UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960



4APT-APB

OCT - 5 1999

Mr. Cleve Holladay
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Holladay:

Thank you for the opportunity to review the August 20, 1999, *Wind Tunnel Good Engineering Stack Height Study of the Francis J. Gannon Generating Station* protocol prepared by David E. Neff from Colorado State University. Our comments are as follows:

1. There are two stacks for boiler units five and six, each stack being 96 meters tall. The purpose of this fluid modeling exercise is to determine the most restrictive stack height, using the existing emission rates and background air quality such that both "excessive concentration" criteria are met. When determining a good engineering practice (GEP) stack height greater than the formula height, the New Source Performance Standard (NSPS) emission rate for that source (i.e., 1.2 lb. $SO_2$/MMBTU) must be used in the wind tunnel demonstration. The excessive concentration is defined as a maximum ground-level concentration due to emissions from a stack due in whole or in part to downwash produced by nearby structures or nearby terrain features which individually is a least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes and eddy effects and which contributes to a total concentration due to emissions or an exceedance of a National Ambient Air Quality Standard (NAAQS) or available Prevention of Significant (PSD) increment. The request is to raise the stack height to 110 meters. However, it is our understanding that excessive concentrations continue to occur at 110 meters. If this is true, then some greater stack height would be needed for the new GEP height. The new GEP height must be the lowest height at which the 40% criterion is met in order to get credit for the new stack height in air quality dispersion modeling (see item 3 below for more discussion). The purpose of the fluid modeling should be to determine the new GEP height for units five and six based on the nearby structures. Otherwise, the current stack height (i.e., 96 meters) must be used in any modeling to set emission limitations.

2. It is Region 4's understanding that the Tampa Electric Company (TECO) wants to determine if a stack height of 110 m is the new GEP height to use in air quality dispersion modeling. The last sentence at the bottom of page 1, states that the stack heights for the units five and six stacks as determined by 40 *Code of Federal Regulations (CFR)* §51.100(ii)92)(ii) are 110 meters. Past correspondence from TECO indicates that the

GEP formula height is 133 m. The correct GEP formula height must be stated in the protocol.

3. In contrast to the statement in the second paragraph of the Background section, Region 4 requested a fluid modeling demonstration to justify raising the TECO stack above 96 m such that credit for this new stack height could be used in air dispersion modeling, and not to support the GEP formula height. Any new height above the 65 m *de minimis* height which complies with the stack height regulations would be the new GEP height, and may not necessarily be the formula height. This new height would be demonstrated through fluid modeling (see *Raising stacks Below Formula Height to Formula Height* in 50 *Federal Register (FR) 27899*, July 8, 1985). A company may increase a stack or build a stack to any height. The stack height regulation requires the Environmental Protection Agency (EPA) to ensure that the degree of emission limitation required for control of any air pollutant under an applicable State implementation plan (SIP) is not affected by that portion of any stack height which exceeds GEP or any other dispersion technique (see 50 *FR 27892*). That is, EPA regulates the stack height credits rather than the actual stack height. Air quality dispersion modeling for regulatory purposes requires that the GEP stack height be used as input to the model assessment (see item 20 and 21 in the October 10, 1985, enclosed memo, *Questions and Answers on Implementing the Revised Stack Height Regulation*, and the January 2, 1990, enclosed memo, *Effect of changing Stack Height on Prevention of Significant Deterioration (PSD) Modeling and Monitoring*). The GEP stack height is defined as "the height necessary to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies or wakes which may be created by structures or nearby terrain obstacles" (see section 123(c) of the Clean Air Act).

4. The size of all building structures and the general topography in the vicinity of the source should be examined to determine the structures to include in the modeling. The criteria in the protocol does not appear to meet the guidance for including or excluding tall structures when defining the modeling area.

5. A site roughness length of 0.2 meters is proposed. Using table 1 in the *Guideline for Use of Fluid Modeling to Determine Good Engineering Practice Stack Height* document, a 0.2 meter surface roughness length corresponds to surfaces located in the outskirts of towns and suburbs. However, approximately one-fourth of the topography within 3 kilometers of the sources is water (i.e., bays in the area). Also, the land south of Hookers Point appears to be undeveloped. An explanation should be provided as to why these surfaces would not require a modification of the surface length chosen. A discussion of the topography around the stacks would help to justify the surface roughness choice.

6. Depending on the choice of the surface roughness length, the site power law index could change. It is unclear how the power law index and exponent were developed.

7. A 100% operating load condition for the stacks must be used in the fluid modeling, unless a compelling argument otherwise is made. Other operating loads could be modeled in a sensitivity simulation, if they are frequently used. There is no clear demonstration to support the use of the 50% load that was proposed in lieu of the 100% load. Fluid modeling parameters associated with the operating load conditions will need to be revised per the 100% load conditions. Please see item 12 in the October 10, 1985, memo enclosed entitled, *Questions and Answers on Implementing the Revised Stack Height Regulation* for a reference on this issue.

8. The excessive concentration criterion must be determined for all applicable averaging periods for the affected pollutant.

9. Background sources must be included in the modeling by adding their air pollutant contribution to that of the source in question for assessing the GEP height. The air pollutant concentration used for the applicable averaging periods should be addressed in the protocol. Please refer to page 49 of the *Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) Revised* (EPA-450/4/80/023R) for this discussion.

10. The protocol states that four unidentified wind directions will be selected for determining the excessive concentration(s). It is unclear how these wind directions will be determined. The directions used in the fluid modeling should be those directions producing the largest building downwash as determined during the visualization phase of the study.

If questions arise, please do not hesitate to contact Brenda Johnson of the EPA Region 4 staff at (404) 562-9037.

Sincerely,

Linda Anderson-Carnahan
Chief
Air Planning Branch

Enclosures

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

JAN 0 2 1990

MEMORANDUM

SUBJECT: Effect of Changing Stack Heights on Prevention of Significant Deterioration (PSD) Modeling and Monitoring

FROM: John Calcagni, Director
Air Quality Management Division (MD 15)

TO: Bruce P. Miller, Chief
Air Programs Branch, Region IV

This is in response to your October 20, 1989 memorandum concerning whether and when the beneficial air quality impacts that result from raising an existing stack height at a source can be considered as part of a proposed PSD modification. You asked for our comments on your draft response to Mr. Richard Grusnick's (Alabama Department of Environmental Management) September 11, 1989 letter on this issue. I have reviewed your draft response concerning the following specific examples provided by Mr. Grusnick.

Example 1. A baseline (non-increment consuming) unit raising its stack (from 100 feet to 250 feet) at the time of a mill expansion. The reason for raising the stack is:

(a) to produce enough air quality credit to reduce the ambient impact caused by the expansion; and

(b) to prevent a nuisance to workers in a new 200-foot building.

Example 2. An existing PSD increment-consuming unit raising its stack (from 100 feet to 250 feet) in conjunction with a mill expansion to avoid worker exposure inside a new 200-foot building.

Example 3. An existing PSD increment-consuming unit (with a wet scrubber and a 100-foot stack) whose emissions would be merged with new emissions from a proposed new adjacent unit (with an ESP) with a 300-foot stack.

I agree with your position that the reason why a source raises a stack is not relevant in deciding whether the air quality benefit to be derived from the stack increase can be considered in the PSD analysis. However, the maximum height creditable as the good engineering practice (GEP) stack height without providing a demonstration is 65 meters (approximately 213 feet). For a height greater than 65 meters to be fully creditable as the GEP stack height, it must be established in a manner consistent with the stack height rules.

In response to the question of when the increase in a stack height can be considered as part of a proposed modification, I believe that the increase must be proposed in conjunction with the overall modification, but need not be directly related to other physical changes or changes in the method of operation being proposed by the source. That is, the stack being raised need not be physically tied to the emissions unit(s) being constructed or modified. Thus, when a stack height increase is proposed in a PSD (modification) application, any creditable air quality improvements resulting from the higher stack (whether or not any increase in emissions resulting from the proposed modification are to be released through such stack) should be considered in the preliminary modeling analysis to determine whether further modeling or preconstruction monitoring would be required.

In each of the examples provided by Mr. Grusnick, I would consider the proposed stack height increase to be part of the proposed modification, and such increase, in general, should therefore be used in the determination of whether PSD modeling or preconstruction monitoring would be required. However, before any new stack exceeding 65 meters (approximately 213 feet) could be fully creditable, it would have to be verified as the GEP height in accordance with approved stack height rules. There are additional requirements with regard to the merging of exhaust gas streams that should be carefully evaluated to determine the creditable stack parameters in the third example.

If you have any questions concerning this response, please contact Dan deRoeck at 629-5593.

cc: J. Calcagni
E. Lillis
G. McCutchen
E. Ginsberg
Air Branch Chief, Regions I-III, V-X
NSR Contacts

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

OCT 10 1985

MEMORANDUM

SUBJECT: Questions and Answers on Implementing the Revised Stack Height Regulation

FROM: G. T. Helms, Chief G. T. Helms
Control Programs Operations Branch (MD-15)

TO: Chief, Air Branch, Regions I-X

A number of questions have arisen in several areas of the revised stack height regulation since its promulgation on July 8. The following answers have been developed in response. The questions and answers are arranged under the general topic headings of interpretation of the regulation, State implementation plan (SIP) requirements, and modeling analyses. Please continue to call Sharon Reinders at 629-5526 if you have further comments or additional questions.

Interpretation of the Regulation "in existence" before Dec. 31, 1970.

1. Q: What criteria should be used to determine when a stack was "in existence" with respect to the various grandfathering dates in the regulation?

A: The recent promulgation of revisions to the stack height regulation did not change the definition of "in existence." The definition is provided in 40 CFR 51.1(gg) and includes either the commencement of continuous construction on the stack or entering into a binding contract for stack construction, the cancellation of which would result in "substantial loss" to the source owner or operator. The definition of what constitutes a "substantial loss" will be the subject of future guidance.

2. Q: What "source" definition should be used in determining whether tie-ins to grandfathered stacks should be permitted or prohibited?

A: The term "source" in this instance means a single emitting unit. Thus, credit for tying a single post-1970 unit(s) into a grandfathered stack serving a number of old units is prohibited under the regulation.

3. Q: What is meant in the regulation by "facility"?

A: For purposes of this regulation, the definition contained in 40 CFR 51.301(d) should be used. That definition essentially defines the term as the entire complex of emitting activities on one property or contiguous properties controlled by a single owner or designee.

4. Q: Must good engineering practice (GEP) stack height be established separately for each pollutant? If not, how should it be determined?

A: It is not necessary to calculate a separate GEP stack height for each pollutant. Since "GEP" is defined by Section 123 of the Clean Air Act as the height necessary to ensure against excessive concentrations of any air pollutant, it follows that GEP should be established for each source based on the pollutant requiring the greatest height to avoid excessive concentrations.

5. Q: How should "reliance" on the 2.5H formula be determined?

A: First, "reliance" on the 2.5H formula applies only to stacks in existence before January 12, 1979. Credit for "reliance" on the 2.5H formula can be granted under the following cases: (a) Where the stack was actually built to a height less than or equal to 2.5H; (b) Where the stack was built taller than 2.5H and the emission limitation reflects the use of 2.5H in the SIP modeling analysis; or (c) Where evidence is provided to show "reliance" as discussed in the following paragraph. If no modeling was used to set the emission limitation for the source, then it cannot be argued that there was "reliance" on the formula, since EPA's guidance was specifically aimed at using stack height credit in establishing emission limitations. Once it is determined that the emission limitation was in fact based on estimates of dispersion from the stack, then the source can be said to have properly "relied" on the 2.5H formula. In the event that it cannot be determined that the emission limit is based on "reliance" on the 2.5H formula, then the refined H + 1.5L formula must be used.

Where a clear relationship between a 2.5H stack height and the emission limitation cannot be shown, where the emission limitation was not calculated based precisely on the 2.5H height, or where the stack height used in modeling cannot be verified, then additional evidence will be needed. Preferred would be written documentation, such as copies of the original engineering calculations or correspondence between the State or the emission source owner and EPA indicating that the 2.5H formula should be used to derive the emission limitation. However, recognizing that such evidence is often not retained for more than a few years, "reconstructed" documentation may be considered, but should only be used as a last resort. This evidence should include explanations by those individuals who were involved in designing the facility, calculating emission rates, and who represented the facility in dealings with the

State and EPA on how the emission limit was derived, including a discussion of how the formula was originally used in deriving the source emission limitation, a discussion of the analytical method applied, and a listing of any contacts or discussions with EPA during that period. This listing will aid EPA in searching its own files to find any records of communication or correspondence that may bear on the issue.

In no case should a source be allowed after January 12, 1979, to obtain a relaxation in the emission limitation by arguing that it "relied" on past EPA guidance endorsing the 2.5H formula. In cases where a relaxation based on GEP formula height is sought in the future, the refined H + 1.5L formula must be used.

6. Q: The preamble specifically discusses cooling towers as structures to which the formula should not be applied. Will the Office of Air Quality Planning and Standards be specifying other structures that are not well represented by the formula?

A: The discussion in the preamble and GEP guideline is not intended to be all-inclusive; judgment should be used in determining when fluid modeling should be used to estimate the effects of structures with rounded, domed, or tapered shapes. Water towers and storage tanks are additional examples of such structures. As additional information becomes available on the aerodynamic effects of specific building shapes and configurations, we will evaluate the need to revise the GEP guidance. However, at present, there are no plans to issue a "laundry list" of structures to which the formulas do not apply.

SIP Requirements

7. Q: Should a compliance averaging time be explicitly stated in a SIP revision for sulfur dioxide ($SO_2$) emission limits that are revised to meet the stack height regulation?

A: A compliance averaging time need not be specified as an enforceable SIP provision as long as a stack test compliance method is in place in the underlying federally approved SIP. EPA's current national policy requires that SIP's and permits contain enforceable "short-term" emission limits set to limit maximum emissions to a level which ensures protection of the short-term national ambient air quality standards (NAAQS) and prevention of significant deterioration (PSD) increments. EPA relies upon a short-term stack test provision in the SIP as the method of determining compliance with the emission limits. In lieu of a stack test, EPA has accepted fuel sampling and analysis and continuous emission in-stack monitors (CEM's). When compliance is to be determined from information obtained by fuel sampling and analysis and CEM's, short-term averaging times should be specified.

8. Q: Are all States required to have "stack height regulations"?

A: Limitations on creditable stack height and dispersion techniques impact the SIP program in two areas--SIP emission limits for existing sources and SIP provisions covering new source review (NSR)/PSD permitting procedures. For existing sources, State regulations limiting credit for stack height and other dispersion techniques (stack height regulations) are not necessary as long as the SIP emission limits are not affected in any manner by so much of the stack height as exceeds GEP, or any other dispersion technique. Where a State has stack height regulations, those regulations must be consistent with EPA's regulation. Where a SIP contains regulations that are inconsistent with EPA's regulation, the State must either adopt a stack height regulation that is consistent with EPA's or incorporate the EPA regulation by reference.

For the NSR/PSD programs, it is essential that the plan contain limitations on the amount of creditable stack height and other dispersion techniques. The following cases have been developed to illustrate what action(s) may be required of the State since promulgation of the stack height regulation.

CASE A(1): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does not contain a date to define which version of the PSD rule is being delegated.

ACTION: Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE A(2): A fully or partially delegated PSD program that references but does not define GEP where the delegation agreement does contain a date to define which version of the PSD rule is being delegated.

ACTION: Update the delegation agreement to reflect agreement with EPA's stack height regulation as of July 8, 1985. Notify the State that all permits issued henceforth must be consistent with EPA's stack height regulation. All permits previously issued must be reviewed and revised as necessary within 9 months.

CASE B: The current federally approved SIP for NSR/PSD does not contain a reference to GEP or dispersion techniques, i.e., provisions assuring that emission limitations will not be affected by stack height in excess of GEP or any prohibited dispersion techniques do not exist in the current SIP.

ACTION: Notify the State that such provisions must be adopted and submitted as a SIP revision within 9 months. This can be acccomplished by adopting stack height regulations at the State level or by adopting the appropriate reference and commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985. Interim permitting should be consistent with EPA's stack height regulation.**

CASE C: The current federally approved SIP for NSR/PSD contains references to, but does not define, GEP or dispersion techniques.

ACTION: Notify the State that a commitment to comply with EPA's stack height regulation as promulgated on July 8, 1985, is required. If a State is unable to make such a commitment, State regulations must be revised to be consistent and submitted to EPA as a SIP revision within 9 months and interim permitting should be consistent with EPA's stack height regulation. No "grace period" will be allowed for sources receiving permits between July 1985 and April 1986.**

CASE D: The current federally approved SIP for NSR/PSD contains stack height regulations that are inconsistent with EPA's regulation.

ACTION: Notify the State that such regulations must be revised to be consistent and submitted as a SIP revision within 9 months and that interim permitting should be consistent with EPA's stack height regulation.**

CASE E(1): A SIP for NSR/PSD has been submitted to EPA, or will be submitted to EPA before the due date for stack height revisions. The submittal contains provisions that conflict with EPA's stack height regulation.

ACTION: Notify the State that EPA cannot approve the submittal until it is revised pursuant to EPA's July 8, 1985, regulation.

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**In the event that a State does not have legal authority to comply with EPA's regulation in the interim (e.g., because it must enforce State rules that are inconsistent with EPA's regulation) and is compelled to issue a permit that does not meet the requirements of the EPA revised stack height regulation, then EPA should notify the State that such permits do not constitute authority under the Clean Air Act to commence construction.

CASE E(2): As in Case E(1), a SIP for NSR/PSD has been submitted to EPA or will be submitted to EPA before the due date for stack height revisions. The submittal is not inconsistent with EPA's stack height regulation, but portions of the existing approved SIP that relate to the submittal are inconsistent.

ACTION: Approve the SIP submittal based on a commitment by the State to correct the inconsistencies in its existing SIP to comport with EPA's July 8 regulation and submit the corrections as a SIP revision within 9 months. Interim permitting should be consistent with EPA's stack height regulation.** If the existing SIP is ambiguous, i.e., the SIP references but does not define terms relating to GEP or dispersion techniques, the action steps outlined in Case C above should be followed.

CASE F: In nonattainment areas, emission limits or permits do not always include modeling, but rather are based on lowest achievable emission rate (LAER) and offsets.

ACTION: If no modeling is used in the issuance of a permit, the emission requirements for the source are not "affected" by stack heights or dispersion techniques, and no action is needed. However, if modeling was used in the process of preparing and issuing a permit, such as cases where offsets were obtained offsite, that modeling must be reviewed for consistency with the stack height regulation.

9. Q: What must all States do now that EPA's stack height regulation is promulgated?

A: States must review and revise their SIP's as necessary to include or revise provisions to limit stack height credits and dispersion techniques to comport with the revised regulations, and, in addition, review and revise all emission limitations that are affected by stack height credit above GEP or any other dispersion techniques. In accordance with Section 406(d)(2) of the Clean Air Act, States have 9 months from promulgation to submit the revised SIP's and revised SIP emission limitations to EPA.

In an August 7, 1985, memo titled "Implementation of the Revised Stack Height Regulation--Request for Inventory and Action Plan to Revise SIP's," Regional Offices were requested to begin working with each of their States to develop States' Action Plans. Each Action Plan should include the following: (1) An inventory of (a) all stacks greater than 65 meters (m), (b) stacks at sources which exceed 5,000 tons per year total allowable $SO_2$ emissions; and (2) A reasonable schedule of dates for significant State actions to conform both State stack height rules and emission limitations to EPA's stack height regulation. Schedules should include increments of progress. Regional Offices should be satisfied that each of their States provide schedules for completion of the tasks

as outlined in the August memo and report the status of schedule commitments to them on a monthly basis. Regional Offices have been asked to forward monthly status reports to the Control Programs Development Division on the States' progress to meet scheduled commitments and also report the results of followup with the States on schedules that are not met. In order to facilitate tracking the States monthly progress, guidance on a standardized format will be issued shortly.

Modeling Analyses

10. Q: Is there any restriction or prohibition against, or demonstration required for, raising an existing (or replacing) stack up to 65 m?

A: No, as long as prohibited dispersion techniques are not employed.

11. Q: Are flares considered to be stacks?

A: No, flares are excluded from the regulation.

12. Q: What load should be used for a fluid modeling demonstration?

A: One hundred percent load should generally be used unless there is a compelling argument otherwise..

13. Q: Can new or modified sources who have agreed to a case-by-case best available control technology (BACT) emission rate be required to use this rate for fluid modeling rather than a less stringent new source performance standard (NSPS) emission rate?

A: As set forth in 40 CFR 51.1 (kk), the allowable emission rate to be used in making demonstrations under this part shall be prescribed by the NSPS that is applicable to the source category unless the owner or operator demonstrates that this emission rate is infeasible.

14. Q: Must the exceedance of NAAQS or PSD increment due to downwash, wakes, or eddies occur at a location meeting the definition of ambient air?

A: No, the exceedance may occur at any location, including that to which the general public does not have access.

15. Q: Is a source that meets NSPS or BACT emission limits subject to restrictions on plume merging?

A: Yes. However, in a majority of such cases, there will be no practical effect since BACT or NSPS limits will be sufficient to assure attainment without credit for plume rise enhancement.

Q: What stack parameters are to be used in modeling when the actual stack height is greater than GEP height?

A: Where it is necessary to reduce stack height credit below what is in existence, for modeling purposes, use existing stack gas exit parameters--temperature and flow rate--and existing stack top diameter and model at GEP height.

17. Q: How should a stack that is less than GEP height be modeled when dispersion techniques are employed?

A: In order to establish an appropriate emission limitation where a source desires to construct less than a GEP stack but use dispersion techniques to make up the difference in plume rise, two cases should be tested. First, conduct a modeling analysis inputting the GEP stack height without enhanced dispersion parameters, then conduct a second analysis inputting the less than GEP stack height with the increased plume rise. The more stringent emission limitation resulting from each of the two runs should be the one specified as the enforceable limitation.

18. Q: How are the effects of prohibited dispersion techniques to be excluded for modeling purposes?

A: Where prohibited dispersion techniques have been used, modeling to exclude their effects on the emission limitation will be accomplished by using the temperature and flow rates as the gas stream enters the stack, and recalculating stack parameters to exclude the prohibited techniques (e.g., calculate stack diameter without restrictions in place, determine exit gas temperatures before the use of prohibited reheaters, etc.).

19. Q: How are single flued merged stacks and multiflued stacks to be treated in a modeling analysis?

A: This is a multistep process. First, sources with allowable $SO_2$ emissions below 5,000 tons/year may be modeled accounting for any plume merging that has been employed. For larger sources, multiflued stacks are considered as prohibited dispersion techniques in the same way as single flued merged gas streams unless one of the three allowable conditions has been met; i.e., (1) the source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams; (2) after date of promulgation, demonstrate that such merging is associated with a change in operation at the facility that includes the installation of pollution controls and results in a net reduction in the allowable emissions of the pollutant for which credit is sought; or (3) before date of promulgation, demonstrate that such merging did not result in any increase in the allowable emissions (or, in the event that no emission limit existed, actual emission level) and was associated with 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, as demonstrated to EPA. Guidelines on what constitutes sound economic or engineering justification will be issued shortly.

If plume merging from multiflued stacks is not allowable, then each flue/liner must be modeled as a separate source and the combined impact determined. For single flued merged stacks where credit is not allowed, each unit should be modeled as a separate stack located at the same point. The exit parameters, i.e. velocity and temperature, would be the same as for the existing merged stack conditions and the volume flow rate based on an apportionment of the flow from the individual units.

20. Q: What stack height for point sources should be input to air quality dispersion modeling for the purpose of demonstrating protection of the NAAQS and PSD increments?

A: A discussion of the maximum stack height credit to be used in modeling analyses is provided in the "Guideline for Determination of Good Engineering Practice Stack Height" and provides that the GEP stack height should be used as input to the model assessment. If a source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

21. Q: What stack height should be used for background sources in modeling analyses?

A: The GEP stack height for each background source should be input to the model assessment. If a background source is operating with a less than GEP stack height, then the actual stack height should be input to the model.

22. Q: Can credit for plume merging due to installation of control equipment for total suspended particulate (TSP) matter be allowed when setting the $SO_2$ limit?

A: To state the question another way, the concern is what impact the merging and installation of control equipment have on the emission limit for another pollutant, and whether the merging occurred before or after July 8, 1985. After July 8, 1985, any exclusion from the definition of "dispersion techniques" applies only to the emission limitation for the pollutant affected by such change in operation and is accompanied by a net reduction in allowable emissions of the pollutant. For example, a source tears down two old stacks and builds one new GEP stack with an electrostatic precipitator (ESP). This results in a net reduction in TSP emissions. This source could model using stack gas characteristics resulting from merging the two gas streams in setting the TSP emission limit, but may not so model and receive the credit for stack merging when evaluating the $SO_2$ emission limit.

Before July 8, 1985, installation of TSP pollution control equipment generally justifies the merging of the stacks for TSP. However, if a source's emission limitation for $SO_2$ increased after the merging, then credit would generally not be allowed since it is presumed that the merging was to increase dispersion.

A source with no previous $SO_2$ emission limit that merges stacks and installs an ESP for TSP control may consider the effects of merging on compliance with the TSP NAAQS but may not use merging to justify setting an $SO_2$ emission limit less stringent than its actual emission rate before the merging.

23. Q: If, after determining GEP stack height by fluid modeling, dispersion modeling under other than "downwash" meteorological conditions shows that a lower emission limit than that from the fluid model GEP analysis is necessary to meet ambient air quality constraints, should a new stack height be defined for the source?

A: No. GEP stack height is set. Ambient air quality problems predicted by dispersion modeling at the fluid modeled height means that a more stringent emission limit is necessary.

24. Q: Does EPA intend to issue additional guidance on fluid modeling demonstrations?

A: See the attached memo from Joseph A. Tikvart, Chief, Source Receptor Analysis Branch, to David Stonefield, Chief, Policy Development Section, on guidance for a discussion of existing and additional guidance on fluid model demonstrations.

Attachment

cc: Stack Height Contacts
Gerald Emison
Ron Campbell
B. J. Steigerwald