

What is New Source Review (NSR)

- ▼ Federal Program established by the Clean Air Act (CAA)
- ▼ Regulates air pollutants for which there is a National Ambient Air Quality Standards (NAAQS)
- ▼ Design to reduce air emissions in areas not presently meeting the NAAQS from the construction or modification of major sources

Pennsylvania's New Source Review Regulations

- ▼ 25 Pa. Code Chapter 127, Subchapter E
- ▼ Implements the requirements of Title I of the federal Clean Air Act Amendments of 1990
- ▼ Ensures that new or modified source emissions do not interfere with the federally mandated reasonable further progress (RFP) program

Potential to Emit (PTE)



- ▼ The maximum capacity, taking into account all federally enforceable physical or operational limitations, of a source to emit a specific pollutant

NSR Applicability

- ▼ Facilities which submit a plan approval application after January 15, 1994; or facilities which were deactivated > 1 yr. and want to reactivate and are not in compliance w/reactivation requirements in 127.215 **and:**
- ▼ Meet the NSR threshold limits for potential to emit VOCs, NO_x, SO_x, particulate matter, PM-10 precursors, PM-10, lead or CO
- ▼ **NOTE:** Sources installed prior to 1/15/94 that did not obtain a plan approval previously are not retroactively subject to NSR

Major NSR Facility

- ▼ A facility, located in a nonattainment area or having an impact on a nonattainment area, which has the potential to emit a pollutant, including fugitives, equal to or greater than an applicable annual emissions rate in Section 127.203
- ▼ Encompasses all sources, regardless of Standard Industrial Classification (SIC) Codes, which are located on contiguous or adjacent properties under the common control of a person or entity (See Example 1 in NSR Case Studies document)

Major NSR Facility (Cont.)

- ▼ A facility located in a severe (Philadelphia CMSA) area with the potential to emit 25 tpy or more of VOCs or NO_x on or after 11/15/92, is a major NSR facility
- ▼ A facility located in an outside Philadelphia CMSA area with the potential to emit 50 tpy or more of VOCs or 100 tpy of NO_x on or after 11/15/92, is a major NSR facility

Ozone Classification

- ▼ The Philadelphia CMSA is classified as severe nonattainment for ozone
- ▼ The remainder of the state is treated as a moderate ozone nonattainment area for VOCs and NO_x

VOC and NOx NSR Major Source Thresholds Outside the Philadelphia CMSA

- ▼ New facility or modification to an existing non major facility with the potential to emit
 - 100 TPY or more of NOx or
 - 50 TPY or more of VOCs
- ▼ New source at an existing major facility which, when aggregated with the other emissions, increases the potential to emit by: 40 TPY, 1000 lbs/day, or 100 lbs/hr, whichever is most restrictive

See Examples 2,3 and 4 in NSR Case Studies document

VOC and NOx NSR Major Source Thresholds Within Philadelphia CMSA

- ▼ New facility or modification to an existing non major facility with the potential to emit 25 TPY or more of NOx or VOCs
- ▼ New source at an existing major facility which, when aggregated with the other emissions, increases the potential to emit by: 25 TPY, 1000 lbs/day, or 100 lbs/hr, whichever is most restrictive

Criteria Pollutant Thresholds



- ▼ Threshold levels for the other criteria pollutants can be found in section 127.203.

Applicability Determination



- ▼ Identifies whether or not the increase in emissions from a proposed new or modified facility is subject to NSR
- ▼ Determines NSR applicability by calculating the net emissions increases, including fugitive emissions, which are aggregated from all sources on contiguous or adjacent properties under common control of the same person

Major Modification

- ▼ A physical change or change in the method of operation of a major facility that would result in an increase in emissions equal to or exceeding an emission rate threshold or significant level specified in Section 127.203
- ▼ A physical change or change in the method of operation does not include routine repairs and maintenance, a change in the hours of operation or an increase in the rate of production unless prohibited by a permit condition

De Minimis Emission Increase at Major facilities

- ▼ An increase in actual or potential emissions which is below the pollutant threshold limits specified in Section 127.203
- ▼ De minimis emission increases are aggregated during the applicability accounting period described in Sections 127.203 and 127.211
- ▼ Sources of minor significance under Section 127.14 are considered de minimis increases for the purposes of aggregation

Applicability Period Calculations

- ▼ Applicability accounting period begins at the time the source becomes major
- ▼ Applicability accounting period for de minimis emission increases can go back to January 1, 1991 (See Example 6 in NSR Case Studies document)
- ▼ Contemporaneous period for major modification can go back 5 years (See Example 7 in NSR Case Studies document)

NSR Requirements

NSR requirements include:

- ▼ Installation of controls to achieve the Lowest Achievable Emissions Rate (LAER)
- ▼ Any potential to emit increase, which exceeds the threshold limits in Section 127.203, must be offset by sufficient Emission Reduction Credits (ERCs) which are usually generated through reductions in emissions from existing sources or the shutdown of existing sources

LAER - Lowest Achievable Emission Rate

- ▼ The more stringent emission rate of:
 - the limitation imposed by a SIP for that source class or category unless demonstrated unachievable
 - the limitation achieved in practice by the class or category of source
- ▼ May not allow a new or modified source to exceed allowable emissions imposed by an applicable new source performance standard

LAER Requirement

- ▼ Applies to a new or modified facility or source subject to Subchapter E
- ▼ Reevaluation of LAER compliance for a project that:
 - does not begin construction w/in 18 mo. of plan approval
 - discontinues construction for 18 mo. or more.
 - does not complete construction w/in specified time
 - delays a phase for >18 mo. beyond its projected start date

Offset Requirement

- ▼ Every new facility or modification to a facility which is subject to Subchapter E must offset increases in potential to emit with the necessary emission reduction credits (ERCs)

Offset Ratios

<u>Pollutant</u>	<u>Attainment Status</u>	<u>Flue/Fugitive Em.</u>
Particulate,	Primary Nonattainment	1.3:1/5:1
<u>PM-10, SO_x</u>	<u>Secondary</u>	<u>1.1:1/3:1</u>
VOCs , NO _x	Severe Nonattainment	1.3:1/1.3:1
VOCs	Moderate	1.15:1/1.3:1
<u>NO_x</u>	<u>Moderate</u>	<u>1.15:1/1.15:1</u>
<u>CO</u>	<u>Primary Nonattainment</u>	<u>1.1:1/1.1:1</u>
<u>Lead</u>		<u>1.1:1/1.1:1</u>

Alternatives Requirement

An analysis shall be conducted for each proposed new or modified NSR facility of:

- ▼ alternative sites, sizes, production processes and environmental control techniques; and
- ▼ environmental and social costs imposed within the Commonwealth as a result of the facility's location, construction or modification vs. the potential benefits

Compliance Requirement

- ▼ All NSR facilities, located within the Commonwealth, and under common control of the applicant must be in compliance or on a Department approved compliance schedule
- ▼ A responsible official of the facility must certify in writing on a Department provided form as to the facility's compliance status
- ▼ Complete and submit the Compliance History Form to satisfy the compliance reporting requirement

Exemption

- ▼ The NSR requirements may be waived for modifications if the plan approval application demonstrates that:
 - ▼ the primary purpose of the capital expenditure is to comply with new, more stringent regulations; and
 - ▼ the maximum allowable emissions level does not increase

Emissions Reduction Credits



An emission reduction which can be considered as a reduction for the purpose of offsetting emissions increases **must be:**

- ▼ Surplus
- ▼ Permanent
- ▼ Quantifiable and
- ▼ Federally Enforceable

Surplus

- ▼ Emission reductions must be included in the current point source emissions inventory
- ▼ Reductions may not be used to satisfy regulatory requirements such as: NSPS, LAER, RACT, MACT, BACT, and BAT

RACT-NSR INTERFACE

- ▼ RACT is applicable to major sources as of November 15, 1992.
- ▼ ERC baseline must incorporate the effect of RACT in establishing the credible amount of emission reduction
- ▼ Surplus--Reduction beyond the statutory requirements such as RACT
- ▼ In other words, emission reductions necessary to meet NSPS, LAER, RACT, BAT, MACT, BACT and permit limitations, or any limitations required by the CAA or APCA may not be used towards ERC

Example: Given a 250 MMBtu/hr, coal fired boiler with a NO_x emission rate of 0.8 lb/MMBtu was shut down in 1994. The average heat input for the last two years was 500,000 MMBtu/yr. NO_x RACT emission rate was determined to be 0.45 lb/MMBtu.

ERC Calculations:--

$$\text{PTE: } 0.8 \times 250 \times 8760 \times 1/2000 = 876 \text{ TPY}$$

$$\text{Baseline (Pre RACT) emissions: } 0.8 \times 500,000/2000 = 200 \text{ TPY}$$

If the boiler was to be operated with RACT control measures the emissions would be = $0.45 \times 500,000/2000 = 112.5 \text{ TPY}$

Thus: 112.5 TPY ERCs are eligible to be banked.

Example: A 250 MMBTu/hr, coal fired boiler with a NOx emission rate of 0.8 lb/MMBTu was shut down in 1994. The annual heat input average was 500,000 MMBTu for the last two years and the NOx RACT emission rate was determined to be 0.45 lb/MMBTu.

ERC Calculations:

$$\text{PTE: } 0.8 * 250 * 8760 * 1/2000 = 876 \text{ TPY}$$

$$\text{Baseline (PRERACT) emissions: } 0.8 * 500,000/2000 = \mathbf{200 \text{ TPY}}$$

If the boiler was to be operated with RACT control measures the emissions would be = $0.45 * 500,000/2000 = \mathbf{112.5 \text{ TPY bankable ERCs}}$

Permanent



- ▼ Federally-enforceable emissions reductions in an operating permit, or
- ▼ SIP revision
- ▼ Shutdown sources must meet reporting requirements of Section 127.207

Quantifiable

- ▼ Quantify emission reductions using
 - DER methodology
 - EPA methodology
 - Alternate methodology consistent with DER or EPA methodology
- ▼ Emission reductions may be based on emission factors, stack tests, monitored values, operating rates, or production input

Federally Enforceable

- ▼ Emission reductions can be made federally-enforceable through the permitting process, or
- ▼ Submission of a SIP revision to EPA

ERC Generation Techniques

- ▼ Shutdown of an existing facility (Reactivation vs. ERCs w/in 1 yr.)
- ▼ Permanent curtailment of production or operating hours
- ▼ Improved control measures including improved control of fugitive emissions
- ▼ New technology and materials
- ▼ New process equipment
- ▼ Economic Incentive Plan (EIP)

Reactivation vs. ERCs

For a partially or completely shutdown facility, where it is uncertain that reactivation or permanent shutdown and ERC creation is desired, the facility:

- ▼ must file an ERC Registry Application within 1 year of the shutdown and inform the appropriate Regional Office not to amend the permit for ERC creation

or/and

- ▼ must submit a maintenance plan within 1 year of the shutdown and inform the appropriate Regional Office to preserve the inventory of emissions

Facility may change decision regarding reactivation or ERC creation within 1 year of the shutdown

Major Facility ERC Generation

- ▼ Source- reductions or shutdown uses permit condition
- ▼ Facility- shutdown uses permit revocation and inventory transaction
- ▼ Grandfathered Source-
 - reductions- source must get under a permit,
 - shutdown uses inventory transaction

Minor Facility ERC Generation

- ▼ Must meet Major Source requirements (Permanent, Surplus, Quantifiable, Federally Enforceable)
- ▼ For minor facility shutdowns an Economic Incentive Plan (EIP), is the best mechanism to meet the requirements for revision to the SIP.

Minor Facility ERC Generation

- ▼ Emissions from facilities not in the SIP inventory, accounted for in the Area Source Inventory, must be transferred to the Point source inventory
- ▼ The Department can determine that ERCs were approvable at the time the reductions were made if the application form contains the information necessary to demonstrate approvability
- ▼ Minor source application is available from the Department

Bankruptcy ERC Generation

- ▼ ERCs may be generated if all emission fees have been paid, or
- ▼ Agreement with the trustee to pay emission fees for all credits generated

Use of ERCs

A facility may use ERCs :

- ▼ Created internally to net-out of NSR, as internal offsets or for banking and trading
- ▼ Obtained externally to meet NSR offset requirements

Netting (1:1)

- ▼ Outside Philadelphia CMSA: Add proposed potential emission increase from the modification to all potential emissions increases and actual decreases within a contemporaneous period or within the applicability accounting period
- ▼ Inside Philadelphia CMSA: Add proposed potential emission increase with actual emission decreases if the decreases are part of the same project

NOTE: Emissions decreases and increases included in a netting transaction must be processed through the ERC Registry system

Internal Offset

- ▼ Outside Philadelphia CMSA: The use of ERCs generated at the same facility at a 1.15:1 ratio to meet NSR offset requirements beyond the contemporaneous period
- ▼ Inside Philadelphia CMSA: The use of ERCs generated at the same facility at a 1.3:1 ratio to avoid LAER requirements and to meet NSR offset requirements

External Offset

- ▼ Outside Philadelphia CMSA: The use of ERCs generated at an another facility at a 1.15:1 ratio to meet NSR offset requirements
- ▼ Inside Philadelphia CMSA: The use of ERCs generated at an another facility at a 1.3:1 ratio to meet NSR offset requirements

Banked ERCs

- ▼ ERCs banked prior to January 1, 1991 may not be used for emission offsets
- ▼ Department approved ERCs generated prior to January 1, 1991 may be used in applicability determinations for netting purposes, if the increases are offset at the applicable ratio

Emissions Cap

- ▼ Facilities may operate multiple sources under a federally enforceable emissions cap, provided that:
 - existing emissions cap established to avoid an applicable requirements may not be violated
 - The cap may not allow any source to violate other applicable requirements

External use of ERCs (Outside the Philadelphia CMSA)

- ▼ Deposit in the ERC Registry system for banking and trading
- ▼ *External Offsets*- The use of ERCs at 1.15:1 ratio generated at one facility and traded to another facility through the ERC Registry system

ERC Trading Requirements

- ▼ ERCs can not be traded to and used in an area with a higher nonattainment area (NAA) classification than the area in which the ERCs were created
- ▼ ERCs must be acquired for use as offsets from an ERC-generating facility in the same NAA
- ▼ Except
The ERCs may be acquired from a facility located in higher NAA within 2 days transport upwind or within 200 km. of the ERC-using facility

VOC & NOx ERC Trading

The entire state, with the exception of the Philadelphia CMSA severe NAA, is treated as a single, moderate NAA

Proportional Reduction of ERCs

Registered credits will be proportionally reduced at a facility if :

- ▼ new requirements are promulgated that would have required those reductions
- ▼ regulations are promulgated establishing registry reductions to attain the NAAQS or meet other CAA requirements

Expiration of ERCs

- ▼ Overcontrol credits will not expire for use as offsets but are limited to the contemporaneous period for netting purposes
- ▼ Curtailment or shutdown credits are limited to 10 years for offsets and are restricted for contemporaneous period for netting purposes
- ▼ Curtailment or shutdown credits reentered in the registry expire on the original 10 year date and are subject to applicable proportional reductions

Special ERC Rules for NOx or VOC Facilities in the Philadelphia CMSA

- ▶ **Netting**- The use of emission reductions or ERCs at a 1:1 ratio to net de minimis emission increases when generated internally at the same time and as part of the project which results de minimis emission increase (all previous de minimis increases must be internally offset)
- ▶ **Internal Offsets**- The use of ERCs generated internally at a 1.3:1 ratio to meet NSR offset requirements (including de minimis increases not offset by netting)

Special Modification Rules for NO_x or VOC Facilities in the Philadelphia CMSA

- ▼ Netting of de minimis emission increases avoids contemporaneous aggregation
- ▼ If offsets are required:
 - Use of internal offset avoids the LAER requirement
 - Use of external offsets for a facility with the potential to emit <100 TPY, BACT is substituted for LAER
 - Use of external offsets for a facility with the potential to emit >100 TPY, LAER is required
- ▼ In all cases the facility shall comply with plan approval requirements

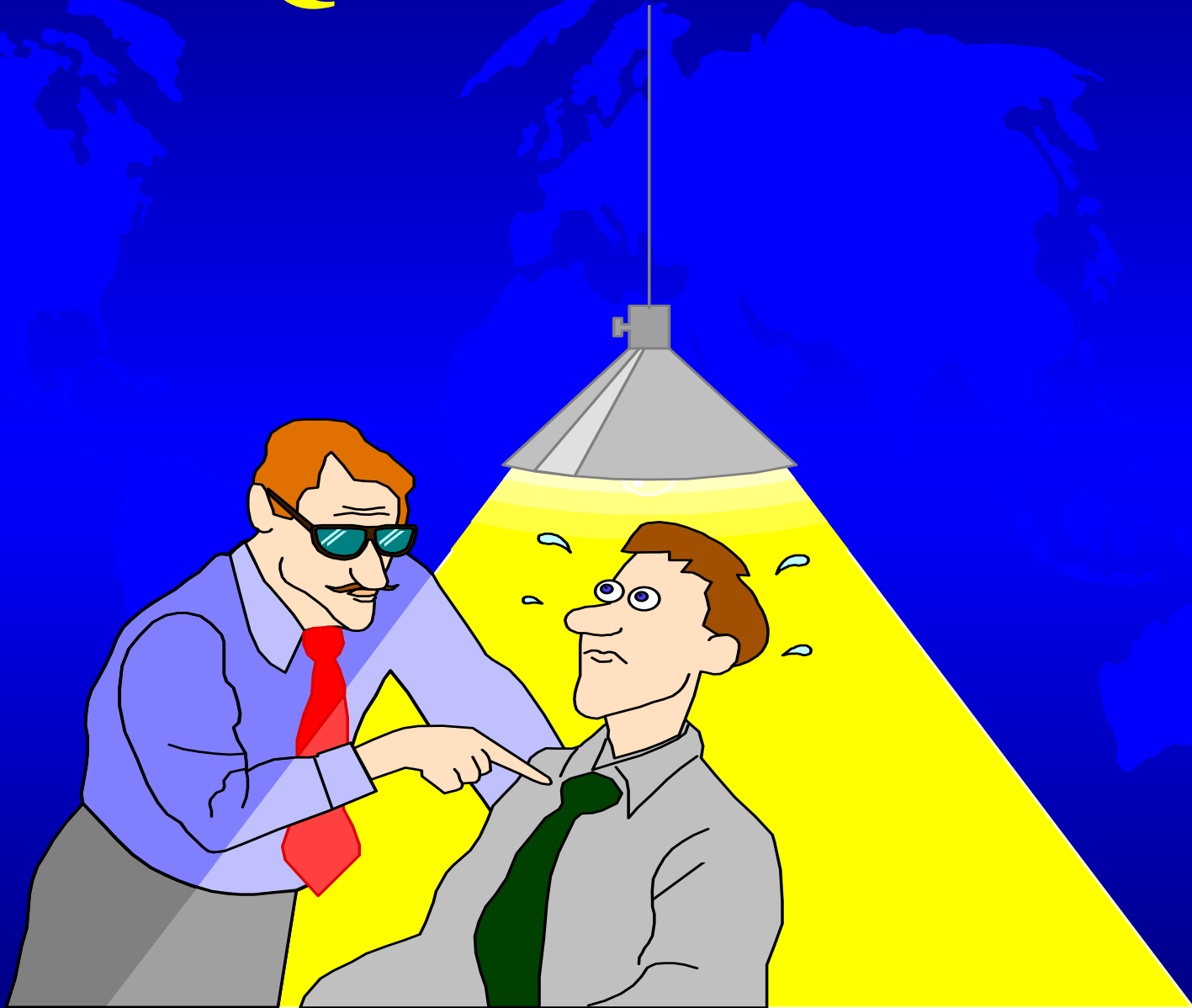
Example - Outside Phila. CMSA

- ▼ Unappealed operating permit has a 99 TPY VOC cap established in 1991 to avoid LAER
- ▼ Facility violates cap and emits 121 TPY
- ▼ Facility now argues TPY cap did not limit potential to emit and wants to increase hours of operation with resulting emissions of 200 TPY
- ▼ Facility **cannot** avoid NSR for emission increases above 138 TPY (99 + 39)

Example - Inside Phila. CMSA

- ▶ Operating permit limits hours of operation to 2,920 annually (1 shift)
- ▶ Cap based on BAT analysis from 1986 plan approval
- ▶ Potential to emit is based on NO_x cap of 60 TPY
- ▶ Facility fails to list operating hours restriction on Title V application
- ▶ Effect of application would increase potential to emit by factor of 3
- ▶ This is a major modification requiring plan approval, offsets, and LAER

Questions?



Title V Status

- ▼ Title V, State Plan Approval and Operating Permit SIP and 112 approval sent to EPA May 15, 1995
- ▼ 2 of 3 permit calls have been made, the timely and completeness clock is running, #3 is expected to go out by the end of July
- ▼ Philadelphia Air Management Service is in the process of adopting the Department's regulation by reference
- ▼ The Department and the Allegheny County Health Department are working together to finalize the county's Title V regulation

Transition Issues

- ▼ Annual operating permit fees for sources located at Title V facilities end September 1, 1995
- ▼ Title V application is the permit renewal application for all existing source operating permits at a Title V facility
- ▼ New or modified sources at a Title V facility must follow the Chap. 127 plan approval and operating permit provisions
- ▼ Sources seeking synthetic minor status must request it by the date that the Title V application was due and submit an application by November 27, 1995

Transition Issues (cont.)

- ▼ Sources applying for synthetic minor status must commit to meeting the emission limitations contained in its application during the review period
- ▼ Sources applying for synthetic minor status, whose 1994 actual emissions were below the “Title V Facility” threshold, do not have to pay emission fees unless denied
- ▼ Synthetic minor sources must follow the state only plan approval and operating permit provisions

Compliance Permits

- ▼ Section 7.2 of the Air Pollution Control Act authorizes compliance permits to address compliance problems
- ▼ Compliance permits can be used to limit or possibly eliminate third party exposure

Title V/RACT/NSR/PSD Interface

- ▼ Emission limitations established as part of RACT, NSR, PSD or BAT approval are applicable requirements for Title V permits
- ▼ Emission caps can be established as part of the Title V operating permit which allow trading within the Title V facility
- ▼ Facilities may generate ERCs through the Title V program or when accepting emission limitations to become a synthetic minor if there are actual emission reductions
- ▼ Attempting to use the Title V operating permit to delete or revise emission or operational limitations established by existing operating permits may trigger NSR requirements