

US EPA ARCHIVE DOCUMENT

**OVERVIEW OF
THE CLEAN AIR ACT's
REQUIREMENTS FOR STATE
IMPLEMENTATION PLAN
DEVELOPMENT & APPROVAL**

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The Basics

- **National Ambient Air Quality Standards**
- **CAA (section 110) and 40 CFR Part 51**
- **Criteria Air Pollutants**
- **The SIP v. SIP Revisions**
- **Different Types of SIP Revisions**
- **Components of a SIP**
- **Clean Data Findings v. Redesignations**

The Basics (cont'd)

- **Regulatory/Non-Regulatory SIPs**
- **SIP “Credit”**
- **Rate of Progress Plans**
- **Attainment Plans**
- **Maintenance Plans**
- **Federal Implementation Plans**

The NAAQS

The Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for criteria air pollutants considered harmful to public health and the environment.

The CAA provides EPA the authority to promulgate two types of national air quality standards.

The NAAQS (cont'd)

Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The NAAQS (cont'd)

- **The secondary NAAQS for a given criteria pollutant is equal to or more stringent than the primary NAAQS for that same pollutant.**
- **Many species of plant and animal life are greatly impacted by air pollution**

SIPs Are Required for the Criteria Air Pollutants

Criteria pollutants = Those pollutants for which EPA has promulgated NAAQS.

- Particulate Matter (PM₁₀ PM_{2.5})
- Sulfur Dioxide (SO₂)
- Nitrogen Dioxide (NO₂)
- Carbon Monoxide (CO)
- Ozone (O₃)
- Lead (Pb)

40 CFR PART 50

<http://epa.gov/air/criteria.html>

This is the place on EPA's website where a table of the current NAAQS is located.

The footnotes are key.

SO WHAT IS THE SIP?

**The State Implementation Plan is the air pollution reduction measures and strategies adopted by a State and approved by EPA for attaining and maintaining the NAAQS.
(Codified 40 CFR Part 52 – each state and territory has its own subpart in Part 52)**

Note: EPA Regional Administrators are delegated the authority to receive, return, approve or disapprove SIPs

The SIP v. SIP REVISIONS

- **The State Implementation Plan – Strictly speaking it is everything codified in a State’s Subpart of 40 CFR Part 52**
- **The Ozone SIP – A SIP revision consisting of the whole attainment plan: the attainment demo, ROP plan, contingency measures and all the SIP elements approved to control ozone precursors**

The SIP v. SIP REVISIONS (cont'd)

- **The VOC RACT SIP – A SIP revision consisting of the Part D SIP element of an ozone attainment plan to control VOCs from existing major stationary sources**
- **The I/M SIP – A revision consisting of the SIP element required in certain nonattainment areas for vehicle inspection & maintenance**

Everyone in the air quality planning field tends to use the term “SIP” to refer to SIP revisions too.

State Implementation Plans (SIPs)

- Under the CAA, as amended in 1990, each state must develop a plan describing how it will attain and maintain the NAAQS. It is a state's plan to improve the air quality in nonattainment areas such that those areas will attain the primary NAAQS by a statutory deadline. It is also the state's plan to ensure that attainment areas continue to meet the NAAQS.

Components of a SIP

- **The State Implementation Plan (SIP) and is required under Section 110 of the CAA (40 CFR Part 51)**
- **Note 40 CFR Part 51 Subparts F & G. These subparts describe the requirements for “control strategy” SIPs (e.g., ROP, Attainment demonstrations)**
- **In general, the SIP requires a collection of programs and resources, including:**

SIP Components (cont'd)

- **A Monitoring Program: a collection of monitoring devices throughout the country which provide actual measurements of the concentrations in the air. This ambient air quality data, once quality assured and entered into AQS, is used to calculate/determine a given geographical area's design value.**

Design Values

- **The area's design value identifies whether an area should be designated as attainment or nonattainment.**
- **Design values are also used to determine whether an area is eligible for a clean data determination or eligible to be redesignated.**

SIP Components (cont'd)

- **Emissions Inventories:** compiled data of the sources and categories of emissions to the air for a given pollutant (and its precursors), and how much is emitted by each source or source category.
- **Air Quality Calculations and Computer Modeling:** methods/tools used to predict future trends and the effects of emissions reduction strategies; and to produce the attainment demonstration.

SIP Components (cont'd)

- **Control Strategy studies:** the goal is to determine how best (environmentally and cost/benefit wise) to reduce emissions in order to meet air quality standards.
- **Formal Adoption of Measures/ Regulations** (enforceable by EPA, States, and by citizen suits) to ensure that the reductions deemed necessary in the planning process will be achieved.

SIP Components (cont'd)

- **Periodic Review to evaluate whether those needed reductions were achieved in reality, and whether they had the predicted result.**
- **The air quality agency responsible for the SIP (usually a State Agency but can also be a Local or Tribal Agency) must have procedures to provide the public an opportunity to review a SIP revision before sending it to EPA for approval.**

SIP Components (cont'd)

- In cases where the EPA fails to approve a SIP, the Agency can issue and enforce a Federal Implementation Plan (FIP) to ensure attainment and maintenance of the NAAQS. In addition, Section 179 of the Act contains penalties, referred to as "sanctions" which EPA can impose in areas not satisfying the Act's Part D SIP requirements.

The Infrastructure SIPs

(Shorthand Reference to the Required SIP Components)

- **Section 110 (a)(1) and (2)(A) – (M) of the CAA**
- **Due 3 years after the promulgation of a new or revised NAAQS – regardless of whether or not the state has any nonattainment areas**
- **Required by statutory deadline – no exceptions**

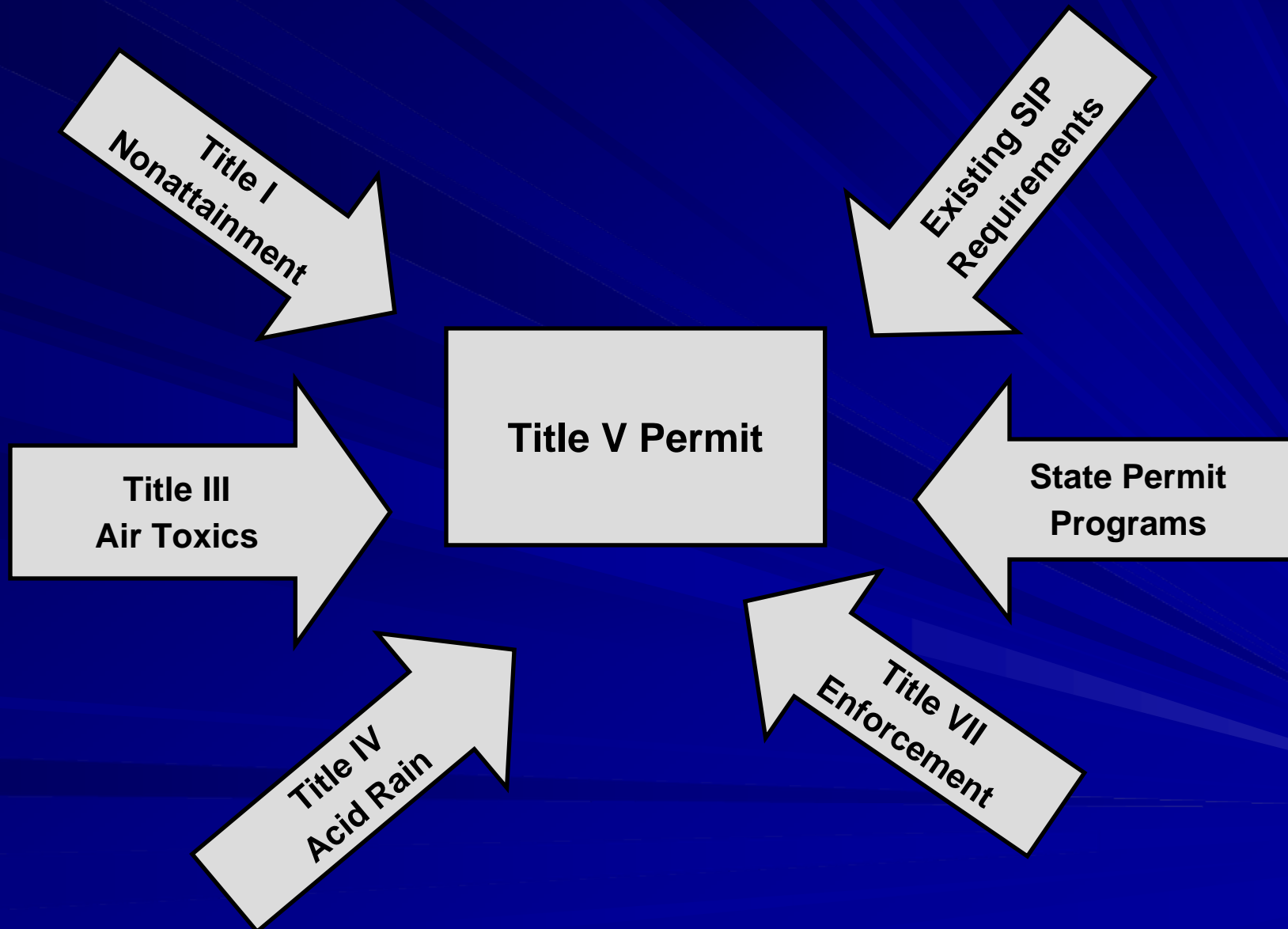
The Infrastructure SIPs (cont'd)

- Watch for cross references to Part D
- Note that 110(a)(2)(D) deals with transport
- Pay attention to both the nonattainment NSR permitting requirements and the Part C – PSD Permitting Program requirements -especially for a new criteria pollutant NAAQS
- Even if a State believes no updates are necessary to satisfy 110(a)(1) & (2) – it must provide for public participation on THAT determination.

SIPS & Title V Permits

- SIPs are required under Title I of the CAA
- Title V permits are required under Title V of the CAA
- Title V permits may not be used to “create” or “fix” SIP requirements
- Can be used in some instances for source-specific SIP revisions
- Title V permits “house” existing SIP requirements (and all other applicable federal and state requirements)

What Goes into a Title V Permit?



The SIP v. Title V Permit (cont'd)

- The issue is NOT federal enforceability
- Nothing is made part of the SIP until and unless it goes through the state and federal processes required to codify it in 40 CFR Part 52 pursuant to Section 110
- SIP requirements cannot be open-ended with the “details” to be set in the Title V permit
- SIP revision requests to approve documents or regulations with expiration or sunset dates can pose approvability problems

Designations

- How do we know an area is nonattainment?
- Design values – Need the data
- State Recommendations
- Boundaries
- MSA's/CMSA's

When Are Attainment SIPs Due?

- Usually three years after an area is designated nonattainment
- Specifics for what Part D elements are required and their deadlines is usually in the Implementation Rule
- What happens if the area's air quality attains before the SIP is due? Possibly a Clean Data Determination.

A CLEAN DATA DETERMINATION

- Relieves the State from the ROP Plan and Attainment Demonstration
- Area still designated nonattainment
- State may request or EPA may initiate
Requires rulemaking by EPA
- While not a SIP revision, language is codified in the State's subpart of Part 52 – not Part 81

A REDESIGNATION

- **State submits a request satisfying 5 requirements (Section 107 of CAA)**
- **Maintenance Plan is one of those 5 and is a SIP revision**
- **A final approval redesignates an area from nonattainment to attainment**
- **Requires rulemaking and is codified in both Part 52 (the maintenance plan SIP revision) and in Part 81 (the change in an area's designation from nonattainment to attainment)**

Requirements for Clean Data Determinations v. Redesignations

Clean Data Finding - 3 years of violation free data

Redesignation

- **3 years of violation free data**
- **Fully approved 110 SIP (Infrastructure SIP elements)**
- **Part D SIP Requirements due to date both submitted and approved**
- **Improvement in air quality from enforceable reductions (versus weather or economic downturn)**
- **Approved maintenance plan (10 years) including contingency measures**

DESIGNING AN ATTAINMENT PLAN THE “TOOLS”

- **Monitoring**
- **Emission Inventories**
- **Modeling**

Ambient Monitoring

Ambient Air Quality Monitoring

- Approved networks
- Approved equipment - reference or equivalent monitors/methods (FRMs or FEMs)
- QA'd/QC'd data that is certified
- Data in AQS
- Not to be confused with in-stack, CEMs, COMs

EMISSION INVENTORIES

- **Stationary Sources (point sources)**
- **Mobile sources– On Road**
- **Mobile sources – Off Road**
- **Area sources**
- **Biogenics (non-anthropogenic emissions)**

PRECURSORS TOO

MODELING

Air Quality Planning Models

- Domains
- Transport

Emission Inventory Models

- MOBILE 1-6
- MOVES

Air Quality Modeling

Requires expertise of meteorologists and atmospheric physicists with OTJ experience (Don't try this at home)

EPA approved models/guidance

Model evaluation

Model projections

Demonstrating attainment

- **Popping every grid cell green v.**
- **Weight of Evidence (WOE)**

A Complete Attainment Plan for a Criteria Air Pollutant

- The Infrastructure 110 (1) and (2)(A)–(M) requirements
- All applicable Part D requirements including Reasonably Available Control Measures (RACT & State mobile/area programs) and a NSR Permitting Program
- Federal mobile/fuel measures
- Federal area source measures
- ROP plan and attainment demo
- Contingency Measures

PART D REQUIREMENTS

- **The CAA mandated requirements for designated nonattainment areas.**
- **Increase in number and stringency depending upon the classification of a designated nonattainment area.**
- **Covered in the Implementation Rule issued by EPA after it promulgates a new or revised NAAQS.**
- **Findings of failure to submit, incompleteness or disapprovals of Part D SIP elements commence sanctions and FIP clocks**

The Control Strategy SIPs

- **Rate of Progress (ROP) Plans also referred to as Reasonable Further Progress (RFP) Plans**
- **Attainment Plans**
- **Maintenance Plans**

These plans take into account the creditable reductions and “demonstrate” attainment, ROP or Maintenance. They all have:

- **Mobile Budgets**
- **Contingency Measures**

MOBILE BUDGETS

- **The amount of on-road mobile emissions that may remain in the air after ROP, attainment or maintenance has been demonstrated.**
- **Mobile budgets are used by Metropolitan Planning Organizations (MPOs) to demonstrate Transportation Conformity)**
- **If there are multiple budgets for a given year, the “tightest” set of budgets applies.**

Contingency Measures

- **Attainment and ROP Plans - Measures that would go “automatically” into effect if progress or attainment is not met by a required date or milestone date. May be implemented early.**
- **Maintenance Plans – An identified set of measures that would be adopted and implemented should an area exceed/violate after it has been redesignated. May not be implemented early.**

Federal Implementation Plans (FIPs)

- **Federal Regulations/Programs promulgated and directly enforced by EPA until a SIP is approved (or a State takes delegation for a FIP in an attainment area)**
- **There can be partial FIPs where a state has satisfied some but not all required components of the SIP**
- **Not all FIPs are associated with the 179 Sanctions – FIPs of Part D SIP elements are those generally associated with sanctions**

Other Important Topics & Facts

- Findings, Sanctions and FIPs – “the clocks”
- Types of Actions and Rulemaking Procedures EPA May Use to Take Actions on SIPs
- E-Docketing
- The Administrative Procedures Act (APA) governs EPA’s rulemaking process for actions on SIPs NOT Section 301(d) of the CAA which governs the rulemaking process for national rules promulgated by EPA
- Unlike legal challenges to nationally promulgated rules, challenges to SIP actions are filed/heard in the Court of Appeals

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- Call your own EPA Regional Office with specific questions on the SIP requirements for a specific area