



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

MAR 30 1989

MEMORANDUM

SUBJECT: Rule Effectiveness Guidance for Base Year Emission Inventories  
*Brock*  
FROM: Brock Nicholson, Chief  
Policy Development Section, OCMPB, AQMD (MD-15)  
TO: Addressees

Attached is the final draft of Procedures for Estimating Rule Effectiveness for Use in Base Year Emission Inventories. This guidance explains the "generic questionnaire" approach to determining local category-specific rule effectiveness values for use in base year emission inventories as an alternative to the 80 percent presumption. This version of the guidance incorporates comments we received from you last month on the questionnaires, as well as comments from 3 State/local agency representatives who subjected the questionnaires to a "trial run". A one-page summary of the trial run results is also attached for your information.

Please review the guidance document and prepare any final comments you may have on the procedures outlined within. I have arranged a conference call to discuss the guidance on Friday, April 7, 1989 from 11:00 a.m. to noon (EST). If you would like to participate, you may dial FTS 245-3820. In the mean time, you may direct questions pertaining to the questionnaire to Bill Johnson (FTS 629-5245) and questions concerning the general procedure to Barb Duletsky (FTS 629-5511). Thank you for your input on this subject.

Addressees:

David Conroy, Reg. I  
Matt McCarthy, Reg. II  
Cynthia Stahl, Reg. III  
Kay Prince, Reg. IV  
Steve Rosenthal, Reg. V  
Becky Caldwell, Reg. VI  
Larry Hacker, Reg. VII  
Lee Hanley, Reg. VIII  
Frances Wicher, Reg. IX  
Mike Lidgard, Reg. X  
Linda Lay, SSCD

cc: Air Branch Chiefs (w/o attachments)



SUMMARY OF RULE EFFECTIVENESS SCORES REPORTED  
IN TRIAL RUNS BY STATES

The final questionnaire is slightly different than the draft questionnaire used to generate this data.

### Point Sources:

<u>New Jersey</u>	<u>Rule Effectiveness Percent</u>
-------------------	---------------------------------------

Surface coating-paper	76
External floating roof tanks	73
Polystyrene resin manufacture	80
Surface coating-cans	83
Pharmaceutical manufacture	83
Fixed roof storage tanks	74

## Ohio (Dayton)

Fixed roof tank	55
Gasoline loading rack	78
Graphic arts	89
Miscellaneous metal	78
Auto light duty truck	88
Large petroleum drycleaner	64

## North Carolina

Fabric coater	45
Flatwood panelling coater	68
Graphic arts	68
Can coating	68
Paper coating	87

### **Area Sources:**

### **Ohio (Dayton)**

Cutback asphalt 5

## New Jersey

Stage I 65

## Philadelphia area evaluated by Region III

Stage I 40



TABLE OF CONTENTS

Page	Section
1	1.0 Introduction and Background
1	1.1 Introduction
1	1.2 Background
1	1.3 Definition of Rule Effectiveness
2	2.0 Definitions
2	2.1 Industry-Specific Rule Effectiveness
2	2.2 Identifying Personnel to Perform Site Evaluation
2	2.3 Consideration of Baseline
2	2.4 Preliminary Guidance
2	2.5 Determination of Emission Sources
2	2.6 Application of Rule Effectiveness in Base Year
2	2.7 Emission Inventories
3	3.1 Determining Sources of Rule Effectiveness
3	3.2 Preliminary Guidance
3	3.3 Identification of Direct Contributors
3	3.4 Determination of Emission Sources
3	3.5 Application of Rule Effectiveness in Base Year
3	3.6 Emission Inventories
4	4.1 Determining Sources of Major Rule Effectiveness
4	4.2 Sample Calculations
4	4.3 Conclusion
5	APPENDIX A: Point Source Guidance
5	APPENDIX B: Major Source Capacity Quantities

Policy Development Section  
Ozone and Carbon Monoxide Programs Branch  
Air Quality Management Division  
Office of Air Quality Planning and Standards

## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Introduction and Background	1
1.1 Introduction	1
1.2 Background	1
2.0 Definition of Rule Effectiveness	2
3.0 Procedures for Estimating Local Category-Specific Rule Effectiveness	2
3.1 Identifying Personnel to Perform the Evaluation	4
3.2 Choosing Sources to Evaluate	4
3.3 Preliminary Screening of Sources	6
3.4 Answering the Questionnaires	8
3.5 Determination of Effectiveness Values	8
4.0 Application of Rule Effectiveness in Base Year Emission Inventories	9
4.1 Determining Sources to Which Rule Effectiveness Should Apply	9
4.2 Example Calculations	10
5.0 Conclusion	12
APPENDIX A: Point Source Questionnaire	
APPENDIX B: Area Source Category Questionnaire	

## 1.0 INTRODUCTION AND BACKGROUND

### 1.1 Introduction

Past inventories have reflected the assumption that regulatory programs were being and would be implemented with full effectiveness, achieving all of the required or intended emission reductions and maintaining that level over time. However, experience has shown regulatory programs to be less than 100 percent effective in most areas of the country. This means that past SIPs have understated actual emissions and, therefore, have resulted in lower emission reduction targets than are actually necessary to attain the national ambient air quality standards.

This guidance describes a procedure for estimating the effectiveness of existing regulatory programs. The procedure involves answering generic questionnaires based on available file information for specific sources and extrapolating the results to other sources in similar source categories. The results are to be used in the base year emission inventories being prepared in response to the post-1987 ozone and carbon monoxide (CO) calls for State implementation plans (SIPs).

### 1.2 Background

On November 24, 1987, EPA proposed the post-1987 ozone/CO policy. A key component of this policy was the proposal that States account for the actual effectiveness of both present and future regulatory programs. EPA further proposed that a baseline assumption of 80 percent rule effectiveness (RE) should be applied to all source categories in the inventory until a local source-specific evaluation could be completed to ascertain the actual category-specific effectiveness.

EPA received numerous comments regarding the RE requirements proposed in the policy. None of the commenters challenged the concept of applying RE in the inventories or of improving the RE of particularly troublesome categories. Many commenters, however, suggested that EPA provide an alternative to the across-the-board 80 percent presumption. The general theme contained in these comments was that EPA should allow States flexibility in making RE estimates so that regulatory programs showing good compliance rates for certain source categories can receive higher credit than those showing lower compliance rates.

EPA anticipates that the final policy will preserve the requirement to apply RE to each source category in the inventory. In addition, States that consider a presumption of 80 percent to be inappropriate for describing the average RE of their present regulatory programs will have the option of determining their own category-specific estimates according to the procedures described in this guidance.

The rest of this document is divided into 3 main sections. Section 2 discusses the definition of RE. Section 3 describes the procedures to be used in estimating local category-specific RE values for States that choose not to use the 80 percent default. Finally, Section 4 contains instructions on how to apply RE to sources in the base year inventories.

## 2.0 DEFINITION OF RULE EFFECTIVENESS

RE reflects the ability of a regulatory program to achieve all the emission reductions that could have been achieved by full compliance with the applicable regulations at all sources at all times. The precise degree to which all affected sources comply with a particular regulation over time is virtually impossible to ascertain without the aid of continuous monitoring of VOC emissions at all sources. RE can be estimated, however, by evaluating the success of a regulatory program at a few sources and extrapolating the results to others.

There is no succinct mathematical formula that adequately accounts for the many different variables influencing RE, although it can be thought of as a complex function of the following types of factors: the nature of the regulation, the nature of techniques used to comply with the regulation, the performance of each source in complying with the regulation, and the performance of the implementing agency in enforcing the regulation. Table 2-1 lists specific examples of each type of factor. Although the list is not exhaustive, it demonstrates the large number and wide variety of factors that affect RE.

By definition, all source categories for which a regulation exists should have a RE of between 0 and 100 percent. To say that a particular regulation was 100 percent effective would mean that the regulatory agency could assure complete and continual compliance at all sources covered by the regulation, with no occurrences of control equipment failures or process upsets at any source and no sources evading control requirements. To say that a regulation was 0 percent effective would mean that no sources in the category had made any effort to comply with the applicable regulation.

## 3.0 PROCEDURES FOR ESTIMATING LOCAL CATEGORY-SPECIFIC RULE EFFECTIVENESS

The following procedure should be used by States that choose to develop local category-specific RE values instead of using the 80 percent across-the-board presumption proposed by EPA. The procedure involves the use of two generic questionnaires that are based on the factors listed in Table 2-1. There is one

**Table 2-1 FACTORS INFLUENCING RULE EFFECTIVENESS**

due to implementation by state agencies (see Appendix B).

**Nature of the Regulation**

- possible ambiguity or deficiencies in wording
- level of detail of recordkeeping required
- level of complexity of compliance determination

**Nature of Techniques Used to Comply With Regulation**

- level of confidence in long-term capabilities of control technique (i.e., whether the emissions control is prone to failure or degradation even with adequate attention)
- complexity of control technique (i.e., likelihood that operator error or variability in operator technique could effect compliance)
- potential for fugitive emissions not ducted to control device (i.e., adequacy of emissions capture system)

**Performance of Source in Complying With Regulation**

- trained individual responsible for complying with environmental regulations
- schedule for maintenance and inspection of control equipment
- adequacy of recordkeeping practices (i.e., can compliance be determined from available records?)
- assurance of compliance over time, considering the previous record of process upsets or control equipment malfunction
- timeliness of response to notices of violation

**Performance of Implementing Agency in Enforcing Regulation**

- attention and resources directed at this source or source category
- communications effort, with respect to compliance requirements
- completeness of data maintained on file
- thoroughness in training inspection personnel
- timeliness and thoroughness of inspections
- adequacy of follow-up on noncomplying sources

questionnaire for individual point sources (see Appendix A) and one for categories predominated by area source categories (see Appendix B).

States choosing this option are required to use these procedures for all source categories in their inventories, not just selected categories or selected sources. This is because the 80 percent presumption represents an average RE across all sources and source categories, accounting for the fact that RE in some categories may be higher than 80 percent, while in others it may be lower. Using one method or the other, but not a combination of both, will help prevent the introduction of biases into the inventories.

### 3.1 Identifying Personnel to Perform the Evaluation

In most cases, a representative from the State agency's SIP planning group should take the lead in conducting the RE evaluations described in this document. (This person will be hereafter referred to as the "evaluator".) The role of the EPA Regional Office generally will be to review the results of the individual evaluations and/or the final RE estimates. In specific cases where this arrangement is not satisfactory, States may negotiate with the Regional Offices to modify the respective roles.

One of the goals of incorporating RE in the base year inventory is for planning personnel to become more aware of the extent to which sources are complying with SIP regulations and the actual emission reductions that have resulted. Since this involves gaining a perspective from the compliance point of view, EPA strongly recommends that the evaluator enlist the aid of the local inspectors most familiar with the particular sources evaluated.

### 3.2 Choosing Sources to Evaluate

The most accurate way to estimate RE for point source categories would be to evaluate all, or at least a statistical sample, of sources in each category and average the results. Recognizing the unreasonable resource and time burden this would place on the agency performing the evaluation, EPA has derived a method that involves only one (1) or two (2) evaluations for each source category. The method entails grouping source categories into the following classes, as indicated in Table 3-1: processes in the petroleum industry, surface coating processes, other industrial processes, and source categories predominated by small sources and generally considered to be area source categories. (The source categories listed in Table 3-1 are only those covered by EPA control techniques guidelines (CTG's). Non-CTG sources or source categories should be assigned to whichever of the above classes best incorporates the processes at each plant.) A RE

**Table 3-1 CLASSES OF SOURCE CATEGORIES COVERED BY EPA  
CONTROL TECHNIQUES GUIDELINES (CTG's)**

<u>Source Category</u>	<u>CTG Group</u>
<b>CLASS: PETROLEUM INDUSTRY</b>	
Gasoline Loading Terminals	I
Gasoline Bulk Plants	I
Fixed Roof Petroleum Tanks	I
Miscellaneous Refinery Sources	I
Leaks from Petroleum Refineries	II
External Floating Roof Petroleum Tanks	II
Gasoline Truck Leaks and Vapor Collection	II
Equipment Leaks from Natural Gas/Gasoline Processing Plants	III
<b>CLASS: SURFACE COATING</b>	
Cans	I
Metal Coils	I
Fabrics	I
Paper Products	I
Automobiles and Light Duty Trucks	I
Metal Furniture	I
Magnet Wire	I
Large Appliances	I
Miscellaneous Metal Parts	II
Flat Wood Paneling	II
Graphic Arts	II
<b>CLASS: OTHER INDUSTRIAL PROCESSES</b>	
Synthetic Pharmaceutical Manufacturing	II
Rubber Tire Manufacturing	II
Manufacture of HDPE, PP, and PS Resins	III
Fugitive Emissions from SOC, Polymer, and Resin Manufacturing Equipment	III
Large Petroleum Dry Cleaners	III
SOCMI Air Oxidation Processes	III
<b>CLASS: PREDOMINANTLY AREA SOURCE CATEGORIES</b>	
Service Stations - Stage I	I
Cutback Asphalt	I
Solvent Metal Cleaning	I
Commercial Dry Cleaning	II

value for each class of source categories can be determined by completing questionnaires from ten (10) sources in the class, with at least one (1) from each source category, and averaging the results. The sources should be chosen randomly to avoid biasing the results.

For example, one possible method for choosing random sources to evaluate is for the evaluator to obtain a list of the numerical identification codes of all sources in the local inventory, grouped by source category and source category class, along with any other details necessary to obtain the applicable file information. In order to obtain a truly random sample of sources, the evaluator might enlist the aid of another employee of the State or local agency who is unfamiliar with sources in the air program. This employee would be presented with a list of only the numerical identification codes, not the company names, of all sources in the inventory grouped by source category and source category class. He or she would then be asked to choose ten (10) random sources in each point source category class, with at least one (1) source from each source category. (Area sources will be evaluated by category, so no individual sources in the area source categories would need to be chosen.) RE will be evaluated for each point source chosen and each area source category by the procedure outlined below.

### 3.3 Preliminary Screening of Sources

Each point source chosen should be subjected to the preliminary screening test at the beginning of the point source questionnaire. This screening will determine the appropriateness of evaluating RE for the chosen sources. RE should not be determined for the chosen source if any of the following is true:

- the source is completely uncontrolled,
- the source achieves emissions reduction by means of an irreversible process change that completely eliminates VOC from the production process, or
- emissions from the source are calculated by means of a direct determination.

Sources for which any of the above is true should be excluded from the evaluation, and another source should be chosen.

**3.3.1 Uncontrolled Source** - As illustrated by the first screening question on the point source questionnaire, RE should not be determined for sources that are completely uncontrolled. This is because a regulation is considered to be totally ineffective in cases where the source is making no attempts at compliance. The RE for such a source would be zero and should be recorded in the inventory as such.

**3.3.2 Irreversible Process Change** - An "irreversible process change" involves a process modification or equipment substitution that completely eliminates solvent use from the production process and cannot be quickly or easily reversed. Examples of this would be the substitution of a hot-melt lamination process for solvent-based adhesives and the use of a powder coating process instead of solvent-based coatings. The use of "exempt" solvents or "complying coatings" would not constitute an irreversible process change, however, because neither involves the installation of new equipment, the total redesign of a production line, or the total elimination of VOC use.

As indicated by the second screening question, sources controlling emissions by an irreversible process change should be assigned a RE of 100 percent in the inventory because the nature of the control technique assures continual compliance over time. Such a source should be excluded from the RE evaluation, and a different source in the same source category should be chosen to evaluate.

**3.3.3 Direct Determination** - A direct determination is one in which emissions are calculated directly from production and/or solvent usage data over time rather than from estimating an uncontrolled emission level and applying some control efficiency. An example of a direct determination would be where emissions are controlled by use of low-solvent or "complying" coatings and calculated by the following method:

- obtain coating and solvent usage records from a typical summer month,
- obtain manufacturer's specifications on solvent content of all coatings used,
- calculate total amount of solvent used during the month by multiplying coating usage (gal/month) and solvent content of coating (lbs VOC/gal coating) and adding the raw solvent usage (lbs VOC/month),
- assume that all solvent used was emitted to the atmosphere at some point within the plant, if appropriate, and
- calculate emissions in lbs VOC/day by dividing total solvent emitted (lbs VOC/month) by number of working days in that month (days/month).

Another potential case in which emissions could be directly determined is where some type of continuous emission monitoring (CEM) equipment is used. EPA does not know of any sources currently using CEM to monitor VOC emissions. (Utility boilers emit VOC and use CEM, but not to monitor VOC.) If technology

advances to the point where CEM is used to monitor VOC, the use of CEM might preclude the need to apply RE.

In the case of a direct determination, RE would fall out of the emissions calculation because there is no control efficiency estimate to which RE should be applied. Thus, for such a source, a determination of RE would not be meaningful and should not be performed. Instead, another source should be chosen to evaluate.

### 3.4 Answering the Questionnaires

The evaluator should complete one point source questionnaire for each point source that passes the preliminary screening test and one area source questionnaire for each area source category. The questionnaires are designed to be answered using available file information, only. No dedicated source inspections are required; however, the file should contain reports of previous visits and inspections. These will be necessary to answer several of the questions. The complete file information on a particular source should be obtained by the evaluator prior to answering the questionnaire. The evaluator should confer with the State compliance inspector most familiar with the source or source category being evaluated to answer the questionnaires. If an answer cannot be ascertained, the space marked "unsure" should be indicated on the questionnaire.

In addition, the evaluator should obtain any information relating to potential deviations or deficiencies in the State regulations. The most helpful information would be in the SIP-call follow-up letter sent to the State Air Program Director from the corresponding EPA Regional Air Division Directors, which delineates specific deficiencies that EPA required be corrected in response to the SIP-calls for nonattainment areas in that State. Another source of information is the document Issues Relating to VOC Regulations, Cutpoints, Deficiencies, and Deviations, issued in May 25, 1988 by EPA's Air Quality Management Division (AQMD/OCMPB/PIS). The evaluator should confer with the EPA Regional Office to ascertain the most current and applicable information on regulation deficiencies.

### 3.5 Determination of Effectiveness Values

The answers to each question on the questionnaires have a point value associated with them. After answering each question with the response that best describes the particular source or source category being evaluated, the evaluator should sum the point values of the answers in each section and record the subtotal in the space provided on the last page. The total score can be calculated once all the sub-totals are recorded. For area source categories, this total is the RE value that should be

applied to the emission inventory. For point sources, the procedure requires an additional step, as explained below.

Once the score for each point source in the study has been determined, the RE values for a particular class of point source categories can then be determined by means of a straight line average. In other words, the scores from each point source in a particular class should be summed and then divided by the number of sources in that class for which a questionnaire was completed. Thus, the evaluation procedure will result in RE values for each of the three (3) point source category classes and as many area source RE values as there are area source categories. The next section describes how to apply these RE values in the emission inventory.

#### 4.0 APPLICATION OF RULE EFFECTIVENESS IN BASE YEAR EMISSION INVENTORIES

RE factors are to be applied for the purpose of more accurately representing actual emissions than has been done in past inventories. While local RE values may be determined on a source category basis, these same factors should be applied in the inventory on a source-by-source basis. Because applying RE factors to individual sources will increase the emissions indicated for most sources, it is important for air pollution control specialists to understand that the RE estimates determined by the above procedure are to be used for emission inventory purposes only, NOT FOR ESTABLISHING A NEW SOURCE-SPECIFIC ALLOWABLE EMISSION LEVEL. RE should never be used in calculating source-specific emissions for the purposes of the new source review or emission trading programs or for determining compliance status.

##### 4.1 Determining Sources to Which Rule Effectiveness Should Apply

The category-specific RE values determined by the above procedure are to be applied to all sources in the inventory that are subject to the particular regulation, with the following exceptions:

- sources that are completely uncontrolled,
- sources for which control is achieved by means of an irreversible process change that eliminates the use of VOC, and
- sources for which emissions are calculated by means of a direct determination.

These exceptions were described in detail in Section 3.3 above.

For sources that are completely uncontrolled, a RE of 0 percent should be recorded in the inventory. Sources using an irreversible process change to control emissions should be assumed to be achieving 100 percent RE. Finally, when emissions can be calculated by means of a direct determination, RE falls out of the calculation and, thus, does not affect the emissions estimate. For all other types of sources, RE should be applied in a manner consistent with the examples below.

#### 4.2 Example Calculations

Following are examples for how to include RE in the emissions calculations for one type of facility in each class of source categories shown in Table 3-1.

**4.2.1 Petroleum Industry** - A gasoline loading terminal delivers 250,000 gal/day. The uncontrolled emissions from tank truck loading at the terminal are estimated to be 8 lbs VOC per 1000 gal. The terminal has installed RACT and achieves an estimated 87 percent emission reduction. The RE for this source category class has been determined to be 80 percent. What emissions should be reported in the inventory?

Answer: Emissions should be determined by the following formula:

$$\begin{aligned} E &= \text{Unc. Emis.} \times (1 - (\text{Cont. Eff.})(\text{RE})) \\ &= 250,000 \text{ gal/day} \times 8 \text{ lb/gal} \times (1 - (.87)(.80)) \\ &= 608,000 \text{ lbs VOC/day} \end{aligned}$$

**4.2.2 Surface Coating** - A paper coater uses only coatings specified by the manufacturer to contain 2.9 lb VOC/gal to comply with the RACT limit. (This RACT level assumes an 81 percent reduction from baseline.) Coating usage at the plant is documented to be 100 gal/day. The RE for this source category class has been determined to be 70 percent. What emissions should be reported in the inventory?

Answer: Emissions from this plant can be calculated by means of a direct determination, thus RE does not need to be applied.

$$\begin{aligned} E &= \text{VOC content of coating} \times \text{Coating usage} \\ &= 2.9 \text{ lbs VOC/gal} \times 100 \text{ gal/day} \\ &= 290 \text{ lbs VOC/day} \end{aligned}$$

If the facility is thought to be using RACT complying coatings, but this has not been verified by the State or certified by the coatings manufacturer, then RE would need to be applied to the emissions determination. To perform the necessary calculation,

one would first need to determine baseline emissions as follows:

$$\begin{aligned}\text{Unc. Emis.} &= \frac{\text{Emis. after control, assuming RACT}}{(1 - \text{Cont. eff.})} \\ &= \frac{290 \text{ lbs VOC/day}}{(1 - .81)} \\ &= 1526 \text{ lbs VOC/day}\end{aligned}$$

Incorporating RE into the calculation of emissions would result in the following:

$$\begin{aligned}E &= \text{Unc. Emis.} \times (1 - (\text{Cont. Eff.})(\text{RE})) \\ &= 1526 \text{ lbs VOC/day} \times (1 - (.81)(.70)) \\ &= 661 \text{ lbs VOC/day}\end{aligned}$$

**4.2.3 Other Industrial Processes** - A large petroleum dry cleaner has an estimated uncontrolled emission rate of 200 ton VOC/yr. The RACT control level is 80 percent, and the RE determined for this source category class is 85 percent. The plant is in operation 310 days/yr. What emissions should be reported in the inventory?

Answer: Emissions should be calculated as follows:

$$\begin{aligned}E &= \text{Unc. emis.} \times (1 - (\text{Cont. Eff.})(\text{RE})) \\ &= \frac{200 \text{ tons/yr} \times 2000 \text{ lbs/ton}}{310 \text{ days/yr}} \times (1 - (.80)(.85)) \\ &= 413 \text{ lbs VOC/day}\end{aligned}$$

**4.2.4 Area Source Categories** - The gasoline throughput for service stations in a nonattainment area is reported to be 400,000 gal/day. The uncontrolled Stage I emissions are estimated to be 11.5 lbs VOC per 1000 gal. The State regulation requires 95 percent control at each facility and covers about 90 percent of the overall emissions from the category (i.e., rule penetration = 90 percent).<sup>1</sup> The RE for this category has been

---

<sup>1</sup> For a more detailed discussion of rule penetration, refer to Procedures for the Preparation of Emission Inventories for Precursors of Ozone, Volume I. 3rd edition. EPA-450/4-88-021, December 1988. pp. 4-1, 4-4.

determined to be 60 percent. What emissions should be reported in the inventory?

$$\text{Unc. emis.} = 400,000 \text{ gal/day} \times 11.5 \text{ lbs VOC/1000 gal}$$
$$= 2,300 \text{ lbs VOC/day}$$

$$E = \text{Unc. emis.} \times (1 - (\text{Cont. Eff.})(\text{RE})(\text{Pene.}))$$
$$= 4,600 \text{ lbs VOC/day} \times (1 - (.95)(.60)(.90))$$
$$= 2,240 \text{ lbs VOC/day}$$

## 5.0 CONCLUSION

Answer: Emissions should be classified as follows:

$$( . ( RE ) ( 1 - ( Cont. Eff. ) x ( 1 - ( .95 ) ( .60 ) ( .90 ) ) )$$
$$= 200 \text{ tons/day} \times 2000 \text{ lbs/ton}$$
$$= 400,000 \text{ lbs/day}$$

Percent of RACT compliance = 60 percent

RACT compliance factor = 0.95

Percent of PACT compliance = 60 percent

PACT compliance factor = 0.60

Percent of PENE = 90 percent

PENE factor = 0.90

• Rule Selections Evaluation Form  
Final Source

Source Category  
Source Name  
Source Location

Rule Selections Selected:

- RE of 0 because for this source configuration by an intermediate process changes (IE "Yes", choose simpler source for analysis, and indicates a RE of 100 because for this source in the invencorx.)
- RE of 100 because from this source need optimization by masses of a direct dependencies, and do not affect RE to this source in the invencorx.)
- RE of 0 because from this source configuration by an intermediate process changes (IE "Yes", choose simpler source for analysis, and indicates a RE of 100 because for this source in the invencorx.)

**APPENDIX A**

- Has emissions from this source need optimization by masses of a direct dependencies, and do not affect RE to this source in the invencorx.)

A. Nature of the Relation

- Does the relation contain unoptimized variables (not including record-level definitions) as specified in the PBY Relations
- With Division Director to have space will be used
- Directives

No of number (0)	Score	Yes (2)
------------------	-------	---------

Does the same relation source to keep records  
enabling to use as input to determine  
compliance aspects

No of number (0)	Score	Yes (2)
------------------	-------	---------

Is the determination of compliance complete (e.g. close  
line saved, this version <34 points, perhaps?)  
(It takes too many probably iterative records this will  
necessarily compliance determination becomes base point  
carrying out, score 2 points for this definition  
leading to a newer checked below.)

Determination can be made by looking at  
itself, as in the case of an equipment  
(2) spending.

RULE EFFECTIVENESS EVALUATION FORM  
Point Sources

Source Category \_\_\_\_\_  
Source Name \_\_\_\_\_  
Source Location \_\_\_\_\_

Preliminary Screening:

1. Is this source currently uncontrolled? \_\_\_\_\_  
(If "yes", choose another source to evaluate, and indicate a RE of 0 percent for this source in the inventory.)
2. Are emissions from this source controlled by an irreversible process change?  
(If "yes", choose another source to evaluate, and indicate a RE of 100 percent for this source in the inventory.)
3. Have emissions from this source been calculated by means of a direct determination?  
(If "yes", choose another source to evaluate, and do not apply RE to this source in the inventory.)

A. Nature of the Regulation

1. Does the regulation contain uncorrected deficiencies (not including record keeping deficiency) as specified in the SIP-call follow-up letter from the EPA Regional Air Division Director to your State Air Program Director?

\_\_\_\_ No (5)  
\_\_\_\_ Yes or unsure (0) Score \_\_\_\_\_

2. Does the State require source to keep records sufficient to enable an inspector to determine compliance status?

\_\_\_\_ Yes (5)  
\_\_\_\_ No or unsure (0) Score \_\_\_\_\_

3. Is the determination of compliance complex (e.g. cross line averaging, time averaging >24 hours, bubbles)?  
(If State can verify through detailed records that all necessary compliance determination procedures have been carried out, score 5 points for this question regardless of answer checked below.)

\_\_\_\_ Determination can be made by looking at facility, as in the case of an equipment standard. (5)

- Determination can be made by collecting and analyzing one sample or by evaluating continuous emission monitoring reports. (4)
- Determination requires that multiple samples be taken and analyzed and that plant records be evaluated. (3)
- Stack testing (including capture and control) must be performed to determine compliance. (3)

Score \_\_\_\_\_

B. Nature of Procedures Used to Comply With Regulation

1. This question concerns the relative level of confidence in the long-term performance capabilities intrinsic to different control techniques (e.g., how time in operation and maintenance degradation might effect emissions control). Check each technique used at the facility, average the scores assigned to each, and report the average as a single score. If State can verify through detailed records that the source has actually been in continuous compliance at all times during the past two years, score 10 points on this question regardless of control methods used.

- Floating roof (10)  
 Thermal incinerator (8)  
 Vapor balance (8)  
 Reversible process change (e.g., coating reformulation) (8)  
 Condensation system (7)  
 Carbon adsorber (7)  
 Catalytic incinerator (7)  
 Other (7)

Score \_\_\_\_\_

2. Are fugitive emissions that might cause noncompliance a possibility where add-on controls are used (check one)?

- No (5)  
 Not applicable because there is no add-on equipment (5)  
 Yes, but fugitive emissions have been shown to be below allowable limits by an EPA-approved capture efficiency test (5)  
 Yes or unsure (0)

Score \_\_\_\_\_

C. Performance of Source in Complying With Regulation

"Yes" answers to questions in Section C must be confirmed by information in the State or local agency's file; otherwise answer no or unsure (or yes or unsure for question 4a).

1. Is there a trained individual employed by the source who is responsible for compliance with environmental regulations?

Yes (5)  
 No or unsure (0) Score \_\_\_\_\_

2. Does source keep records supporting its compliance and allowing verification of this.

Yes (10)  
 No or unsure (0) Score \_\_\_\_\_

3. Has an EPA-approved source test method or procedure been performed which supports compliance (e.g. as described in Issues Relating to VOC Regulations, Cutpoints, Deficiencies, and Deviations, "Test Methods or Procedures for Group I, II, and III CTG's", May 25, 1988)?

Yes, less than 2 years ago (10)  
 Yes, but over 2 years ago (5)  
 No or unsure (0) Score \_\_\_\_\_

- 4a. Has source been found to be out of compliance in the last 12 months? (If "yes", then answer question 4b also.)

No (10)  
 Yes or unsure (0) Score \_\_\_\_\_

- 4b. In responding to Notices of Violation, did the source demonstrate compliance within the required time frame? (Answer this question only if you answered "yes" to question 4a. above)

Yes (5)  
 No or unsure (0) Score \_\_\_\_\_

D. Performance of Implementing Agency in Enforcing Regulation

1. Does implementing Agency maintain file information that allows verification of the source's compliance? (Score 4 points for each "yes" or for items that are not applicable to this source. Score 0 points if the file

data for an item are inadequate or unavailable.)

- Are all applicable requirements identified?  
(e.g., emission, averaging, compliance schedule,  
monitoring, recordkeeping, reporting, operation  
and maintenance, test requirements) \_\_\_\_\_
- Are all permits and abatement orders  
available? \_\_\_\_\_
- Are accurate and complete flow diagrams available  
for the emission points and control, capture,  
ventilation and process systems? \_\_\_\_\_
- Are all source test and sample analysis results  
available? \_\_\_\_\_
- Are all appropriate control system operating  
data available? \_\_\_\_\_

Score \_\_\_\_\_

2. How many times has source been inspected in the past 24  
months? (Inspections must be confirmed by inspection  
reports in implementing Agency's file.)

- \_\_\_\_\_ >2 times, unannounced (5)  
\_\_\_\_\_ Once or twice, unannounced (4)  
\_\_\_\_\_ Once or more, with prior notice  
or unknown if notice given (3)  
\_\_\_\_\_ None or unsure (0) Score \_\_\_\_\_

3. Did the person who most frequently inspects this source  
complete a formal training program that specifically  
addressed how to inspect this type of source?

- \_\_\_\_\_ Yes (5)  
\_\_\_\_\_ No or unsure (0) Score \_\_\_\_\_

4. If source has been found out of compliance within the  
last 12 months, has a follow up inspection been made to  
affirm compliance?

- \_\_\_\_\_ Not applicable because source has not been  
found to be out of compliance (5)  
\_\_\_\_\_ Yes (5)  
\_\_\_\_\_ No or unsure (0) Score \_\_\_\_\_

SCORING:

Subtotal A \_\_\_\_\_ of 15 points  
Subtotal B \_\_\_\_\_ of 15 points  
Subtotal C \_\_\_\_\_ of 35 points  
Subtotal D \_\_\_\_\_ of 35 points

Total Score = \_\_\_\_\_ of 100 points maximum

APPENDIX B

## RULE EFFECTIVENESS EVALUATION FORM

Area Source Categories

Source Category \_\_\_\_\_

1. Does the regulation contain uncorrected deficiencies as specified in the SIP-call follow-up letter from the EPA Regional Air Division Director to the State Air Program Director?

No (5)       Yes or unsure (0)      Score \_\_\_\_\_

2. What has been the nature and extent of source education on requirements of the regulation? (Choose the applicable response that has the highest point value.)

<input type="checkbox"/>	Individual source mailings on compliance requirements and educational opportunities for plant personnel	(20)
<input type="checkbox"/>	Individual source mailings on compliance requirements	(10)
<input type="checkbox"/>	General notices in newspapers, trade journals, etc.	(5)
<input type="checkbox"/>	Inform trade association	(5)
<input type="checkbox"/>	None	(0)

Score \_\_\_\_\_

3. What percentage of sources in the inventory typically are spot checked annually?

<input type="checkbox"/>	>30 percent	(20)
<input type="checkbox"/>	10-30 percent	(15)
<input type="checkbox"/>	5-10 percent	(10)
<input type="checkbox"/>	1-5 percent	(5)
<input type="checkbox"/>	0-1 percent or don't know	(0)

Score \_\_\_\_\_

4. What percentage of the past year's spot checks indicated compliance?

<input type="checkbox"/>	100 percent	(30)
<input type="checkbox"/>	90-99 percent	(25)
<input type="checkbox"/>	50-90 percent	(20)
<input type="checkbox"/>	25-50 percent	(10)
<input type="checkbox"/>	1-25 percent	(5)
<input type="checkbox"/>	0 percent or don't know	(0)
<input type="checkbox"/>	Not applicable since no spot checks were done	(0)

Score \_\_\_\_\_

RULES ELIGIBILITY EVALUATION FORM

5. Has formal documented enforcement action been taken against sources found to be in noncompliance?

Not applicable since no inspected sources have been found to be in noncompliance (10)  
 Yes, for all noncomplying sources (10)  
 Yes, in 50 to 99 percent of the cases (5)  
 Yes, in < 50 percent of the cases (2)  
 Never, or don't know (0)

Score \_\_\_\_\_

6. Have enforcement actions for sources in this source category been publicized in media, either through news stories or paid advertisements (newspaper, TV, radio, trade journals)?

Not applicable since no inspected sources have been found to be in noncompliance (5)  
 Yes, in every case (5)  
 Yes, in 50 to 99 percent of the cases (3)  
 Yes, in < 50 percent of the cases (1)  
 Never, or don't know (0)

Score \_\_\_\_\_

7. Have follow-up inspections been made on sources which were found to be out of compliance?

Not applicable since no inspected sources have been found to be in noncompliance (10)  
 Yes, in 100 percent of the cases (10)  
 Yes, in 50 to 99 percent of the cases (5)  
 Yes, in < 50 percent of the cases (2)  
 Never, or don't know (0)

Score \_\_\_\_\_

TOTAL SCORE: \_\_\_\_\_  
(100 points maximum)