



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

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MEMORANDUM

SUBJECT: Implementation of Stack Height Regulations - Exceptions From  
Restrictions on Credit for Merged Stacks

FROM: Darryl D. Tyler, Director *[Signature]*  
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TO: Director, Air Management Division  
Regions I-X

This guidance has been prepared to address two issues pertaining to credit for merged stacks prior to July 8, 1985. It establishes a procedure that should be used to prepare and to review justifications for merging gas streams for economic or engineering reasons, and to address the presumption that merging was significantly motivated by an intent to gain credit for increased dispersion. Please note that this is guidance; States may submit alternative demonstrations in support of merged stack exemptions if they feel the individual circumstances warrant.

Background

Recent revisions to EPA's stack height regulations place certain restrictions on the degree to which stationary sources may rely on the effects of dispersion techniques when calculating allowable emissions. One such restriction is provided for the merging of gas streams, or combining of stacks. Several exemptions have been provided in the regulation, however. More specifically, 40 CFR Part 51.1(hh)(2)(ii) allows credit under circumstances where:

A. The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

B. After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion techniques" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

C. Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the federally-approved emission limitation for any

pollutant or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of any pollutants actually emitted from existing units prior to the merging, the reviewing agency shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such an intent, the reviewing agency shall deny credit for the effects of such merging in calculating the allowable emissions for the source.

### General Requirements

Figure 1 illustrates a framework for evaluating claims for merged stack credit. Because merged gas streams are generally regarded as prohibited dispersion techniques under the regulations, it is incumbent on the State or the source owner or operator to demonstrate that such merging was conducted for sound economic or engineering reasons, and was not significantly motivated by an intent to avoid emission controls. Consequently, the first step should entail a review of State and EPA files to determine the existence of any evidence of intent on the part of the source owner or operator. Information showing that merging was conducted specifically to increase final exhaust gas plume rise serves as a demonstration of dispersion intent that justifies a denial of credit for merged gas streams. Demonstrations that merging was carried out for sound economic or engineering reasons are expected to show that either the benefits of merging due to reduced construction and maintenance costs outweigh the benefits relating to lower emission control costs or that relevant engineering considerations showed the merging to be clearly superior to other configurations.

### Demonstration Requirements

Several exemptions from prohibitions on gas stream merging are provided for existing sources in the stack height regulations:

- 1- where sources constructed their stacks before December 31, 1970,
- 2- where the total facility-wide emissions from the source do not exceed 5,000 tons per year,
- 3- where the facility was originally designed and constructed with merged gas streams, and
- 4- where the merging was part of a change in facility operation that included the installation of pollution control equipment and resulted in no increase in the allowable emissions of any pollutant.\* Where there was an increase in emissions in conjunction with the merging and installation of control equipment, the regulations require that source owners also make an affirmative demonstration that the merging was not motivated by dispersive intent.

\*Where there was no federally-approved emission limit prior to merging gas streams, there must be no increase in the actual emissions of any pollutant. Moreover, it is incumbent on the State to demonstrate that there was a logical relationship between the merging of existing gas streams and the installation of controls.

Sources that are not covered under these criteria may still qualify for exemption if they can show that merging was conducted for sound economic or engineering reasons. Such demonstrations should include justifications for having replaced existing stacks. This may be done, for instance, by documenting through maintenance records, correspondence, or other contemporaneous evidence, that the existing stacks had reached the end of their useful life, were prematurely corroded, had sustained other damage making them unservicable, were of a height less than that regarded as good engineering practice, thereby causing downwash problems, or that the addition of new units at the facility necessitated additional stacks and insufficient land was available. The absence of any evidence supporting the need for stack replacement creates a strong presumption that merging was carried out specifically to avoid the installation of pollution controls, i.e., was "significantly motivated by an intent to gain emissions credit for increased dispersion."

#### No Increase in Allowable Emissions

Once this initial criterion is satisfied, demonstrations may show that merging was based either on sound economic or sound engineering reasons. Claims based on strict engineering justifications may be more difficult to show, since the existence of more than one reasonable engineering solution generally leads to a decision based on economics. However, if it can be documented that the merged stack configuration was clearly superior to other stack configurations for purely engineering reasons, without consideration of cost, then credit for merging may be granted.

In order to most reliably implement the provisions of the regulations regarding the merging of gas streams for sound economic reasons, it would be necessary to ascertain the actual intent of the source owner or operator at the time the decision was made to merge gas streams. Recognizing that the difficulty of doing so was the basis for EPA's rejection of an "intent test" in the rule, the following approach provides a surrogate demonstration of intent. This approach is summarized in Figure 2.

Because the potential savings attributable to the avoidance of pollution controls can significantly influence decisions to merge stacks, one way to show the absence of dispersion intent is to conduct an analysis of the annualized capital and maintenance costs for merged stacks and for individual stacks, and compare the results to the compliance costs (fuel and operation and maintenance of any control equipment) calculated based on the emission limitations derived with and without merged stack credit. If, when the difference in capital and maintenance costs is compared with the difference in compliance costs over the period of capital amortization, the capital and maintenance cost saving is greater than the compliance cost saving, then merging can be accepted as having a sound economic basis.

In establishing this rule of thumb, we are aware that a benefit of as little as 10-20 percent could be considered "significant" in the context of the court's holding on this matter--i.e., such a benefit could have been considered to be a relevant factor in decisions to construct merged stacks.

However, recognizing that documentation of cost analyses after an extended period of time--up to 15 years--is likely to be limited, we believe that the 50 percent test articulated above would constitute a more reasonable basis for initial determinations (that is, a level at which we believe that there was likely a significant incentive to merge stacks to avoid control requirements).

#### Affirmative Demonstrations of Nondispersion Intent

In some instances, a State or emission source owner may not be able to make a demonstration as described above, or believe that sound economic reasons existed for merging stacks, regardless of the relationship between financial savings attributable to reduced emission control requirements versus lower stack construction cost. In such cases, an opportunity should be provided to affirmatively demonstrate that merged stacks were not "significantly motivated by an intent to obtain emissions credit for increased dispersion." The burden of proof rests solely with source owners or operators attempting to make this showing.

Demonstrations may rely on any relevant evidence, including but not limited to the following:

- construction permits, or permits to operate from pollution control agencies
- correspondence between the source owner or operator and government agencies
- engineering reports relating to the facility
- facility records
- affidavits
- any other relevant materials

For instance, such a demonstration could be made by submitting documentary or other evidence (e.g., internal company memoranda presenting the alternative construction opportunities available to the company) that indicates the intent of the source owner or operator and shows that consideration of dispersion advantages was conspicuously absent.

Alternatively, it might be shown that either action by the State in approving a revised emission limit followed actual merging sufficiently later in time to suggest that dispersion credit was not considered by the source at the time of merging or the State approved limit was unrelated to the merging.

In attempting to make demonstrations, source owners or operators should present as much evidence as can be located, with the understanding that demonstrations based on any single category of evidence (such as affidavits) presented in isolation are less likely to constitute acceptable showings than demonstrations based on cumulative bodies of evidence.

As discussed below, affirmative showings will be required of sources whose merged stacks were associated with an increase in allowable emissions as well as some sources whose mergers were not associated with such

increases. However, EPA expects sources whose emission limits increased subsequent to the merging to present stronger showings than those with no increase, since the regulatory definition of "dispersion technique" views such increases as an explicit indication that the merged stacks were significantly motivated by an intent to gain credit for increased dispersion. Sources who do not increase their emissions, but who have difficulty making other demonstrations, such as the installation of pollution controls, or merging for sound economic or engineering reasons convey a more implicit indication of dispersion intent that must be rebutted; for such sources, however, the presumption of intent is not as compelling.

#### Increases in Allowable Emissions

As stated above, in cases where the allowable emissions of any pollutant increased in conjunction with the merging of gas streams, such an increase provides even stronger circumstantial evidence that merging was not carried out for sound economic or engineering reasons, but was "significantly motivated by an intent to gain emissions credit for greater dispersion." This presumption may be rebutted by making one of the following demonstrations.

1- by showing that the cost savings associated with reduced compliance costs for merged stacks are less than 50 percent of the total savings due to merged stacks (i.e., annual compliance savings plus annualized capital and maintenance savings), and by making an affirmative showing, as described above, that there was no significant motivation to gain credit for the increased dispersion provided by merged stacks; or

2- by showing that alternatives to stack merging were reasonably precluded strictly for engineering reasons, and by affirmatively demonstrating the absence of significant dispersion intent, as noted above.

In the absence of such a showing, it should be presumed that avoidance of emissions control was a significant factor in the decision to merge gas streams, and credit should be denied.

If you or your staff have any questions regarding the application of this guidance in specific instances, please contact Eric Ginsburg at (FTS) 629-5540 or Sharon Reinders at (FTS) 629-5526.

Attachments

FIGURE 1

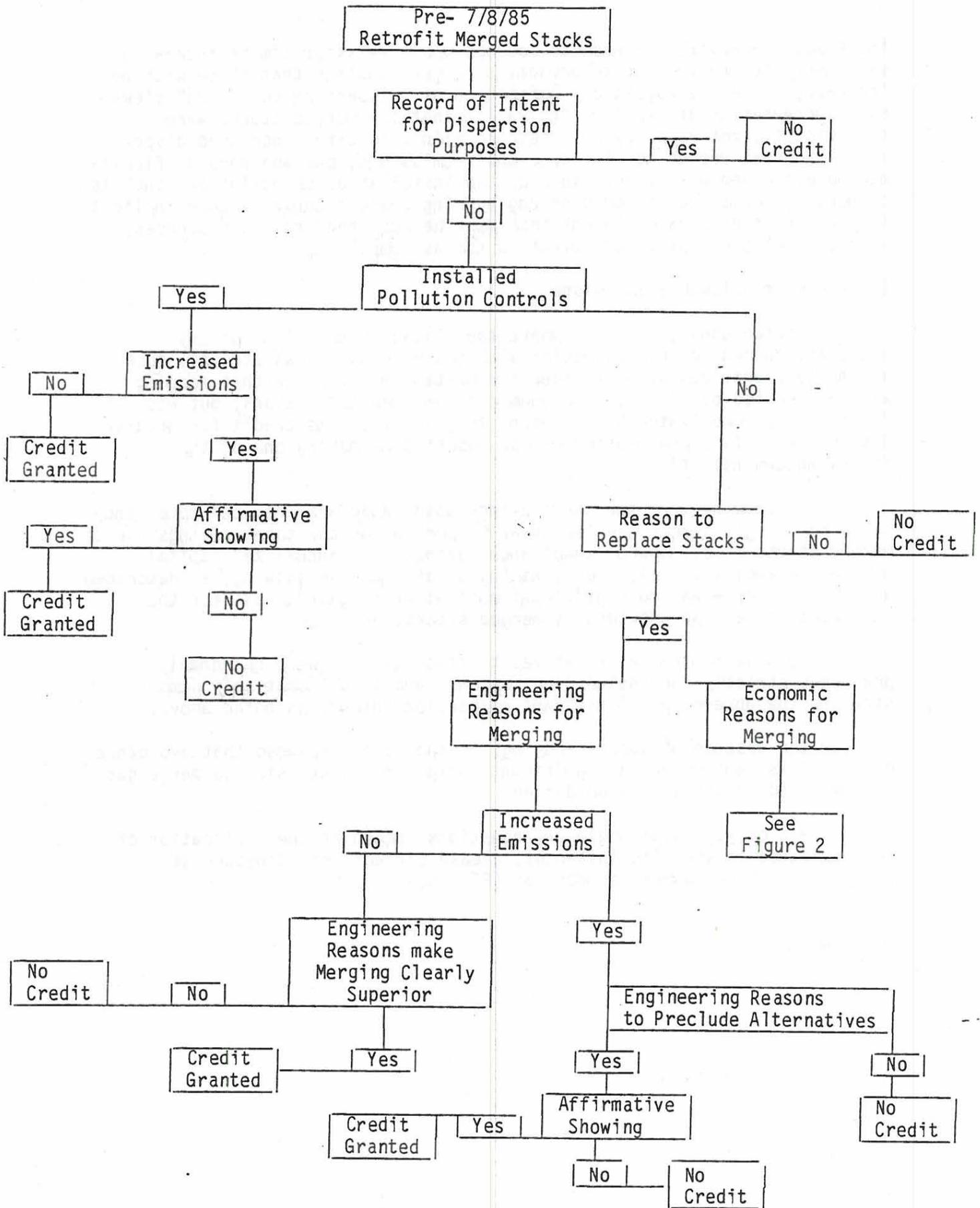


Figure 2  
Economic Justification  
for Merged Stacks

Savings due to Avoidance of More Stringent Emission Limit	No Increase In Emissions	Increase In Emissions
Less than 50% of Total Savings due to Merged Stack Construction	Credit Granted	Affirmative Showing
Exceed 50% of Total Savings due to Merged Stack Construction	Affirmative Showing	No Credit