

Section III

Alternative Approaches

Proposals

Miscellaneous

1 ☐ ALTERNATIVE APPROACHES

2 ☐ Alternative Approaches

- Emissions trading
- Marketable permit programs

3 ☐ Emissions Trading

- Types of trading include
 - Bubbles
 - Netting
 - Offsets
- Emission reduction credits
 - Common currency in trading
 - Are surplus emissions not currently required by law
 - Reductions must be enforceable, permanent, quantifiable, and real

4 ☐ Marketable Permit Programs

- California's RECLAIM Program
- Acid Rain/SO₂ Emission Allowance

5 ☐ Reclaim Program

- Establishes emission limit for Reactive Volatile Organics (ROG), nitrogen oxides, and sulfur oxides
- Credits can be traded among sources on a one-to-one mass ratio
- Intrapollutant and intraseasonal trades only
- Emission credits decline over time

6 ☐ Acid Rain/SO₂ Emission Allowance Program

- Allowances bought and sold at prices determined in a free market
- Historic fuel use and CAA emissions limitation basis for allowance allocation
- SO₂ emissions limited to number of allowances
 - Unused allowances can be sold or saved

7 ☐ RESOURCES

8 ☐ Available Resources

- Documents
 - EPA guidance on permitting
 - EPA model permits
- Computer bulletin board systems
 - Technology Transfer Network (TTN)
 - Internet sites

9 ☐ Technology Transfer Network

- Network of 20 bulletin boards operated by OAQPS
- Clean Air Act Amendment (CAAA) Bulletin Board
 - Recently signed rules area contains final rule
 - Subdivided into different Act Titles
- Available 24 hours/day, except Monday 8-12 a.m.

10 ☐ TTN - 2

- Log on by dialing (919) 541-5742 or for instructions on how to become a registered user call systems operator at (919) 541-5384, during normal business hours

11 ☐ TTN - 3

- Bulletin boards include:
 - AIRS: Aerometric Information Retrieval Systems Information
 - AMTIC: Ambient Monitoring Technology Information
 - APTI: Air Pollution Training Institute
 - CAAA: Clean Air Act (Rules/Policy/ Guidance)
 - CHIEF: Emission Inventories/Emission Factors Information

12 ☐ TTN - 4

- COMPLI: COMPLIance Information on Stationary Sources of Air Pollution
- CTC: Control Technology Information
- EMTIC: Emission Measurement Technical Information
- FACA: (O₃/PM/RH) Ozone, PM, and Regional Haze Implementation
- GEI: Geographic/Ecosystems Initiatives
- ICCR: Industrial Combustion Coordinated Rulemaking

- NATICH: National Air Toxics Information

13 TTN - 5

- NELAC: National Environmental Laboratory Accreditation Committee
- NSR: New Source Review Information
- OMS: Mobile Sources Information
- ORIA: Radiation and Indoor Air Information
- OTAG: Ozone Transport Assessment Group
- RBLC: RACT/BACT/LAER/ Clearinghouse (Formerly BLIS)

14 TTN - 6

- SBAP: Small Business Assistance Program Information
- SCRAM: Regulatory Air Models/ Information

15 TTN - 7

- Also available on Internet in "original" form and as "TTN 2000", including htm/files
- Address is: <http://ttnwww.rtpnc.epa.gov/>

16 Federal Register via Internet

- Go to: [Listserver @ unixmail.rtpnc.epa.gov](mailto:Listserver@unixmail.rtpnc.epa.gov)
- Enter: Subscribe *** your first name your last name
 - *** is the service you want (e.g., EPA-AIR)

17 EPA's Online Library System (OLS)

- Access number is (919) 549-0720 (modem)
- Internet access: <http://www.epaibm.rtpnc.epa.gov>
- Numerous books, reports and articles

18 NSR Reform Proposal

19 NSR Reform Package

- Proposed July 23, 1996
- First Comprehensive Changes in 15 Years
- Intended to:
 - Reduce Number and Types of Activities Subject to Major NSR

- Address Class I Impact Concerns
- Promote Innovative and Preventive Tech.

20 ☐ “Clean” Unit Exemption

- Changes Which Do Not Increase a unit's Maximum Hourly Emissions Would Not Trigger Major NSR
- A Change In Feedstock Is Exempt If
 - The Control Technology Is Designed to Control That Feedstock *And*
 - The Unit Was Permitted to Use That Feedstock

21 ☐ A Clean Unit Is One With...

- BACT Or LAER Limits Set Within the Last 10 Years
- Equivalent Limits Set By an EPA-Approved State Technology Review Program
- Limits Found Equivalent on a Case-by-Case Basis (With Public Notice)

22 ☐ Clean Facility Exclusion

- Applies to Existing Facilities Which Have
 - Installed Major BACT or LAER *And*
 - Undergone an Air Quality Impact Analysis
- Can Make Any Change Consistent With PSD or NSR Permit
 - Except Add New Units or Make Emission Trades Not Evaluated for Air Impacts
 - Replacement or Reconstruction Is Allowed

23 ☐ Netting Baseline

- Actual Emissions Prechange Baseline = Highest Consecutive 12 Months During the Most Recent 10 Years
 - Replaces Utility “Any 2 Years in 5” Baseline
 - In Nonattainment Areas/Ozone Transport Regions, 12 Month Period Must Start After 11/15/90
- Does NOT Extend Contemporaneous Netting Period (Still 5 Years)

24 ☐ Pollution Control Projects

- Not Subject to NSR If
 - Add-on Controls
 - Switch to Less Polluting Fuel

- Pollution Prevention Project
- Cannot Result in Emissions Increase That Would Cause or Contribute to NAAQS or Increment Exceedance (Including AQRVs in Class I Areas)

25 ☐ Pollution Control Projects...2

- Project Must Be Environmentally Beneficial
- NOT a Pollution Control Project:
 - Replacement of an Existing Unit With a Newer or Different One (Even If More Efficient and Less Polluting)
 - Reconstruction of an Existing Unit
 - Production of Pollution Control/Prevention Equipment or Less-Polluting Fuels or Raw Materials

26 ☐ Pollution Control Projects...3

- Emissions Increases Determined Using Representative Actual Annual Emissions (WEPCO Approach)
 - If No Increase In Utilization, Compare Emission Rates at Current Operating Level
 - If Increases Utilization, Project Post-Change Operating Level
- Minor NSR Used to Review PCP

27 ☐ Pollution Control Projects...4

- Emission Reduction Credits Allowed If
 - No Significant Collateral Increase in Actual Emissions of Any Criteria Pollutant
 - Project Environmentally Beneficial
 - All Other Applicable Crediting Criteria Met
 - Quantifiable
 - Surplus
 - Permanent
 - Enforceable

28 ☐ Plantwide Applicability Limits (Pals)

- *Voluntary*, Federally Enforceable Plantwide Emission Limitation
 - Major NSR Not Required for Changes As Long As Plant Emissions Do Not Exceed PAL
 - Alternative to Case-by-Case Modification Applicability Determinations
 - Can Reconfigure Product Lines, Change Products

29 ☐ Pals...2

- Advantages (Per EPA)
 - Increased Operational Flexibility
 - Certainty Regarding Baseline Emissions
 - Decreased Permitting Burden
 - Incentive for Source to Accommodate Growth by Reducing Existing Emissions
 - Reduction of "Paper" Emissions in System
- Intel Permit Cited As Example

30 ☐ Pals...3

- PAL Levels
 - Plantwide Actual Emissions, Including a Reasonable Operating Margin (Less Than the Significance Level)
 - In Nonattainment Areas, a Level Established Pursuant to Recent Major NSR Where Levels
 - Were Completely Offset And
 - Relied Upon in an EPA-Approved Attainment Demonstration

31 ☐ Pals...4

- Issue: Applying BACT/LAER for PAL Increase Related to Production Increase. Apply Control to:
 - All Mods That Have Occurred Under PAL?
 - All Mods Since Last PAL Renewal?
 - All Mods Under PAL in Last 5 Years?
 - Only Mods Associated With Increase?
 - Entire Facility, But Only Where Appropriate?

32 ☐ Pals...5

- PAL Review/Adjustments: When/How?
 - Technical Errors or New Data?
 - When New Requirements Lower Limits?
 - Generation of Offsets/Reductions?
 - When PAL Change May Contribute to Violation of NAAQS or Increment or AQRV?
 - During Periodic Review (Title V)?

33 ☐ Pals...6

- Potential PAL Limitations
 - Serious and Above Nonattainment Areas
 - 25 Ton/5 Year Stipulation
 - "Any Increase" Extreme Area Stipulation
 - Changes Which Affect Impact Area

34 ☐ Actual-to-Future-Actual Method

- Allowed for All Utility Existing Unit Mods
 - Can Predict Future Utilization
 - Can Exclude Demand Growth
- EPA Undecided on Whether To
 - Continue for Utilities Only
 - Extend to All Sources
 - Eliminate Completely

35 ☐ BACT & LAER Determinations

- Proposals Intended to Increase Certainty
 - Define What Information Must Be Considered
 - Set Time After Which New Technology Need Not Be Considered

36 ☐ BACT & LAER...2

- Documents to Consider
 - RACT/BACT/LAER Clearinghouse
 - Part C and D Permits
 - Major Source Limits in EPA-Approved Sips
 - NSPS and NESHAP Standards and Limits
 - Alternative Control Technology Documents
 - Control Techniques Guidelines

37 ☐ BACT & LAER...3

- Limiting Consideration of New/Emerging Technologies
 - Authorizes Permitting Authority to Establish Cut-off Date
 - After Complete Application Filed
 - Unless Commenter Provides Information That Warrants Further Consideration

38 ☐ Undemonstrated Control
Technology/ Application

- EPA Proposes to Encourage
 - Can Be "Comparable" Control in Attainment Areas
 - Must Be "Equal" Control in Nonattainment Areas
- Failures May Be "Marginal" or "Gross"
 - May Allow Marginal Failures to Keep Control
 - Gross Limit Not to Be Exceeded

39 ☐ UT/A...2

- Incentives
 - Offsets for Surplus Nonattain. Area Reductions
 - Credits in PSD Areas
- Duration: 2 Years From Startup or 5 Years From Permit Issuance, Whichever Is Earlier
- Expect to Limit Number of Waivers for Same System

40 ☐ Class I Protection

- Air Quality Related Value (AQRV) Would Be a Scenic, Cultural, Physical, Biological, Ecological, or Recreational Resource in a Class I Area
- Adverse Impacts on AQRVs Are Deleterious Effects That Interfere With the Management, Protection, Preservation, or Enjoyment of the AQRVs

41 ☐ Class I...2

- Federal Land Manager (FLM) or Governing Body Determines AQRVs
- Comment Sought on Timing of FLM Notices, Who Must Conduct Studies, Coordination Between Permitting Agency and FLM
- Adverse Impacts Can Be Mitigated
- Significant Impact Levels Proposed

42 ☐ Subsequent Title V Developments

43 ☐ June 10, 1995 Memo

Policy Changes

On
Modifications

- 44 Permit Revisions - Title I NSR Modifications
(Memo)
- Definition of modification (broad versus narrow)
 - Current part 70 unclear on definition of modification
 - Does the definition include minor NSR changes?
- 45 Permit Revisions - Title I NSR...2
- Most states interpret modification as not including minor NSR changes
 - Washington State program includes narrow definition (approved by EPA)
- 46 Permit Revisions - Title I NSR...3
- States using the narrow definition are fully approvable
 - Minor NSR changes will be considered as off-permit change rather than significant modification
- 47 Permit Revisions - EPA Veto
- EPA Will Waive Veto Authority
 - For Less Environmentally Significant Changes
 - For a 5 Year Period
 - Unless Agrees With Citizen Petition
 - May Continue Waiver Beyond 5 Years If Audit Indicates Good State Program

48

49 Title V Supplemental Proposal

50 Original Schedule

- 1
- August 31, 1995
 - October 30, 1995
-
- March, 1996

- 1998

- 1999

[2]

- FR Date of Publication
- End of 60 Day Public Comment Period
- Projected Promulgation of Revised Part 70 Rule
- Submittal of State Program Revisions
- EPA Approvals of State Program Revisions

51 Observations

- Current Part 70 Remains In Effect (No Stay by Court)
- Public Comment Period is Closed But Aspects Not Related to Permit Revisions Also will be Addressed in 1996 Promulgation
- States Can Combine into One Rulemaking Corrections from Interim Approval and Part 70 Revisions

52 Remember,

- These are PROPOSED Changes
 - May Be Revised
 - Will Not Take Effect Until Promulgated
- In Contrast, White Paper Is Final Policy

53 Supplemental Proposal (SP)

- Published 8/31/95 in Federal Register
- Proposed Approach Must Be Promulgated Before It Becomes Effective

54 Permit Revision Required for Changes That...

- Could Not Be Operated Without Violating an Existing Permit Term
- OR
- Make Source Subject to a New Applicable Requirement

55 Acid Rain Exemption

- Revisions to Acid Rain Portion of Permit Are Governed by Title IV Regulations

56 Public Notice Required

- Prior to Change OR
- After Change
 - At Least Quarterly
 - Agency Must Allow Public Access to Records

57 ☐ Types of Changes

- A. Changes Subject to a State Review Program
 - 1. More Environmentally Significant (MES) Changes
 - 2. Less Environmentally Significant (LES) Changes

58 ☐ Types of Changes-2

- B. Changes NOT Subject to a State Review Program
 - 1. MES Changes
 - 2. LES Changes

59 ☐ Type A.1. Changes

- Defined in State Program
- Must Include
 - Major NSR Changes
 - Projects That Would Have a Significant Emissions Increase (Even If Source Elects to Net Out of Major NSR Review)
- 112(g) Changes
- Other Changes Identified by Agency

60 ☐ Type A.1. Procedures

- Public, EPA, Affected States Notified, Comment on Change and Draft Permit Terms
- Agency Issues Document Describing Requirements and Change
- Document Attached to or Incorporated Into (Unitary Permits) Part 70 Permit

61 ☐ Type A.2. Changes

- Minor NSR Changes (Except Projects With Pre-Netting Significant Increase)
- Source-Specific SIP Revisions
- Other (As Approved in Program)

62 ☐ Type A.2. Procedures

- Public Review Procedures Can Vary Based on Environmental Significance of Change
- Agency can Designate Certain Changes as De Minimis
 - Require EPA Approval
 - Can Postpone Review Until Permit Renewal

63 ☐ Type A. Changes-Timing

- Source Must Receive Revised Permit Before Making Change UNLESS Pre-revision Change Allowed in State Rule
- Source, For Pre-revision Changes, Must Notify Agency Upon Operating Change

64 ☐ Type A. Timing-2

- Notice Content
 - Description of Change
 - Applicable Requirements
 - Part 70 Terms and Conditions
 - Compliance Statement
- Notice Attached to Permit
- If Change Conflicts With Current Permit, Pre-revision Change Not Allowed

65 ☐ Type B Changes

All Changes Not Otherwise Reviewed by the State Agency

66 ☐ Type B.1. Changes-Applicability

- Defined by Agency
- Must Include (Unless Type A):
 - 112(j) MACT and 112(l) Limits
 - Alternative 112(i)(5) or Part 70.6(a)(1)(iii) Limits
 - Limits Establishing PTE, Including Minor Source Status
 - New/Alternative Non-Authorized Monitoring Methods

67 ☐ Type B.1. Procedures

- Same Process as Initial Permit Issuance
- Agency to Complete Majority of Changes Within 6 Months of

Receipt of Complete Application

68 Type B.2. Applicability

- Defined by Agency
- Includes (Unless Type A):
 - Alternative Operating Scenarios
 - Monitoring Terms
 - Revisions to PTE
 - 112(d) Emissions Averaging Restrictions

69 Type B.2. Procedures

- Can Vary By Environmental Significance
- Three Types of Changes
 - Administrative (B.2.a.)
 - De Minimis (B.2.b.)
 - Other (B.2.c.)

70 Type B.2.a. Administrative Changes

- Correcting Typos
- Minor Administrative Changes
- More Frequent Monitoring, Reporting, Recordkeeping
- Change in Ownership or Control
- Incorporating a Compliance Schedule
- De Minimis Changes

71 Type B.2.a. Changes-Timing

- Source or Agency Generates Notice
- Permit Revised When
 - Source Mails Notice OR
 - Agency Attaches Notice to Permit
- Agency Can Allow Pre-Notice Implementation of Change

72 Type B.2.b. Changes-Timing

- These Are De Minimis Changes
- Agency Can Postpone Review Until Permit Renewal

73 Type B.2.c. Changes

- For Changes That
 - Trigger New or Different Applicable Requirement(s), But Which
 - Source Can Make Without Agency Approval
- Source Submits Notice Upon Commencing "Operation" of Change

74 ☐ Type B.2.c. Changes-2

- Notice
 - Describes Change
 - Lists Requirements
 - Lists Permit Terms and Conditions
 - States That Source Will Comply With All Requirements
- Mailing of Notice Revises Permit

75 ☐ Combination Changes

If Mix of Type A and Type B Changes

- Process All Changes Per Type A Review
- IF Type A Review Includes All Elements of Type B Review

76 ☐ Permit Shield

Agency Can Provide Shield For...

- Type A.1. and B.1. (MES) Changes
- Terms Added As a Result of EPA Objection
- Any Type A.2. or B.2. (LES) Change Undergoing Public and EPA Review

77 ☐

Section IV

NSR Reference Materials

NSR Values Table

Important New Source Review (NSR) Values

| NSR Regulated Pollutant | Major Source Thresholds, tpy | | Averaging Time Period | Form ¹ | NAAQS ² | | | | PSD Increments ($\mu\text{g}/\text{m}^3$) | | | Significant Emissions Increase | Significant Impact Levels | Monitoring <i>de minimis</i> Levels |
|--|------------------------------|----------------------|-----------------------|-------------------|----------------------------------|-------|------------------------------------|-------|---|-----|----------------------|--------------------------------|---------------------------|-------------------------------------|
| | PSD ³ | NAA ⁴ | | | Primary $\mu\text{g}/\text{m}^3$ | ppm | Secondary $\mu\text{g}/\text{m}^3$ | ppm | Area Classification | I | II | | | |
| PM-10 ⁵ | 250/100 ⁶ | 100/70 ⁷ | 24 hour | a | 150 | -- | 150 | --- | 8 | 30 | 60 | 15 | 5 | $\mu\text{g}/\text{m}^3$ |
| | | | Annual | b | 50 | -- | 50 | -- | 4 | 17 | 34 | | 1 | -- |
| PM-2.5 ⁸ | 250/100 | 100 | 24 hour | c | 65 | -- | 65 | --- | ? | ? | ? | ? | ? | ? |
| | | | Annual | d | 15 | -- | 15 | -- | ? | ? | ? | | ? | ? |
| SO ₂ | 250/100 | 100 | 3 hour | e | -- | -- | 1300 | 0.5 | 25 | 512 | 700 | 40 | 25 | -- |
| | | | 24 hour | e | 365 | 0.14 | -- | -- | 5 | 91 | 182 | | 5 | 13 |
| | | | Annual | f | 80 | 0.03 | -- | -- | 2 | 20 | 40 | | 1 | -- |
| NO ₂ | 250/100 | 100 | Annual | f | 100 | 0.053 | 100 | 0.053 | 2.5 | 25 | 50 | 40 | 1 | 14 |
| | | | 1 hour | g | 235 | 0.12 | 235 | 0.12 | -- | -- | -- | | -- | -- |
| Ozone ¹⁰ (VOC/NO _x) | 250/100 | 25/10 ¹¹ | 8 hour ¹³ | h | 157 | 0.08 | 157 | 0.08 | -- | -- | -- | 40/25/any ¹² | -- | -- |
| | | | 1 hour | e | 40,000 | 35 | -- | -- | -- | -- | -- | | -- | 100 |
| CO | 250/100 | 100/50 ¹⁴ | 8 hour | e | 10,000 | 9 | -- | -- | -- | -- | -- | 100 | 500 | 575 |
| | | | Calendar Quarter | i | 1.5 | -- | 1.5 | -- | -- | -- | -- | | 0.6 | -- |
| Particulate Matter (TSP) | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 25 | -- | -- | -- |
| Fluorides ¹⁶ | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3 | -- | 0.25 (24-hr average) | -- |
| Sulfuric Acid Mist | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7 | -- | -- | -- |
| Hydrogen Sulfide (H ₂ S) | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10 | -- | 0.2 (1-hr average) | -- |
| TRS ¹⁷ | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10 | -- | 10 (1-hr average) | -- |
| RSC ¹⁸ | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10 | -- | 10 (1-hr average) | -- |
| ODS ¹⁹ | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Any Increase | -- | -- | -- |
| MWC ²⁰ Acid Gases | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 40 | -- | -- | -- |
| MWC Metals | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 15 | -- | -- | -- |
| MWC Organics ²¹ | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.5x10 ⁻⁶ | -- | -- | -- |
| MSWL ²² Emissions | 250/100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 50 | -- | -- | -- |

¹ The form of the NAAQS is expressed as follows:

- a) 99th percentile of concentrations in a given year, averaged over three years
- b) Annual arithmetic mean, averaged over three years
- c) 98th percentile of concentrations in a given year, averaged over three years
- d) Annual arithmetic mean (from single or multiple monitors), averaged over three years
- e) Not to be exceeded more than once per calendar year
- f) Annual arithmetic mean
- g) Not to be exceeded more than three times in three consecutive years
- h) Three-year average of annual 4th-highest daily maximum 8-hr concentration
- i) Maximum quarterly arithmetic mean

² National Ambient Air Quality Standards are ambient concentrations that are applicable nationwide and are not to be exceeded. NAAQS have been established for only 6 pollutants. Areas exceeding a NAAQS are classified as nonattainment areas (NAA).

³ The Prevention of Significant Deterioration program applies to attainment areas (which meet the NAAQS) and unclassifiable areas. An area may be attainment for some pollutants and nonattainment for others.

⁴ Areas exceeding a NAAQS are classified as NAA for that pollutant; these have different major source thresholds. States must develop attainment plans for such areas.

⁵ The NAAQS for PM-10 replaced the NAAQS for the form of particulate matter called Total Suspended Particulate (TSP) on 7/31/87. The PSD increments for TSP were replaced with increments for PM-10 on 6/3/94. However, some States have not yet switched to PM-10, so are still regulating TSP, while a few States have elected to regulate both TSP and PM-10.

⁶ PSD source categories listed in the rule have a 100 tpy threshold; all other source categories have a 250 tpy threshold.

⁷ The threshold is 70 tpy in serious PM-10 nonattainment areas.

⁸ The new PM-2.5 NAAQS was promulgated on July 18, 1997 and will remain in effect in all areas, in addition to the PM-10 standard. Monitoring criteria for PM-2.5 have not yet been developed.

⁹ PSD increments and significant emission rates have not yet been established for PM-2.5.

¹⁰ VOC emissions are regulated as ozone precursors in both nonattainment and attainment/unclassifiable areas. NO_x emissions are regulated as ozone precursors only in nonattainment areas and only in those nonattainment areas where a §182(f) exclusion for NO_x as an ozone precursor has not been granted.

¹¹ VOC and NO_x major source thresholds are 100 tpy in marginal and moderate areas, 50 tpy in serious areas, 25 tpy in severe areas, and 10 tpy in extreme areas. In ozone transport regions the thresholds are 50 tpy for VOC and 100 tpy for NO_x.

¹² VOC and NO_x significant emissions increase levels are 40 tpy in attainment/unclassifiable, marginal nonattainment, moderate nonattainment, and serious nonattainment areas; 25 tpy in severe nonattainment areas; and any increase in extreme nonattainment areas. Increases in serious and severe nonattainment areas are also affected by §182(c)(6), which limits aggregated VOC and NO_x emissions increases over a five-year period to less than 25 tpy to avoid major NSR. Internal offsets provide an alternative.

¹³ The new 8-hour ozone NAAQS was promulgated on July 18, 1997. The 1-hour standard will remain in effect for ozone nonattainment areas only.

¹⁴ The threshold is 50 tpy in serious CO nonattainment areas.

¹⁵ The monitoring *de minimis* level for lead is a three-month arithmetic average, as compared to a calendar quarter arithmetic average for the lead NAAQS.

¹⁶ Includes fluoride compounds other than hydrogen fluoride (HF), which was removed from NSR regulation by the 1990 Clean Air Act Amendments (CAAA).

¹⁷ Total Reduced Sulfur, which includes hydrogen sulfide (H₂S)

¹⁸ Reduced Sulfur Compounds, including H₂S.

¹⁹ These are the 80+ compounds designated as Stratospheric Ozone Depleting Substances (ODS) in 40 CFR 82. Most are CFC's and halons.

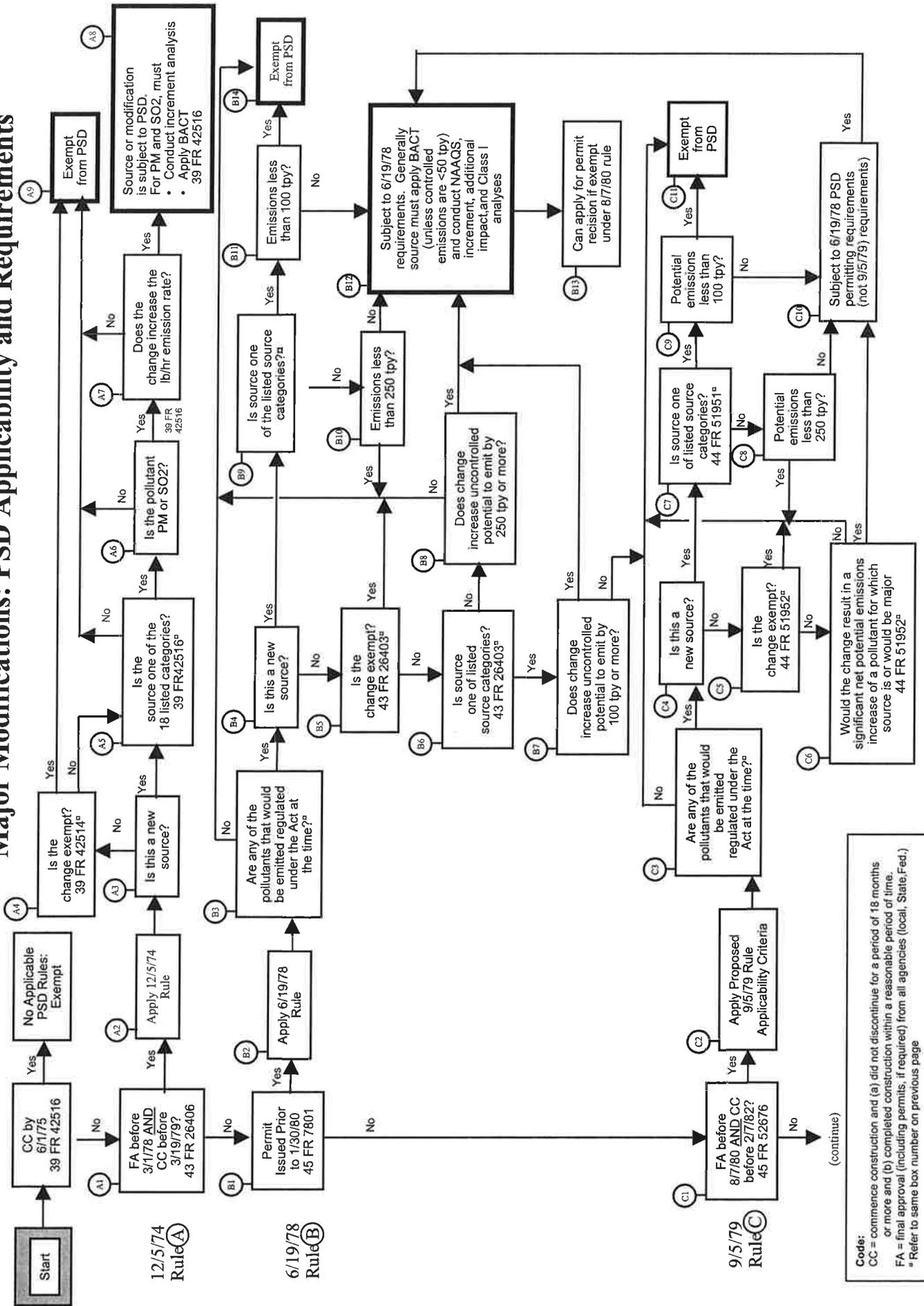
²⁰ Municipal Waste Combustors

²¹ Organics in this case are defined by the test method and consist of dioxins and furans.

²² Municipal Solid Waste Landfill

NSR
Applicability
Diagram

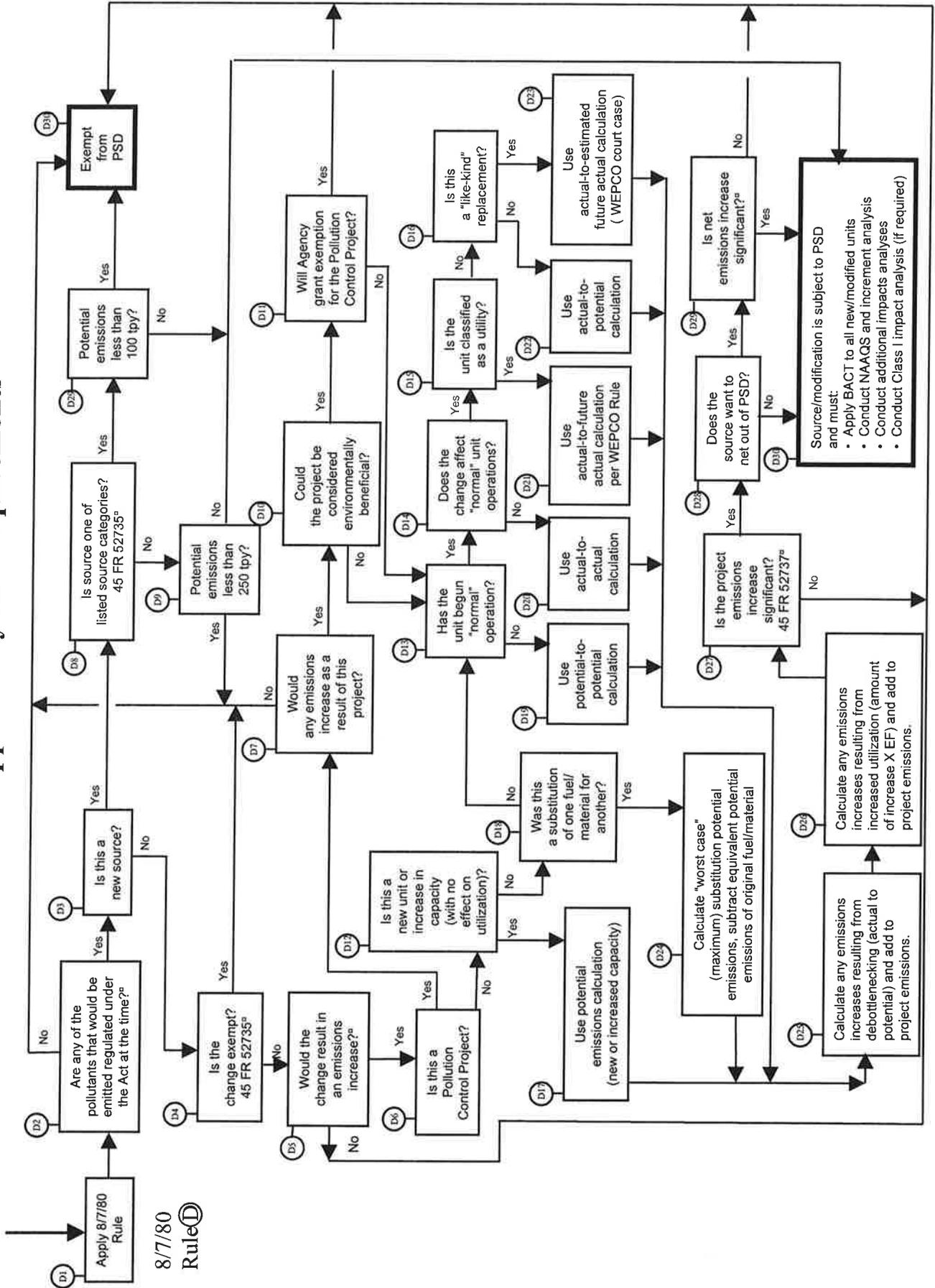
Major Modifications: PSD Applicability and Requirements



Code:
 CC = commence construction and (a) did not discontinue for a period of 18 months
 or more and (b) completed construction within a reasonable period of time.
 FA = final approval (including permits, if required) from all agencies (local, State, Fed.)
^a Refer to same box number on previous page

(continue)

PSD Applicability and Requirements



^a Refer to same box number on next page

PSD Applicability and Requirements

12/5/74 Rule

A4

• Routine maintenance, repair, and replacement shall not be considered a physical change, and
 • The following shall not be considered a change in the method of operation:
 —An increase in the production rate, if such increase does not exceed the operating design capacity of the source;
 —An increase in the hours of operation;
 —Use of an alternative fuel or raw material, if prior to the effective date of a paragraph in this Part which imposes conditions on or limits modifications, the source is designed to accommodate such alternative use.

A5

Fossil-fuel steam electric plants of more than 1000 million British thermal units per hour heat input
 • Coal cleaning plants
 • Kraft pulp mills
 • Primary aluminum ore reduction plants
 • Primary zinc smelters
 • Iron and steel mills
 • Primary aluminum ore reduction plants
 • Primary copper smelters
 • Municipal incinerators capable of charging more than 250 tons of refuse per day per 24-hour day
 • Sulfuric acid plants
 • Petroleum refineries
 • Lime plants
 • Phosphate rock processing plants
 • By-product coke oven batteries
 • Sulfur recovery plants
 • Carbon black plants (furnace process)
 • Primary lead smelters
 • Fuel conversion plants

6/19/78 Rule

B5

A physical change shall not include routine maintenance, repair, and replacement.
 • A change in the method of operation, unless previously limited by enforceable permit conditions, shall not include:
 • An increase in the production rate, if such increase does not exceed the operating design capacity of the source;
 • An increase in the hours of operation;
 • Use of an alternative fuel or raw material by reason of an order in effect under Sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation), or by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act;
 • Use of an alternative fuel or raw material, if prior to January 6, 1975, the source was capable of accommodating such fuel or material; or
 • Use of an alternative fuel by reason of an order or rule under Section 125 of the Act;
 • Change in ownership of the source.

• Sulfuric acid mist: 8/17/71 [36 FR 22384]
 • CO, NO_x, SO_x, PM (TSP), ozone (VOC), HC: 11/25/71
 • Mercury, asbestos, beryllium: 12/7/71
 • Fluorides: 10/22/74
 • Vinyl chloride: 12/24/75
 • Hydrogen sulfide and TRS: 9/24/76
 • Lead: 10/5/78 [43 FR 46258]
 • Benzene: 1/5/81
 • Arsenic: 7/20/83
 • Radionuclides: 2/6/85
 • Radon 222: 9/24/86
 • PM-10: 7/1/87
 • MWC emissions: 12/20/89
 • Municipal Solid Waste (MSW) landfill nonmethane organic compounds (NMOC): 5/30/91 [56 FR 24468]
 • Ozone depleting substances (ODS): 7/14/92 [57 FR 31242]
 • PM-2.5: 9/16/97 [62 FR 38652]

Hydrocarbons (HC) dropped around 1980
 All Hazardous Air Pollutants (HAP) dropped from PSD review 11/15/90:
 • Arsenic
 • Asbestos
 • Benzene
 • Beryllium
 • Lead compounds (elemental lead still regulated)
 • Mercury
 • Radionuclides, including Radon 222
 • Vinyl chloride

B3

• Fossil fuel-fired steam electric plants of more than 250 MM Btu/hr heat input
 • Coal cleaning plants (with thermal dryers)
 • Kraft pulp mills
 • Portland cement plants
 • Primary zinc smelters
 • Iron and steel mill plants
 • Primary aluminum ore reduction plants
 • Primary copper smelters
 • Municipal incinerators capable of charging more than 250 tons of refuse per day
 • Hydrofluoric, sulfuric, and nitric acid plants
 • Petroleum refineries
 • Lime plants
 • Phosphate rock processing plants
 • Coke oven batteries
 • Sulfur recovery plants
 • Carbon black plants (furnace process)
 • Primary lead smelters
 • Fuel conversion plants
 • Sintering plants
 • Secondary metal production plants
 • Chemical process plants
 • Fossil fuel boilers (or combinations thereof) totaling more than 250 MM Btu/hr heat input
 • Petroleum storage and transfer units with a total storage capacity exceeding 300 thousand barrels
 • Taconite ore processing plants
 • Glass fiber processing plants
 • Charcoal production plants

B6

• Fossil fuel-fired steam electric plants of more than 250 MM Btu/hr heat input
 • Coal cleaning plants (with thermal dryers)
 • Kraft pulp mills
 • Portland cement plants
 • Primary zinc smelters
 • Iron and steel mill plants
 • Primary aluminum ore reduction plants
 • Primary copper smelters
 • Municipal incinerators capable of charging more than 250 tons of refuse per day
 • Hydrofluoric, sulfuric, and nitric acid plants
 • Petroleum refineries
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 • Petroleum storage and transfer units with a total storage capacity exceeding 300 thousand barrels
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 • Glass fiber processing plants
 • Charcoal production plants

C3

• Sulfuric acid mist: 8/17/71
 • CO, NO_x, SO_x, PM (TSP), ozone (VOC), HC: 11/25/71 [36 FR 22384]
 • Mercury, asbestos, beryllium: 12/7/71
 • Fluorides: 10/22/74
 • Vinyl chloride: 12/24/75
 • Hydrogen sulfide and TRS: 9/24/76
 • Benzene: 1/5/81
 • Arsenic: 7/20/83
 • Radionuclides: 2/6/85
 • Radon 222: 9/24/86
 • PM-10: 7/1/87
 • MWC emissions: 12/20/89
 • Municipal Solid Waste (MSW) landfill nonmethane organic compounds (NMOC): 5/30/91 [56 FR 24468]
 • Ozone depleting substances (ODS): 7/14/92 [57 FR 31242]
 • PM-2.5: 9/16/97 [62 FR 38652]

Hydrocarbons (HC) dropped around 1980
 All Hazardous Air Pollutants (HAP) dropped from PSD review 11/15/90:
 • Arsenic
 • Asbestos
 • Benzene
 • Beryllium
 • Lead compounds (elemental lead still regulated)
 • Mercury
 • Radionuclides, including Radon 222
 • Vinyl chloride

C5

• A physical change shall not include routine maintenance, repair, and replacement.
 • A change in the method of operation, unless previously limited by enforceable permit conditions, shall not include:
 • Use of an alternative fuel or raw material by reason of an order under Sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, (or any superseding legislation), a prohibition under the Power Plant and Industrial Fuel Use Act of 1978 (or any superseding legislation), or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;
 • Use of an alternative fuel or raw material, if prior to January 6, 1975, the source was capable of accommodating such fuel or material;
 • Use of an alternative fuel by reason of an order or rule under Section 125 of the Act;
 • Change in ownership of the source; or
 • Use of refuse-derived fuel generated from municipal solid waste.

C6

Significance Levels
 (44 FR 51937)
 • Carbon monoxide: 100 tpy
 • Nitrogen dioxide: 10 tpy
 • Total suspended particles: 10 tpy
 • Sulfur dioxide: 10 tpy
 • Ozone: 10 tpy of volatile organic compounds
 • Lead: 1 tpy
 • Mercury: 2 tpy
 • Beryllium: 0.004 tpy
 • Asbestos: 1 tpy
 • Fluorides: 0.02 tpy
 • Sulfuric acid mist: 1 tpy
 • Vinyl chloride: 1 tpy
 • Total reduced sulfur:
 —Hydrogen sulfide: 1 tpy
 —Methyl mercaptan: 1 tpy
 —Dimethyl sulfide: 1 tpy
 —Diethyl disulfide: 1 tpy
 —Reduced sulfur compounds:
 —Hydrogen sulfide (see above)
 —Carbon disulfide: 10 tpy
 —Carbonyl sulfide: 10 tpy

9/5/79 Rule

Major Modification Potential to Emit

(44 FR 51952)
 • "Potential to emit" means the capability at maximum design capacity to emit a pollutant after the application of air pollution control equipment. Annual annual rated capacity of the stationary source assuming continuous year round operation. Enforceable permit conditions on the type of materials combusted or processed may be used in determining annual potential. Secondary emissions do not count in determining annual potential. Fugitive emissions also do not count, except with respect to the following stationary sources and then only to the extent quantifiable:
 • Coal cleaning plants
 • Kraft pulp mills
 • Portland cement plants
 • Iron and steel mill plants
 • Primary aluminum ore reduction plants
 • Primary copper smelters
 • Municipal incinerators

C7

• Fossil fuel-fired steam electric plants of more than 250 MM Btu/hr heat input
 • Coal cleaning plants (with thermal dryers)
 • Kraft pulp mills
 • Portland cement plants
 • Primary zinc smelters
 • Iron and steel mill plants
 • Primary aluminum ore reduction plants
 • Primary copper smelters
 • Municipal incinerators capable of charging more than 250 tons of refuse per day
 • Hydrofluoric, sulfuric, and nitric acid plants
 • Petroleum refineries
 • Lime plants
 • Phosphate rock processing plants
 • Coke oven batteries
 • Sulfur recovery plants
 • Carbon black plants (furnace process)
 • Primary lead smelters
 • Fuel conversion plants
 • Sintering plants
 • Secondary metal production plants
 • Chemical process plants
 • Fossil fuel boilers (or combinations thereof) totaling more than 250 MM Btu/hr heat input
 • Petroleum storage and transfer units with a total storage capacity exceeding 300 thousand barrels
 • Taconite ore processing plants
 • Glass fiber processing plants
 • Charcoal production plants

PSD Applicability and Requirements

D2

- Sulfuric acid mist: 8/17/71
- CO, NO_x, SO_x, PM (TSP), ozone (VOC), HC: 11/25/71 [36 FR 22384]
- Mercury, asbestos, beryllium: 12/7/71
- Fluorides: 10/22/74
- Vinyl chloride: 12/24/75
- Hydrogen sulfide and TRS: 9/24/76
- Lead: 10/5/78 [43 FR 46258]
- Benzene: 1/5/81
- Arsenic: 7/20/83
- Radionuclides: 2/6/85
- Radon 222: 9/24/86
- PM-10: 7/1/87
- MWC emissions: 12/20/89
- Municipal Solid Waste (MSW) landfill nonmethane organic compounds (NMOC): 5/30/91 [56 FR 24468]
- Ozone depleting substances (ODS): 7/14/92 [57 FR 31242]
- PM_{2.5}: 9/16/97 [62 FR 38652]

Hydrocarbons (HC) dropped around 1980
 All Hazardous Air Pollutants (HAP) dropped from PSD review 1/15/90:

- Arsenic
- Asbestos
- Benzene
- Beryllium
- Lead compounds (elemental lead still regulated)
- Mercury
- Radionuclides, including Radon 222
- Vinyl chloride

D27

- Carbon monoxide: 100 tpy
- Nitrogen oxides: 40 tpy
- Sulfur dioxide: 40 tpy
- Particulate matter: 25 tpy
- Particulate matter less than 10 microns: 15 tpy
- Ozone: 40 tpy of volatile organic compounds
- Lead: 0.6 tpy
- Asbestos: 0.007 tpy
- Beryllium: 0.0004 tpy
- Mercury: 0.1 tpy
- Vinyl chloride: 1 tpy
- Fluorides: 3 tpy
- Sulfuric acid mist: 7 tpy
- Hydrogen sulfide (H₂S): 10 tpy
- Total reduced sulfur (including H₂S): 10 tpy
- Reduced sulfur compounds (including H₂S): 10 tpy
- In reference to a net emissions increase or the potential of a source to emit a pollutant subject to regulation under the Act that is not listed above, any emissions rate.

D4

- Routine maintenance, repair, and replacement
- Use of an alternative fuel or raw material by reason of an order under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, (or any superseding legislation), or by reason of a natural gas curtailment plan pursuant to the Federal Power Act
- Use of an alternative fuel by reason of an order or rule under Section 125 of the Act
- Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste
- Use of an alternative fuel or raw material by a stationary source which:
 - The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or 51.18 or 40 CFR 51.24; or
 - The source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.24
- An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.24
- Any change in ownership at a stationary source

D5

Emissions Increase Criteria

- 1.) No increase in any emission factor
 - 2.) No increase in capacity
 - 3.) No increase in utilization
- economic incentive
 - bottlenecking

D29

Creditable emissions:

- An increase or decrease in actual emissions is creditable only if the Administrator has not relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs.
- An increase or decrease in actual emissions of sulfur dioxide or particulate matter which occurs before the applicable baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.
- An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.
- A decrease in actual emissions is creditable only to the extent that:
 - The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;
 - It is federally enforceable at and after the time that actual construction on the particular change begins; and
 - It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.
- Contemporaneous emissions:
 - An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:
 - The date five years before construction on the particular change commences; and
 - The date that the increase from the particular change occurs.
- Federally enforceable:
 - All limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.18 and 40 CFR 51.24.

D8

- Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input
- Coal cleaning plants (with thermal dryers)
- Kraft pulp mills
- Portland cement plants
- Primary zinc smelters
- Iron and steel mill plants
- Primary aluminum ore reduction plants
- Primary copper smelters
- Municipal incinerators capable of charging more than 250 tons of refuse per day
- Hydrofluoric, sulfuric, and nitric acid plants
- Petroleum refineries
- Lime plants
- Phosphate rock processing plants
- Coke oven batteries
- Sulfur recovery plants
- Carbon black plants (furnace process)
- Primary lead smelters
- Fuel conversion plants
- Sintering plants
- Secondary metal production plants
- Chemical process plants
- Fossil fuel boilers (or combinations thereof) totaling more than 250 MM Btu/hr heat input
- Petroleum storage and transfer units with a total storage capacity exceeding 300 thousand barrels
- Taconite ore processing plants
- Glass fiber processing plants
- Charcoal production plants

NSR

Exercises

PSD/NSR Exercises

Exercise 1.

A Kraft mill and a paperboard container manufacturing operation, which have the same 2-digit SIC code (26), are on contiguous property and are both owned by the same company. Each facility has its own plant manager and the two plants are parts of different divisions of the company, with a separate President of each division. Are the two facilities separate sources? Why?

Exercise 2.

The Kraft mill includes a wood-fired boiler that supplies 100% of its steam output to the mill. Kraft mills and boilers have different 2-digit SIC codes. Can the boiler be considered a separate stationary source for PSD purposes?

Exercise 3.

A Kraft mill and a sawmill share a logyard area where timber is received and stored. The quantity of timber by weight that is received by the yard is estimated to be 25% for the sawmill and 75% for the Kraft mill. How are the logyard emissions assigned in determining emissions from the Kraft mill and the sawmill?

Exercise 4.

A lime plant (a listed source category) with potential emissions of 240 tpy operates only 8 hours per day and has over the last two years averaged actual PM emissions of 80 tpy. For PSD purposes, what are the potential emissions from the kiln? Develop at least 2 Federally enforceable permit conditions that would in effect limit emissions from the source to make the source minor. Indicate which is the most preferable limit and why.

Exercise 5.

The coal stockpile at a power plant (which is one of the 28 listed source categories in the PSD rule under the definition of a major stationary source) is estimated to emit 85 tpy of PM₁₀. Are these fugitive emissions? Are they included in determining PSD applicability? What if the stockpile was at a surface coal mine, which is not one of the listed source categories?

Exercise 6.

A printing press is operated 8 hours per day at full capacity and generates 90 tpy of actual VOC emissions. It has been operated that way for the last 5 years and is not expected to increase hours of operation because business has stayed the same volume all this time. There are no Federally enforceable limits on the press. What is the potential to emit of the press?

Exercise 7.

A 100 million Btu/hour wood-fired boiler is also capable of burning coal and oil. Sulfur dioxide emissions depend on the fuel. Assuming the following emission factors, calculate the potential to emit of the boiler for PSD purposes:

Wood: 0.001 lb SO₂/million Btu

Oil: 0.3 lb SO₂/million Btu

Coal: 0.8 lb SO₂/million Btu

Exercise 8.

A new Kraft mill locating in an attainment area for all pollutants has a potential to emit 80 tpy of TRS, 150 tpy of NO_x, 60 tpy of sulfur dioxide, 20 tpy of PM₁₀, 24 tpy of PM, 30 tpy of VOC, and 50 tpy of hydrogen sulfide. Is it subject to PSD review? If so, which pollutants must be reviewed?

Exercise 9.

A chemical plant is a major source in an area that is attainment for all pollutants. It proposes to add a new processing unit to the facility that will increase potential emissions of PM₁₀ by 30 tpy, but estimates actual emissions at 10 tpy. Is the proposed modification a major modification subject to PSD review?

Exercise 10.

A textile mill is an existing major source and plans to replace a boiler with an identical new boiler. The existing boiler has a capacity equivalent to 90 tpy nitrogen oxides; actual emissions have been 40 tpy averaged over the last two years. Is this a modification? If so, what emissions increase would occur?

Exercise 11.

A tire manufacturer is a PSD major source and plans to add a second shift. This will increase operating hours from 8 hours per day, 5 days per week, to 16 hours per day, 5 days per week. The plant does not have any permit restrictions on operating hours or production. Does the additional shift constitute a modification? Why? What if the facility had accepted a permit limit on operating hours corresponding to one shift?

Exercise 12.

A cement plant that is PSD-major plans to expand capacity by adding two units, each of which would increase PM emissions by 20 tpy and PM10 emissions by 10 tpy. Both units were approved by the Board of Directors and funded at the same time. The source plans to construct and start up the first unit before beginning construction of the second unit. Since each unit by itself is a minor modification, the plant plans to apply for 2 different minor modification permits about 6 months apart. Is there any problem with doing this?

Exercise 13.

A PSD-major chemical plant finds a way to reduce maintenance downtime on a mixing unit by using a different alloy for the mixer that resists corrosion better. This allows the unit to operate 3 additional days each year. The unit has potential emissions of 365 tpy of PM and its most recent 2 year average actual emissions are 200 tpy. Is the action taken to reduce maintenance time a physical or operational change? If so, by how much do emissions increase as a result of the change? Would this be a major modification?

Exercise 14.

A boiler has a capacity equivalent to 800 tpy of sulfur dioxide emissions, but has been operating at the 700 tpy level because of a down market for the type of material produced at the facility. The plant proposes to install a new machine to take advantage of the market for high-grade product. The new machine has potential emissions of 35 tpy VOC and will result in the boiler being used to full capacity. Is this action a major modification?

Exercise 15.

A PSD-major plywood manufacturing plant's production is limited by the veneer dryer. The press, however, is of a capacity that requires about 2.5 shifts to keep up with the dryer. The plant would like to install a second press that would increase capacity to the point that the presses could be operated by only one shift and still keep up with the dryer, so the dryer would continue to be the process bottleneck. The new press would have potential emissions of 60 tpy. Is the addition of the new press a modification?

Exercise 16.

A Kraft mill that is a major PSD source proposes to control TRS emissions of 200 tpy by combusting the gas in a boiler, which would result in a reduction of the TRS emissions to only 5 tpy, but would increase sulfur dioxide emissions by 246 tpy. Is this action subject to PSD?

Exercise 17.

A surface coating operation (which is not one of the listed source categories) has a limit of 240 tpy of VOC. It proposes to add new capacity equivalent to 35 tpy of VOC. Is this action subject to PSD? Is this the best course of action for the source to take?

Exercise 18.

A PSD-major Kraft mill plans to install an additional lime kiln that will increase potential nitrogen oxides emissions by 100 tpy, PM emissions by 50 tpy, and PM-10 emissions by 30 tpy. The mill proposes to take Federally enforceable reductions of potential emissions elsewhere at the plant of 80 tpy nitrogen oxides, 30 tpy PM, and 20 tpy PM-10. Does this avoid PSD review? Why?

Exercise 19.

A boiler (at a major PSD source) capable of burning coal and oil was constructed in 1970. The coal handling system was removed in 1985, but the boiler itself was not changed. The plant now wants to start burning coal again. Is this a modification?

Exercise 20.

A utility boiler has been plagued with problems since it was constructed 3 years ago. It has potential sulfur dioxide emissions of 300 tpy, but emissions for each year have been as follows:

Year 1: 80

Year 2: 140

Year 3: 210.

The plant now proposes to make a number of changes to the boiler in order to get it to work right. Will the changes be subject to PSD?

Section V

Title V

Reference Materials

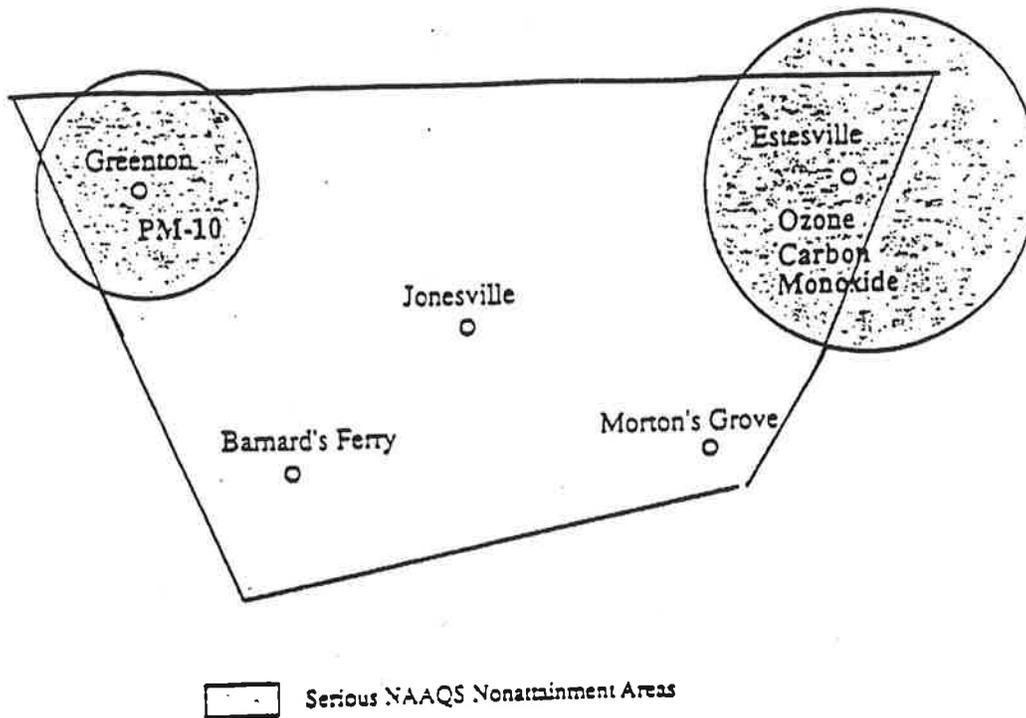
Title V

Exercises

INTERMEDIATE PERMITTING

OPERATING PERMITS

Practical Exercise I: Operating Permit Applicability



General Information

This information will be used for the practical exercises dealing with operating permit applicability and operating permit fee structures. In order to complete the permit applicability section, a copy of 40 CFR part 70 will also be necessary.

Above is a map of the fictitious state of West Carolina. There are two NAAQS nonattainment areas in the state, shaded in gray. The largest surrounds Estesville, the Capitol city, and is a serious nonattainment area for Ozone and Carbon Monoxide. The other, centered about Greenton, is a serious PM-10 nonattainment area. West Carolina has three other fairly large cities: Jonesville, Barnard's Ferry, and Morton's Grove.

The State of West Carolina has issued general permits covering dry cleaners, spray booths, crematoriums, newspapers, and asphalt paving mixers. West Carolina has declared that the exemption from permitting for non-major sources does not apply to sources that are covered by a general permit.

Assume that all sources described in these scenarios have been in existence without operational changes for a sufficiently long time to be exempt from NSPS requirements. Also disregard NSR and PSD requirements.

You are a permitting engineer for the state, and have been given the responsibility of serving as technical consultant to answer people's questions regarding permitting issues.

OPERATING PERMIT APPLICABILITY

Exercise 1.

At 9:00 Wednesday morning, you receive a call from Bernie Horton, the General Manager of the Carolina Refractory Brick Manufacturing Company, located in Greenton. They manufacture refractory bricks for kiln linings through a process involving melting and casting a mixture of several components. He has heard that many sources not previously requiring permits will be permitted under provisions of the 1990 Clean Air Act Amendments, and he wants to know if his facility is likely to be affected. You ask him to fax you a brief description of their operation, and he sends you the following:

Process

Raw material dryer
Raw Material crushing
Electric arc melting
Curing oven
Molding and Shakeout

Control

Baghouse
Scrubber
Scrubber

Baghouse

Annual production at 95% capacity = 8000 tons/yr

At first glance, this doesn't seem to be enough information, but before calling Mr. Horton back, you refer to your copy of *AP-42* (an EPA publication giving methods for estimating emissions from various pollution sources) to see if it has any information on the refractory brick industry. (See the attached page 8.5-1 from *AP-42*.) After studying the *AP-42* entry and scribbling a few calculations, you find that you can make a reasonable decision. What do you tell Bernie when you call him back?

8.5 CASTABLE REFRACTORIES

8.5.1 Process Description¹⁻³

Castable or fused-cast refractories are manufactured by carefully blending such components as alumina, zirconia, silica, chrome, and magnesia; melting the mixture in an electric-arc furnace at temperatures of 3200 to 4500° F (1760 to 2480° C); pouring it into molds; and slowly cooling it to the solid state. Fused refractories are less porous and more dense than kiln-fired refractories.

8.5.2 Emissions and Controls¹

Particulate emissions occur during the drying, crushing, handling, and blending of the components; during the actual melting process; and in the molding phase. Fluorides, largely in the gaseous form, may also be emitted during the melting operations.

The general types of particulate controls may be used on the materials handling aspects of refractory manufacturing. Emissions from the electric-arc furnace, however, are largely condensed fumes and consist of very fine particles. Fluoride emissions can be effectively controlled with a scrubber. Emission factors for castable refractories manufacturing are presented in Table 8.5-1.

Table 8.5-1. PARTICULATE EMISSION FACTORS FOR CASTABLE
REFRACTORIES MANUFACTURING^a
EMISSION FACTOR RATING: C

| Type of process | Type of control | Uncontrolled | | Controlled | |
|--|-----------------|--------------|-------|------------|-------|
| | | lb/ton | kg/MT | lb/ton | kg/MT |
| Raw material dryer ^b | Baghouse | 30 | 15 | 0.3 | 0.15 |
| Raw material crushing and processing ^c | Scrubber | | | 7 | 3.5 |
| | Cyclone | 120 | 60 | 45 | 22.5 |
| Electric-arc melting ^d | Baghouse | 50 | 25 | 0.8 | 0.4 |
| | Scrubber | | | 10 | 5 |
| Curing oven ^e | - | 0.2 | 0.1 | - | - |
| Molding and shakeout ^b | Baghouse | 25 | 12.5 | 0.3 | 0.15 |

^a Fluoride emissions from the melt average about 1.3 pounds of HF per ton of melt (0.65 kg HF/MT melt). Emission factors expressed as units per unit weight of feed material.

^b Reference 4.

^c References 4 and 5.

^d References 4 through 6.

^e Reference 5.

Exercise 2.

When you return from lunch Thursday, you find a message on your desk from Barbara McVeety, the Assistant Director of the Estesville Civic Center. You call her back, and she says that her boss had been told that the new additions to the Clean Air Act may require them to have a pollution permit for the center's boiler. Barbara says she can't believe this, that although the boiler is rather large, and somewhat old, they only run it about 20% of the year. Because the center is not in use every day, she says, the decision was made to run the boiler only on winter days when the center was in use - mostly weekends and on Wednesday nights when the community college basketball team has games. Barbara wants to know if they really must get a permit.

Barbara can't tell you any more about the boiler, so she connects you with Max Crumpler, the boiler operator. Max says that the boiler is a very large, old, industrial boiler, requiring a heat input of about 100×10^6 BTU/hr to operate, and burns about 95,000 standard cubic feet of natural gas per hour. He confirms what Barbara told you about operating hours. You ask him if any pollution control measures have been installed and he says that the boiler has been unchanged since the center was built in 1952.

You hang up and refer to your copy of AP-42 to look for emission factors for natural gas boilers. (See the attached page 1.4-2 from AP-42.) After a few minutes of thought and some quick calculations, you call Barbara back. What do you tell her?

TABLE 1.4-1. UNCONTROLLED EMISSION FACTORS FOR NATURAL GAS COMBUSTION^a

| Furnace size & type (10 ⁶ Btu/hr heat input) | Particulate ^b | | Sulfur dioxide | | Nitrogen oxides ^c | | Carbon monoxide ^d | | Volatile organics | | | |
|--|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|-----|-----|
| | kg/10 ⁶ m ³ | lb/10 ⁶ ft ³ | kg/10 ⁶ m ³ | lb/10 ⁶ ft ³ | kg/10 ⁶ m ³ | lb/10 ⁶ ft ³ | kg/10 ⁶ m ³ | lb/10 ⁶ ft ³ | kg/10 ⁶ m ³ | lb/10 ⁶ ft ³ | | |
| Utility boilers (> 100) | 16 - 80 | 1 - 3 | 9.4 | 0.6 | 2800 ^e | 530 ^h | 610 | 40 | 23 | 1.4 | 4.8 | 0.3 |
| Industrial boilers (10 - 100) | 16 - 80 | 1 - 3 | 9.4 | 0.6 | 2210 | 140 | 560 | 35 | 41 | 2.0 | 48 | 3 |
| Domestic and commercial boilers (< 10) | 16 - 80 | 1 - 3 | 9.4 | 0.6 | 1600 | 100 | 370 | 20 | 26 | 3.3 | 43 | 3.2 |

^aExpressed as weight/volume fuel fired.
^bReference 15-18.
^cBased on avg. sulfur content of natural gas, 4100 g/10⁶ lb_s (7000 gr/10⁶ scf).
^dReference 4-3, 7-8, 11, 14, 18-19, 21.
^eExpressed as NO_x. Tests indicate about 93 weight % NO_x is NO.
^fReference 4, 7-8, 16, 18, 22-23.
^gReference 16, 18. May increase 10 - 100 times with improper operation or maintenance.
^hFor long-stall fired units, use 4100 kg/10⁶ m³ (175 lb/10⁶ ft³). At reduced loads, multiply factor by load reduction coefficient in Figure 1.4-1. For potential NO_x reductions by combustion modification, see text. Note that NO_x reduction from these modifications will also occur at reduced load conditions.

Exercise 3.

Friday afternoon at 4:00, as you are preparing to leave the office "just a few minutes early", your phone rings. It is your old college roommate John Reardon, who is now the pollution control engineer at the Carolina Steel Mill. in Jonesville. He says that his boss wants to know what effects the new Clean Air Act Amendments are likely to have on their status regarding emission permits. He remembered that you had been placed in the state permitting office, and called you to get some information. You ask him to send you an overview of their operation, including a description of any controls that have been installed. Monday morning, you find the following fax on your desk:

Carolina Steel Mill

The Primary function is melting iron and steel scrap to be cast into rebars and other construction materials. The main operation occurs in the electric arc furnace, where the scrap is melted. This is where most of the emissions come from, and the only portion of the process with any emission controls. The primary pollutant emitted is PM-10, with minor amounts of nitrogen oxides. The plant operates six days a week, 52 weeks a year. The characteristics of the furnace are as follows:

Average melt weight = 52 tons
Tap-to-tap time = 2 hours
Process weight rate = $52/2 = 26$ tons/hr

Emission Controls:

The furnace has been equipped with overhead and side collection hoods (94% capture efficiency) which feed into a baghouse (99.5% capture efficiency).

Fugitive Emissions from the casting operations, feedstock piles, on-site traffic, etc. are estimated to be roughly 15 tons/yr.

You look over the information John faxed you, and reach for your copy of AP-42 and your calculator. (See attached page 7.13-5, from AP-42.) When you call John back, what do you tell him?

TABLE 7.13-1. EMISSION FACTORS FOR STEEL FOUNDRIES

EMISSION FACTOR RATING: A

| Process | Particulates ^a | | Nitrogen oxides | |
|--|---------------------------|--------------|-----------------|--------|
| | kg/Mg | lb/ton | kg/Mg | lb/ton |
| Melting | | | | |
| Electric arc ^{b,c} | 6.5 (2 to 20) | 13 (4 to 40) | 0.1 | 0.2 |
| Open hearth ^{d,e} | 5.5 (1 to 10) | 11 (2 to 20) | 0.005 | 0.01 |
| Open hearth oxygen lanced ^{f,g} | 5 (4 to 5.5) | 10 (8 to 11) | - | - |
| Electric induction ^h | 0.05 | 0.1 | - | - |

^a Expressed as units per unit weight of metal processed. If the scrap metal is very dirty or oily, or if increased oxygen lancing is employed, the emission factor should be chosen from the high side of the factor range.

^b Electrostatic precipitator, 92 - 98% control efficiency; baghouse (fabric filter), 98 - 99% control efficiency; venturi scrubber, 94 - 98% control efficiency.

^c References 2 - 10.

^d Electrostatic precipitator, 95 - 98.5% control efficiency; baghouse, 99.9% control efficiency; venturi scrubber, 96 - 99% control efficiency.

^e References 2, 11 - 13.

^f Electrostatic precipitator, 95 - 98% control efficiency; baghouse, 99% control efficiency; venturi scrubber, 95 - 98% control efficiency.

^g References 6 and 14.

^h Usually not controlled.

Emission factors for melting furnaces in the steel foundry are presented in Table 7.13-1.

Although no emission factors are available for nonfurnace emission sources in steel foundries, they are very similar to those in iron foundries.¹ Nonfurnace emission factors and particle size distributions for iron foundry emission sources are presented in Section 7.10, Gray Iron Foundries.

References for Section 7.13

1. Paul F. Fennelly and Peter D. Spawn, Air Pollutant Control Techniques for Electric Arc Furnaces in the Iron and Steel Foundry Industry, EPA-450/2-78-024, U.S. Environmental Protection Agency, Research Triangle Park, NC, June 1978.

Exercise 4.

Tuesday, you receive a call from Carlton Purvis, the manager of Morton's Grove Memorial Gardens. He says that he read an article in the *Embalmer's Journal* that some cemeteries were being required to have pollution permits. "I don't understand!" he says, "All we do is bury people, with a tasteful ceremony, of course. Often people want to keep their beloved's ashes on the mantel, so we're set up to cremate folks also." He wants to know what all the fuss is about. What do you tell him?

Exercise 5.

Wednesday morning at 11:00 your phone rings. It is Dennis Baxter, the manager of the Barnard's Ferry office of FBN Engineering, a large construction and consulting firm. He says that they have been hired to renovate an old office building and while ripping out the ceilings they have come across a lot of asbestos insulation. Removing the insulation is emitting a lot of dust. They have installed a dust collection system, but considerable particulates still escape. Dennis has done this sort of work many times before and he has the permits that are usually required. However, he says his secretary gave him a message from the FBN national air pollution coordinator requesting that he investigate new permitting requirements based on Title V of the Clean Air Act Amendments and "kneecaps", or something like that. He has called you to find out what he should do about this. What do you tell him?

Section VIII

Regulations

17 of 393 DOCUMENTS

LEXIS PUBLISHING'S CODE OF FEDERAL REGULATIONS
Copyright © 2003, LEXIS Publishing*** THIS SECTION IS CURRENT THROUGH THE MARCH 21, 2003 ISSUE OF ***
*** THE FEDERAL REGISTER ***TITLE 40 — PROTECTION OF ENVIRONMENT
CHAPTER I — ENVIRONMENTAL PROTECTION AGENCY
SUBCHAPTER C — AIR PROGRAMS
PART 52 — APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS
SUBPART A — GENERAL PROVISIONS

40 CFR 52.21

§ 52.21 Prevention of significant deterioration of air quality.

(a)(1) Plan disapproval. The provisions of this section are applicable to any State implementation plan which has been disapproved with respect to prevention of significant deterioration of air quality in any portion of any State where the existing air quality is better than the national ambient air quality standards. Specific disapprovals are listed where applicable, in subparts B through DDD of this part. The provisions of this section have been incorporated by reference into the applicable implementation plans for various States, as provided in subparts B through DDD of this part. Where this section is so incorporated, the provisions shall also be applicable to all lands owned by the Federal Government and Indian Reservations located in such State. No disapproval with respect to a State's failure to prevent significant deterioration of air quality shall invalidate or otherwise affect the obligations of States, emission sources, or other persons with respect to all portions of plans approved or promulgated under this part.

(2) Applicability procedures. (i) The requirements of this section apply to the construction of any new major stationary source (as defined in paragraph (b)(1) of this section) or any project at an existing major stationary source in an area designated as attainment or unclassifiable under sections 107(d)(1)(A)(ii) or (iii) of the Act.

(ii) The requirements of paragraphs (j) through (r) of this section apply to the construction of any new major stationary source or the major modification of any existing major stationary source, except as this section otherwise provides.

(iii) No new major stationary source or major modification to which the requirements of paragraphs (j) through (r)(5) of this section apply shall begin actual construction without a permit that states that the major stationary source or major modification will meet those requirements. The Administrator has authority to issue any such permit.

(iv) The requirements of the program will be applied in accordance with the principles set out in paragraphs (a)(2)(iv)(a) through (f) of this section.

(a) Except as otherwise provided in paragraphs (a)(2)(v) and (vi) of this section, and consistent with the definition of major modification contained in paragraph (b)(2) of this section, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases — a significant emissions increase (as defined in paragraph (b)(40) of this section), and a significant net emissions increase (as defined in paragraphs (b)(3) and (b)(23) of this section). The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

(b) The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to paragraphs (a)(2)(iv)(c) through (f) of this section. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major stationary source (i.e., the second step of the process) is contained in the definition in paragraph (b)(3) of this section. Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

(c) Actual-to-projected-actual applicability test for projects that only involve existing emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in paragraph (b)(41) of this section) and the baseline actual emissions (as defined in paragraphs (b)(48)(i) and (ii) of this section), for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in paragraph (b)(23) of this section).

(d) Actual-to-potential test for projects that only involve construction of a new emissions unit(s). A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit (as defined in paragraph (b)(4) of this section) from each new emissions unit following completion of the project and the baseline actual emissions (as defined in paragraph (b)(48)(iii) of this section) of these units before the project equals or exceeds the significant amount for that pollutant (as defined in paragraph (b)(23) of this section).

(e) Emission test for projects that involve Clean Units. For a project that will be constructed and operated at a Clean Unit without causing the emissions unit to lose its Clean Unit designation, no emissions increase is deemed to occur.

(f) Hybrid test for projects that involve multiple types of emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in paragraphs (a)(2)(iv)(c) through (e) of this section as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant (as defined in paragraph (b)(23) of this section). For example, if a project involves both an existing emissions unit and a Clean Unit, the projected increase is determined by summing the values determined using the method specified in paragraph (a)(2)(iv)(c) of this section for the existing unit and using the method specified in paragraph (a)(2)(iv)(e) of this section for the Clean Unit.

(v) For any major stationary source for a PAL for a regulated NSR pollutant, the major stationary source shall comply with the requirements under paragraph (aa) of this section.

(vi) An owner or operator undertaking a PCP (as defined in paragraph (b)(32) of this section) shall comply with the requirements under paragraph (z) of this section.

(b) Definitions. For the purposes of this section:

(1)(i) Major stationary source means:

(a) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(b) Notwithstanding the stationary source size specified in paragraph (b)(1)(i) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; or

(c) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (b)(1) of this section, as a major stationary source, if the changes would constitute a major stationary source by itself.

(ii) A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(a) Coal cleaning plants (with thermal dryers);

(b) Kraft pulp mills;

(c) Portland cement plants;

- (d) Primary zinc smelters;
- (e) Iron and steel mills;
- (f) Primary aluminum ore reduction plants;
- (g) Primary copper smelters;
- (h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
- (i) Hydrofluoric, sulfuric, or nitric acid plants;
- (j) Petroleum refineries;
- (k) Lime plants;
- (l) Phosphate rock processing plants;
- (m) Coke oven batteries;
- (n) Sulfur recovery plants;
- (o) Carbon black plants (furnace process);
- (p) Primary lead smelters;
- (q) Fuel conversion plants;
- (r) Sintering plants;
- (s) Secondary metal production plants;
- (t) Chemical process plants;
- (u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
- (v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- (w) Taconite ore processing plants;
- (x) Glass fiber processing plants;
- (y) Charcoal production plants;
- (z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, and
- (aa) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(2)(i) Major modification means any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase (as defined in paragraph (b)(40) of this section) of any regulated NSR pollutant (as defined in paragraph (b)(50) of this section); and a significant net emissions increase of that pollutant from the major stationary source.

(ii) Any significant emissions increase (as defined in paragraph (b)(40) of this section) from any emissions units or net emissions increase (as defined in paragraph (b)(3) of this section) at a major stationary source that is significant for volatile organic compounds shall be considered significant for ozone.

(iii) A physical change or change in the method of operation shall not include:

- (a) Routine maintenance, repair and replacement;
- (b) Use of an alternative fuel or raw material by reason of an order under sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plant pursuant to the Federal Power Act;
- (c) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

40 CFR 52.21

(d) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(e) Use of an alternative fuel or raw material by a stationary source which:

(1) The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR subpart I or 40 CFR 51.166; or

(2) The source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166;

(f) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR subpart I or 40 CFR 51.166.

(g) Any change in ownership at a stationary source.

(h) The addition, replacement, or use of a PCP, as defined in paragraph (b)(32) of this section, at an existing emissions unit meeting the requirements of paragraph (z) of this section. A replacement control technology must provide more effective emission control than that of the replaced control technology to qualify for this exclusion.

(i) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

(1) The State implementation plan for the State in which the project is located, and

(2) Other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

(j) The installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, provided that the project does not result in an increase in the potential to emit of any regulated pollutant emitted by the unit. This exemption shall apply on a pollutant-by-pollutant basis.

(k) The reactivation of a very clean coal-fired electric utility steam generating unit.

(iv) This definition shall not apply with respect to a particular regulated NSR pollutant when the major stationary source is complying with the requirements under paragraph (aa) of this section for a PAL for that pollutant. Instead, the definition at paragraph (aa)(2)(viii) of this section shall apply.

(3)(i) Net emissions increase means, with respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero:

(a) The increase in emissions from a particular physical change or change in the method of operation at a stationary source as calculated pursuant to paragraph (a)(2)(iv) of this section; and

(b) Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under this paragraph (b)(3)(i)(b) shall be determined as provided in paragraph (b)(48) of this section, except that paragraphs (b)(48)(i)(c) and (b)(48)(ii)(d) of this section shall not apply.

(ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

(a) The date five years before construction on the particular change commences; and

(b) The date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if:

(a) The Administrator or other reviewing authority has not relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs; and

(b) The increase or decrease in emissions did not occur at a Clean Unit except as provided in paragraphs (x)(8) and

(y)(10) of this section.

(iv) An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(v) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(vi) A decrease in actual emissions is creditable only to the extent that:

(a) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(b) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins.

(c) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change; and

(d) The decrease in actual emissions did not result from the installation of add-on control technology or application of pollution prevention practices that were relied on in designating an emissions unit as a Clean Unit under paragraph (y) of this section or under regulations approved pursuant to § 51.165(d) or to § 51.166(u) of this chapter. That is, once an emissions unit has been designated as a Clean Unit, the owner or operator cannot later use the emissions reduction from the air pollution control measures that the designation is based on in calculating the net emissions increase for another emissions unit (i.e., must not use that reduction in a "netting analysis" for another emissions unit). However, any new emission reductions that were not relied upon in a PCP excluded pursuant to paragraph (z) of this section or for a Clean Unit designation are creditable to the extent they meet the requirements in paragraph (z)(6)(iv) of this section for the PCP and paragraphs (x)(8) or (y)(10) of this section for a Clean Unit.

(vii) [Reserved]

(viii) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(ix) Paragraph (b)(21)(ii) of this section shall not apply for determining creditable increases and decreases.

(4) Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(5) Stationary source means any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant.

(6) Building, structure, facility, or installation means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U. S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

(7) Emissions unit means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit as defined in paragraph (b)(31) of this section. For purposes of this section, there are two types of emissions units as described in paragraphs (b)(7)(i) and (ii) of this section.

(i) A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than 2 years from the date such emissions unit first operated.

(ii) An existing emissions unit is any emissions unit that does not meet the requirements in paragraph (b)(7)(i) of this section.