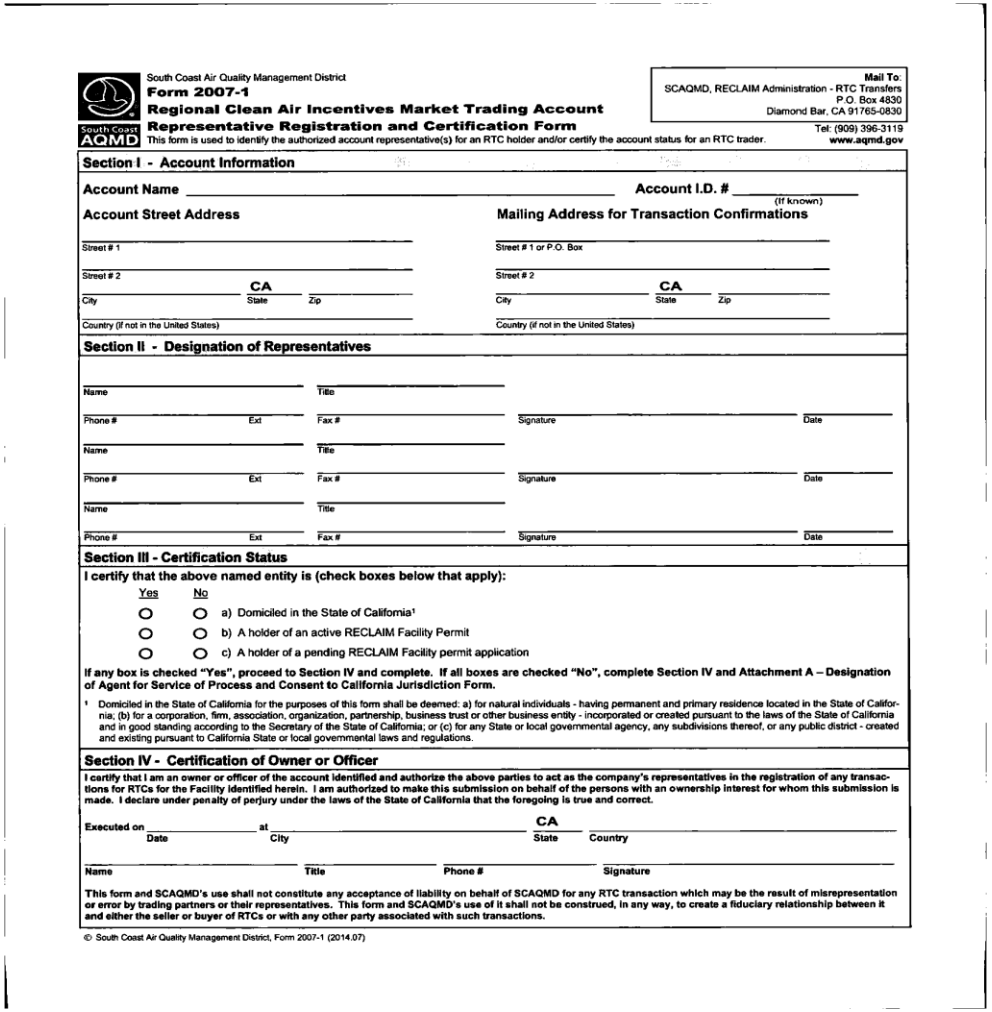
Susan Tsai

RTC Accounts

- Allocation Account
  - Used for compliance determination
  - Used for reported/audited emission deductions
- Certificate Account
  - Used for holding excess RTCs
  - Used for RTCs for trading purpose only
  - Coastal facility holding non-usable Inland RTCs

Buy into or Sell from Both Accounts

Trade Account Registration
Form 2007-1



South Coast Air Quality Management District
Form 2007-1
Regional Clean Air Incentives Market Trading Account
Representative Registration and Certification Form
This form is used to identify the authorized account representative(s) for an RTC holder and/or certify the account status for an RTC trader.

Mail To:
SCAQMD, RECLAIM Administration - RTC Transfers
P.O. Box 4830
Diamond Bar, CA 91765-0830
Tel: (909) 396-3119
www.aqmd.gov

Section I - Account Information

Account Name _____ **Account I.D. #** _____ (If known)

Account Street Address

Street # 1 _____
Street # 2 _____
City _____ State CA Zip _____
Country (if not in the United States) _____

Mailing Address for Transaction Confirmations

Street # 1 or P.O. Box _____
Street # 2 _____
City _____ State CA Zip _____
Country (if not in the United States) _____

Section II - Designation of Representatives

Name _____ Title _____
Phone # _____ Ext _____ Fax # _____ Signature _____ Date _____

Name _____ Title _____
Phone # _____ Ext _____ Fax # _____ Signature _____ Date _____

Name _____ Title _____
Phone # _____ Ext _____ Fax # _____ Signature _____ Date _____

Section III - Certification Status

I certify that the above named entity is (check boxes below that apply):

Yes	No	
○	○	a) Domiciled in the State of California[1]
○	○	b) A holder of an active RECLAIM Facility Permit
○	○	c) A holder of a pending RECLAIM Facility permit application

If any box is checked "Yes", proceed to Section IV and complete. If all boxes are checked "No", complete Section IV and Attachment A – Designation of Agent for Service of Process and Consent to California Jurisdiction Form.

[1] Domiciled in the State of California for the purposes of this form shall be deemed: a) for natural individuals - having permanent and primary residence located in the State of California; (b) for a corporation, firm, association, organization, partnership, business trust or other business entity - incorporated or created pursuant to the laws of the State of California and in good standing according to the Secretary of the State of California; or (c) for any State or local governmental agency, any subdivisions thereof, or any public district - created and existing pursuant to California State or local governmental laws and regulations.

Section IV - Certification of Owner or Officer

I certify that I am an owner or officer of the account identified and authorize the above parties to act as the company's representatives in the registration of any transactions for RTCs for the Facility identified herein. I am authorized to make this submission on behalf of the persons with an ownership interest for whom this submission is made. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on _____ **Date** **at** _____ **City** CA **State** _____ **Country**

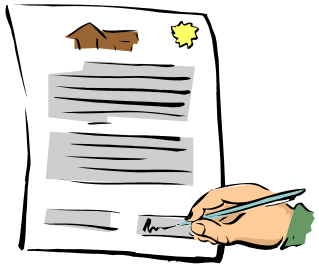
Name _____ **Title** _____ **Phone #** _____ **Signature** _____

This form and SCAQMD's use shall not constitute any acceptance of liability on behalf of SCAQMD for any RTC transaction which may be the result of misrepresentation or error by trading partners or their representatives. This form and SCAQMD's use of it shall not be construed, in any way, to create a fiduciary relationship between it and either the seller or buyer of RTCs or with any other party associated with such transactions.

Trading Process

Negotiate Trade

Signed Trade Registration



Submit Trade

Data Entry/System Checks

- ✓Trader Info
- ✓RTC Data
- ✓Emission Data

Trade Confirmation

Negotiated Trade

- Trading Partners
  - Other RECLAIM facilities
  - Individual RTC Holders
  - Brokers
- Agree Upon Price & Quantity
- Future RTC Trading Allowed

Trade Registration
Form 2007-2

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Regional CLean Air Incentives Market Trading Credits (RTCs) Transaction Registration
Form 2007-2

Name of Buyer/Transferee_____ **Account ID#** _____

Name of Seller/Transferor_____ **Account ID#** _____

Pollutant: NOx ☐ or SOx ☐ (Identify one pollutant only) **Is this part of a Swap transaction? Yes ☐ or No ☐**

Is this form reporting the trade of an Infinite-Year-Block of RTCs? No ☐ Yes ☐

If "Yes," Total Value of Transaction $_____; Enter N/A in the "Price" column below; Report in this form only those RTCs that are traded as part of a single negotiated price. File separate forms to transfer any other RTCs that were negotiated for a separate price.

(Attach a separate form if more than 8 transfers are being registered)

Terms of RTC Transferred			Original Zone (Coastal or Inland)	Quantity (Pounds/year)	Price* ($/Pound)	Use Code (Buyer)	Generation Code (Seller)	Account Source Code (Seller)	Origin of Credits (Seller)	Certificate Serial Number (Seller)
Cycle	From Compliance Year*	To Compliance Year*								
	/ /	/ /								
	/ /	/ /								
	/ /	/ /								
	/ /	/ /								
	/ /	/ /								
	/ /	/ /								
	/ /	/ /								
	/ /	/ /								

* In the "From Compliance Year" Column, fill in the expiration date of the first compliance year RTCs. The "To Compliance Year" Column is used to enter (1) single year transaction, (2) perpetual stream transaction, or (3) multiple year transaction of RTCs of same zone, quantity, and price in a single line. For a single year transaction, mark this column "Single Year Trade". For a perpetual stream transaction, mark this column "All Years After". For a multiple year transaction, fill in the expiration date of the last compliance year. Use separate lines for transactions of different RTCs, quantities or prices. Transactions for all inclusive years between these two columns will be registered. **See reverse side for examples.**

Buyer Use Codes ***(only one code per transaction)***
- 01 Increase RTC Allocation account balance to satisfy annual compliance
- 02 Use under Rule 2005 - New Source Review for RECLAIM
- 03 Increase RTC certificate account balance without issuance of physical certificate.
- 04 Increase RTC certificate account balance with issuance of physical certificate
- 05 Retire RTCs from market without issuance of physical certificate
- 06 Retire RTCs from market with issuance of physical certificate
- 07 Facility Acquisition (Change of Ownership)

NOTE: RTCs in Certificate or Printed Certificate Account must be transferred to Allocation Account to be eligible for compliance use.

Seller Generation Codes
- 01** Process Change
- 02** Addition of Control Equipment
- 03** Production Decrease
- 04** Equipment or Facility Shutdown
- 06 Facility Acquisition (Change of Ownership)
- 07 RTCs for Future Compliance Year, cause of generation not yet been determined

** ***Selection of this Generation Code must be accompanied by the selection of Account Source Code "A" - Allocation Account.***

Seller Account Source Code ***(only one code per transaction)***
- A Allocation Account
- B*** Certificate Account
- C*** Printed Certificate (must list Certificate Serial number and attach certificate to this form)

*** ***This Account Source Code may be selected without providing a Generation Code.***

Origin of Credits
State Rule Number from which the credits were originally issued (e.g. Reg XX, R1631, R2506, etc.)

Answer the following Questions:

A. Is this transaction part of a pooled transactions or market?
☐ Yes → **Attach Form 2007-3 to identify participants (Part A Only)**
☐ No → **Go to Question B**

B. Is seller an agent, broker, or ot[illegible] presenting the owner of RTC ?
☐ Yes → **Attach Form 2007-3 to identify Owner of RTC (Part B Only)**
☐ No → **Complete this form only**

Date when this transaction was agreed upon (trading transaction date): _____ → **Attach purchase agreement or transaction confirmation**

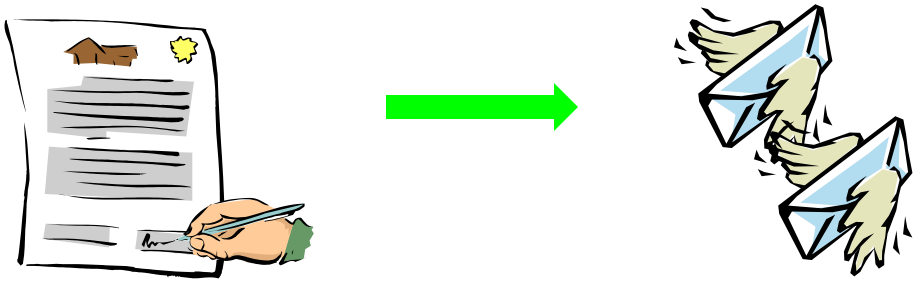
I certify that I am authorized to make this submission on behalf of the affected registered holders of the RTCs listed herein. I certify that the statements are true, accurate, and complete to the best of my knowledge.

_____ _____
Authorized Representative of Buyer/Transferee *(Print Name)* **Authorized Representative of Seller/Transferor** *(Print Name)*

_____ _____ _____ _____
Signature **Date** **Signature** **Date**

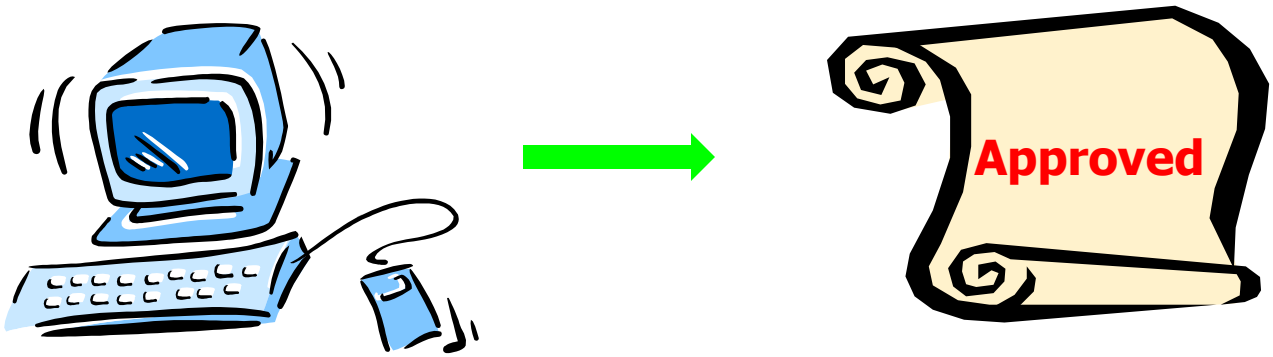
Submit Trades

- Joint Registration Signed by both Parties
- Quantity and Type of RTC
- Relevant Data (Price, Generation, Use)
- Report to AQMD within 5 business days



Trade Approval

- Registered Representatives
- RTC Availability (balance, emissions)
- Multiple Approval Levels
- Update Buyer and Seller Accounts
- Buyer and Seller Confirmation Letters



Trade Confirmation Letter

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
RTC Transfer Confirmation
SCAQMD RECLAIM ADMINISTRATION
P.O. BOX 4830, DIAMOND BAR, CA 91765-0830

BUYER ID: [redacted]

This letter is to confirm that the South Coast Air Quality Management District (AQMD) has received RTC trading information to comply with Rule 2007-Trading Requirements. The following summarizes your company information and the registration information that you and your trading partner specified in Form 2007-2. The transactions have been recorded and the RTC Listing was updated.

Registration No: [redacted]

Recording Date: 5/2/2013
Pollutant: NOX

	TRANSFER FROM:	**TRANSFER TO:**
Company Name :	[redacted]	[redacted]
Facility ID:		
Signing Representative:		
Mailing Address:		

Terms of RTC Transferred			**Original Zone**	**Quantity (lb/yr)**	**Use Code**	**Generation Code**	**Account Source**	**Origin of Credits**
Cycle	**From Compliance Year (*)**	**To Compliance Year (*)**						
2	6/30/2013	6/30/All Years After	INLAND	1,380	03	04	A	REGXX

(*) RTC Expiration Date

TOTAL VALUE OF THIS INFINITE-YEAR BLOCK TRADE IS $6,900.00

Approved By: _____

(Signature)

[redacted]

ASSISTANT DEPUTY EXECUTIVE OFFICER
Engineering & Compliance

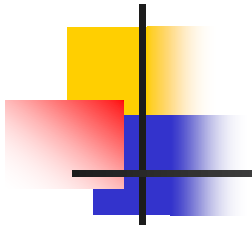
[redacted]

Code Description :
Use Code (03) : Increase RTC certificate account balance without issuance of physical certificate
Generation Code (04): Equipment or Facility Shutdown
Account Source (A) : Allocation

Trade Posting on AQMD Website

ftp://ftp.aqmd.gov/pub/rtc/rtc_listing.xls

- All Trades Submitted Last 90-Days
- Check Recent RTC Trading Prices
- Check Trade Registration Status



QUESTIONS?

What is Reconciliation?

RECLAIM emissions $\leq$ RTCs in facility's Allocation Account *usable* for the same period*

*Be careful with "cross-cycle" RTCs!

Reconciliation Schedule

- Reconcile quarterly emissions within 30 days after the ends of quarters 1, 2, and 3;
- Reconcile year-to-date emissions within 30 days after the ends of quarters 1, 2, and 3;
- Reconcile quarterly emissions within 60 days after the end of quarter 4; and
- Reconcile annual emissions within 60 days after the end of quarter 4.

Reconciliation Steps

- Review records and verify emissions reports
- Submit quarterly electronic emissions reports
- Submit applicable paper report (QCER or APEP)
- Compare emissions to usable RTCs in Allocation Account
- Acquire RTCs through trading if RTCs held < emissions
- May sell excess RTCs if RTCs held > emissions
- Many facilities choose to maintain precautionary compliance margin of 10-20%

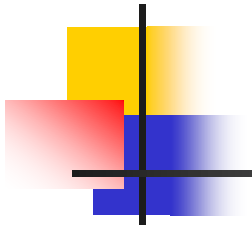
Reconciliation Example

Cycle 1 Facility

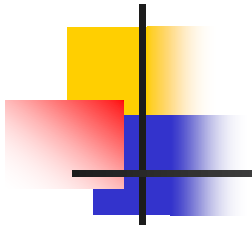
Emissions:	1,000 lb	1,000 lb	1,000 lb	1,000 lb

Holdings:

Cycle 2 2013 (Expire 6/2014)	Cycle 1 2014 (Expire 12/2014)	Cycle 2 2014 (Expire 6/2015)
0	4,000	0
2,000	0	2,000
1,000	2,000	1,000
3,000	1,000	0



QUESTIONS?



MRR FOR MAJOR SOURCES

Don Nguyen

Device Classifications
Major Sources

Major Sources – devices with greatest emission potential.

Examples:

- External combustion device with max. capacity ≥ 40 mmbtu/hr and annual heat input > 90 billion btu
- External combustion device with max. capacity ≥ 500 mmbtu/hr
- Internal combustion engine ≥ 1000 bhp and operated more than 2,190 hrs/year

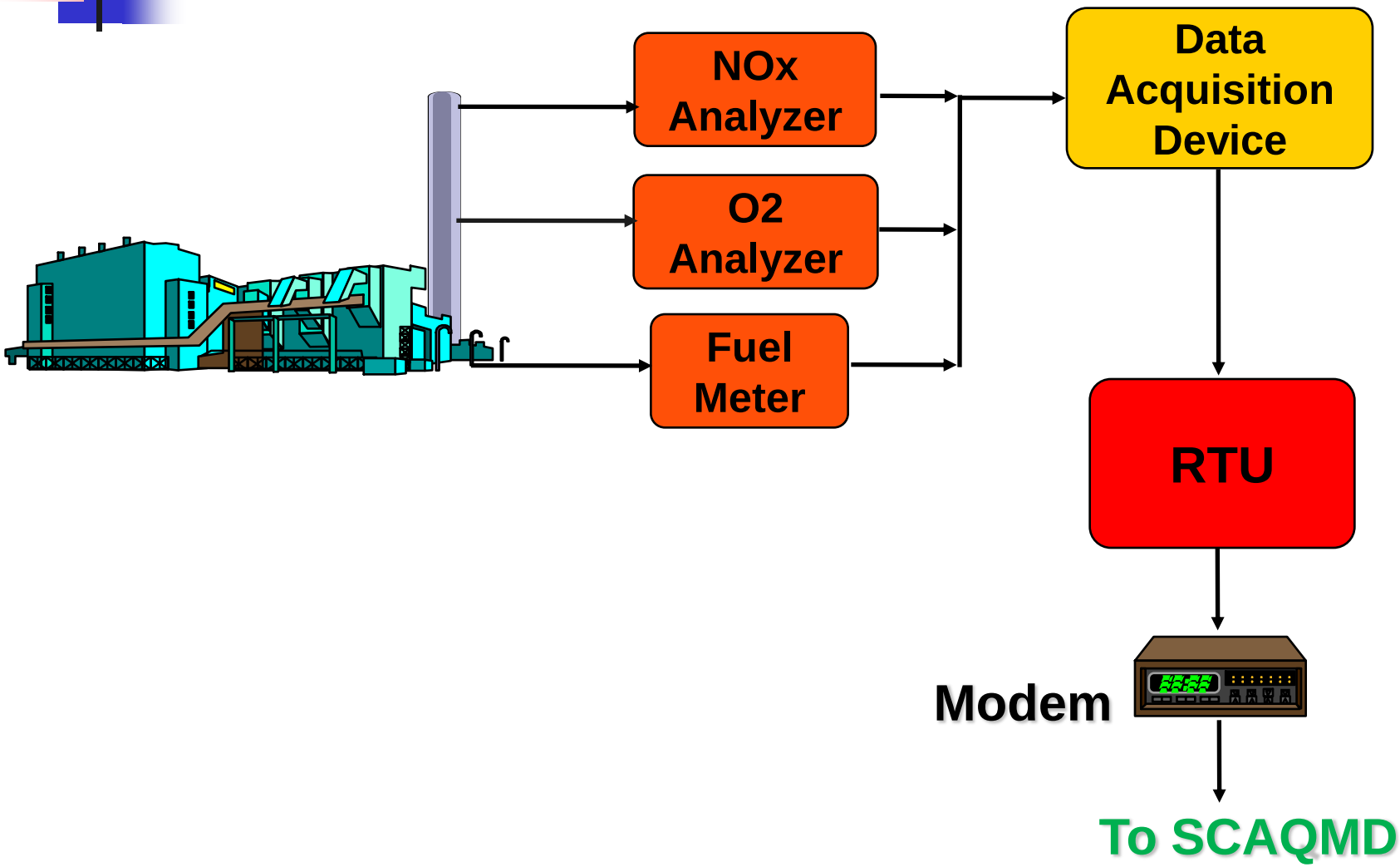
Major Source Interim Reporting

- Applicability
  - Applicable for facilities entering RECLAIM with major sources, and
  - Facilities in RECLAIM adding major sources
- Calculation
  - Mass = Permitted Emission factor x fuel usage
- Reporting
  - Monthly emissions by device
  - Hard copy reports due 15 days after end of each month
  - No later than 12 months after entry for facility entering RECLAIM
  - No later than 12 months after start-up of new major source at RECLAIM facility

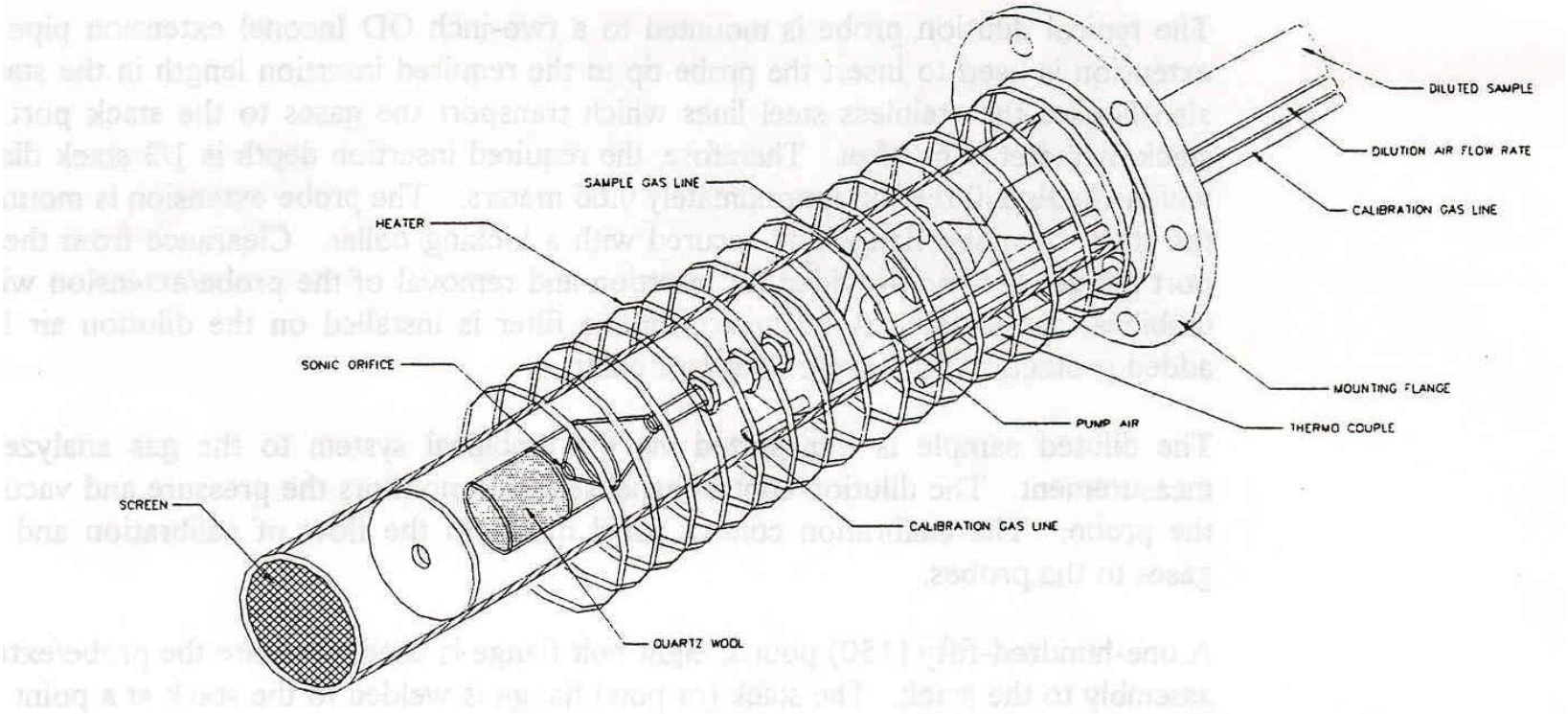
Major Source MRR

- Monitored by Continuous Emission Monitoring System (CEMS)
- Daily automatic electronic reporting
- Data archiving
  - < 15-min. data = min. 48 hrs
  - ≥ 15-min. data = 3 yrs (5 yrs, if Title V)
- Daily calibration and semi-annual or annual Relative Accuracy Test Audits (RATAs)
- Back-up paper strip chart recorder or electronic data logger

CEMS Configuration



Sampling Probe



Heat Trace Line (umbilical)

CEMS shed

Sample Conditioning System

Instrument Panel

Typical Analyzer

Calibration (Span) Gases

Stack Flow Measuring Device

Type S pitot tube

CEMS Application

- Before installing CEMS or modifying existing CEMS, submit an application to SCAQMD Source Testing group.
- Receive Provisional Certification
- Complete installation and testing
- Receive Final Certification
- Start this process early

  Work with Source Testing engineer to resolve questions/concerns

Daily Calibrations

- Concentration ≤ 5% span range,
- O_2 ≤ 1%, or
- Flow ≤ 6% span range

- Test Period

  On each day during which the unit combusts any fuel or processes any material ("unit operating day")

RATA Testing

Concentration (ppm) limit: ≤ 20%

Flow Rate limit: ≤ 15%

Mass Emission Rate limit: ≤ 20%

If all 3 standards are ≤ 7.5%, subsequent test may be conducted annually (within 12 months of the end of the calendar quarter in which the CEMS was last tested).

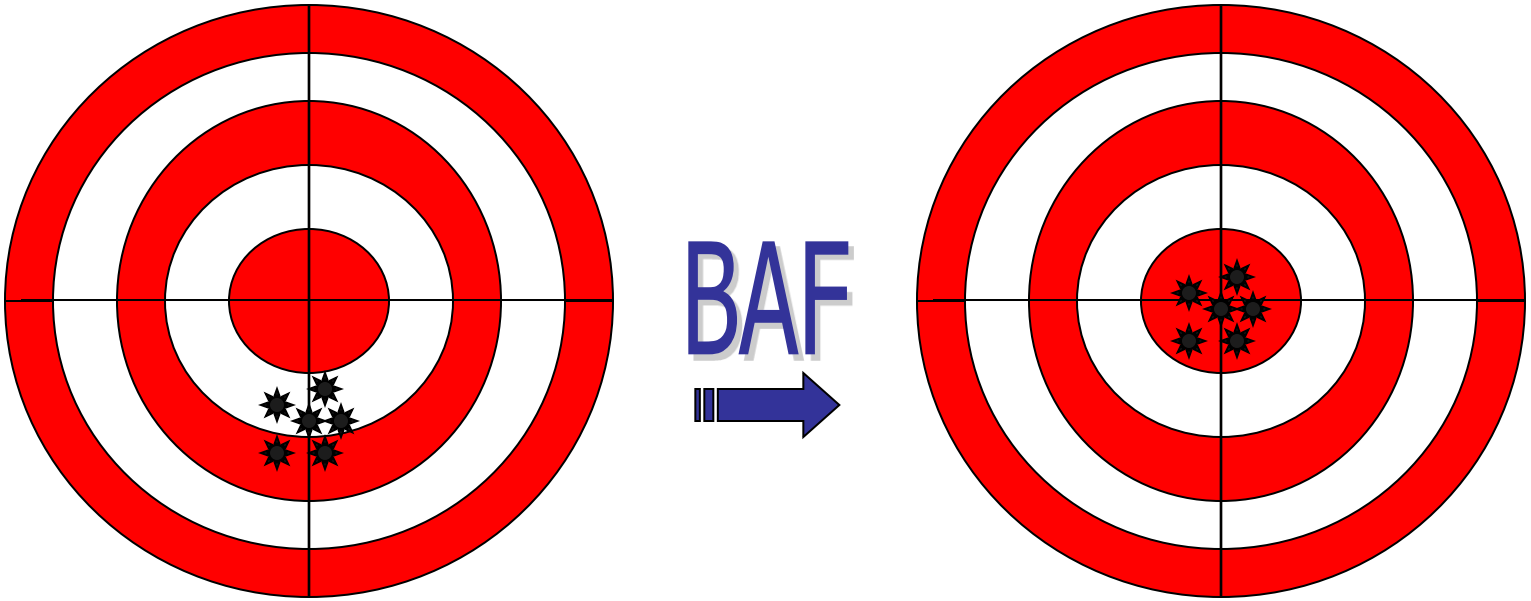
If any standard is > 7.5%, subsequent test must be conducted semi-annually (within 6 months of the end of the calendar quarter in which the CEMS was last tested).

RATA Testing (Bias Adjustment Factors)

RATA will calculate bias adjustment factors (BAFs) for concentration, stack flow, and mass emissions. You are required to include BAF in emission calculations using 1 of 2 options:

- Emission rate BAF alone or
- Concentration and stack flow BAFs together

Bias Factor Reasoning



Precise but not Accurate

Precise and Accurate

Other Major source testing and maintenance

- As prescribed by QA/QC plan
  - Filter & diaphragm replacement
  - NOx converter efficiency check
- As applicable to other regulations
  - Rule 218 CO calibrations and CGAs
  - Federal CFR CGAs or linearity
- Orifice plate fuel meters must be calibrated annually

Major Source Calculations

Must be autonomous

MASS = CONC. x VOLUME

For CEMS with

Stack NOx Concentration Analyzer & Stack Flow Monitor:

NOx = (NOx ppmv) x (Stack Flow Rate) x 1.195 x 10^{-7}

Equation 1, Rule 2012, App. A, Chap. 2

$e = a \times c \times 1.195 \times 10^{-7}$

e = mass of NOx (lb/hr)

a = stack conc. of NOx (ppmv)

c = stack volumetric flow rate (scfh)

Example: a = 40 ppmv

c = 150,000 scfh

e = 0.72 lb/hr

Major Source Calculations

MASS = CONC. x VOLUME

For CEMS with

Stack NOx Conc. Analyzer, Oxygen Analyzer, & Fuel Flow Monitor:
For systems with Fuel Flow Monitor:

lbs. NOx = (NOx ppmv) x (Fuel Flow) x [20.9/(20.9-b)] x F_d x V x 1.195×10^{-7}

Equation 2, Rule 2012, App. A, Chap. 2

$e = (NOx\ ppmv) \times (Fuel\ flow) \times [20.9/(20.9-b)] \times F_d \times V \times 1.195 \times 10^{-7}$

e = mass of NOx (lb/hr)

NOx ppmv = measured stack conc. of NOx (ppmv)

Fuel flow = mmdscfh

b = stack conc. of oxygen (%)

F_d = oxygen-based dry F factor for fuel (dscf/mmbtu)

V = higher heating value of fuel (mmbtu/mmscf)

[1050 or As measured by contin. analyzer]

Equation 2, Rule 2012, App. A, Chap. 2

$e = (NOx\ ppmv) \times (Fuel\ flow) \times [20.9/(20.9-b)] \times F_d \times V \times 1.195 \times 10^{-7}$

e = mass of NOx (lb/hr)

NOx ppmv = 40 ppmv

Fuel flow = 0.05 mmdscfh

b = 3.5 %

F_d = 8,710 dscf/mmbtu (for natural gas)

V = 1,050 mmbtu/mmscf (default value for natural gas)

$e = 40 \times 0.05 \times [20.9/(20.9-3.5)] \times 8710 \times 1{,}050 \times 1.195 \times 10^{-7}$

e = 2.63 lb/hr

Major Source CEMS Calculations

	PPM	FLOW	MASS
Sub-15 min	CEMS	CEMS	
15-min	Avg. valid Sub-15 min	Avg. valid Sub-15 min	15-min ppm x 15-min flow
Hourly	Avg. valid 15-min ppm	Avg. valid 15-min flow	Avg. of valid 15-min mass
Daily			∑ Hourly

MDP for Major Sources

- Dependent on historical availability of analyzers and duration of missing period
- Procedures for Missing NOx/SOx Concentration Data
- Procedures for Missing Stack Exhaust Gas Flow Rate Data
- Procedures for Missing both NOx/SOx Concentration and Stack Exhaust Gas Flow Rate Data

Availability of Concentration or Stack Flow Monitors

W=Y/Z x 100%, where:

- W= the percent annual monitor availability
  (W can be > 100 % if equipment is operated less than 24 hours per day, 7 days per week)
- Y = the total operating hours for which the monitor provided quality-assured data during the period from the date the NOx pollutant concentration/flow monitoring analyzer was provisionally certified or 365 days prior to the current date (not counting the current day), whichever date is later, to the day previous to the current date.
- Z = the total operating hours of the affected piece of equipment during the period from the date the NOx pollutant concentration/flow monitoring analyzer was provisionally certified or 365 days prior to the current date (not counting the current day), whichever date is later, to the day previous to the current date.

Missing NOx Concentration Data

	Missing Data Time Period (x)		
CEMS Availability (w)	x ≤ 3 hrs	3 hrs < x ≤ 24 hrs	x > 24 hrs
w ≥ 95%	1N Procedure Attachment A		Max. hourly recorded conc. for prev. 30 days
90% ≤ w < 95%	avg. recorded conc. of hr. before and after	Max. hourly recorded conc. for prev. 30 days	Max. hourly recorded conc. for prev. 365 days
w < 90%	Lifetime Max. recorded hourly conc. of CEMS		

Missing Stack Exhaust Gas Flow Rate Data

	Missing Data Time Period (x)		
CEMS Availability (w)	x ≤ 3 hrs	3 hrs < x ≤ 24 hrs	x > 24 hrs
w ≥ 95%	1N Procedure Attachment A		Max. hourly recorded flow for prev. 30 days
90% ≤ w < 95%	avg. recorded flow of hr. before and after	Max. hourly recorded flow for prev. 30 days	Max. hourly recorded flow for prev. 365 days
w < 90%	Lifetime Max. recorded hourly flow of CEMS		

MDP for Mass

(Apply when both Concentration & Flow are Missing)

z = Lower of concentration or flow availability

	Missing Data Time Period (x)		
CEMS Availability (z)	x ≤ 3 hrs	3 hrs < x ≤ 24 hrs	x > 24 hrs
z ≥ 95%	1N Procedure Attachment A		Max. hourly valid mass for prev. 30 days
90% ≤ z < 95%	avg. valid mass of hr. before and after	Max. hourly valid mass for prev. 30 days	Max. hourly valid mass for prev. 365 days
z < 90%	Lifetime Max. valid hourly mass of CEMS		

Tiers of Major Source MDP

Tiers	
1N Procedures per Attachment A	Avg. valid hr before and after
Max. valid hourly recorded value for prev. 30 days	
Max. valid hourly recorded value for prev. 365 days	
Lifetime Max. valid hourly recorded value of CEMS	
Max. Rated Capacity, 100% Uptime, & Uncontrolled Emission Factors	

Major Source Electronic Reports

- Daily transmission via modem, due by 5 p.m. of following day. Must happen automatically.
- Emissions and Status Codes
  - Qualitative Report of CEMS Operation for the Day
  - Does not necessarily represent the whole day

Major Source Status Codes

- Status Flags Table [1=True, 0=False]

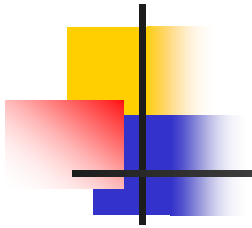
Field	Description
Valid Data	If valid data was obtained for the entire reporting period
Calibration	If the monitoring system was calibrated during the reporting period
Off-line	If the monitoring system was off-line at anytime during the reporting period
Alternative Data Acquisition	If alternative data acquisition was used during the reporting period
Out of Control	If the CEMS was out of control during the reporting period
Fuel Switch	If more than one fuel type was used during the reporting period
10% Range	If concentration was reported at 10% valid range when concentration value was below 10%
Lower than 10% Range	If concentration was reported at an actual value less than 10% valid range
Non-operational	If the RECLAIM source being monitored is non-operational for **entire day**

Major Source Reported Values

record type	device id	amt	rpt date	transmt date	valid data	calib.	offline	alt data	out of ctrl	fuel switch	range 10p	low range	non op	reference_nbr
NM	41	7.63	8/25/2006 0:00	8/26/2006 10:09	1	1	0	0	0	0	0	0	0	Cabc106238100928
NM	41	7.43	8/26/2006 0:00	8/27/2006 10:09	1	1	0	0	0	0	0	0	0	Cabc106239100930
NM	41	0	8/27/2006 0:00	8/28/2006 10:09	1	1	0	0	0	0	0	0	**1**	Cabc106240100935
NM	41	7.13	8/28/2006 0:00	8/29/2006 10:09	1	1	0	0	0	0	0	0	0	Cabc106241100938
NM	41	9.55	8/29/2006 0:00	8/30/2006 10:09	0	1	0	0	0	0	0	0	0	Cabc106242100938

Major Source Electronic Reports

- Must also send monthly aggregate of all major sources (*e.g.* NMM for NOx) and quarterly aggregate of all major sources (*e.g.* NMQ for NOx).
- Transmitted automatically by the Data Acquisition System (DAS).



QUESTIONS?

Contacts

RECLAIM Hotline	(909) 396 - 3119
George Haddad (Questions concerning Username/Password Setup for Electronic Reporting of Emissions)	(909) 396 - 2650