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BEFORE THE ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In the Matter of:

Columbia Gulf Transmission Company)

ID No. 105-0640-0021)

Applicant)

PSD Appeal No. 88-11

ORDER

By petition dated November 14, 1988, and pursuant to 40 CFR §124.19 (1987), the Regional Administrator, U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia, requested review of a determination by the Kentucky Department of Air Quality to issue a prevention of significant deterioration (PSD) permit to Columbia Gulf Transmission Company. The permit would allow Columbia Gulf to construct an 11,864 horsepower (8.9 MW) gas turbine to compress gas at its compressor station in Clementsville, Kentucky. The Department made its permit determination pursuant to a general delegation of PSD-issuing authority from EPA Region IV. Because of the delegation, Kentucky's authority to issue PSD permits is subject to the review provisions of 40 CFR §124.19, and any permit it issues will be an EPA-issued permit for purposes of federal law. 40 CFR §124.41; 45 Fed. Reg. 33413 (May 19, 1980).

The Regional Administrator claims Kentucky's determination of best available control technology (BACT) for the proposed facility is clearly erroneous. The proposed permit calls for no add-on controls to reduce NOx emissions, relying instead on combustor design (so-called "dry controls"), whereas the Region believes water injection controls must be added to satisfy BACT requirements. Kentucky responds by arguing that dry controls are BACT because: (1) the impact of NOx emissions on ambient air quality will be negligible if dry controls are used, thus making the addition of water injection environmentally unnecessary and economically unreasonable; (2) use of water injection will cause additional energy to be consumed and it will cause an increase in CO emissions; and (3) federal new source performance standards (NSPS) do not require water injection for "small" turbines.

Under the rules governing this proceeding, there is no appeal as of right from the permit determination. Ordinarily, a petition for review of a PSD permit determination is not granted unless it is based on a clearly erroneous finding of fact or conclusion of law, or involves an important matter of policy or exercise of discretion that warrants review. The preamble to the regulations states that "this power of review should be only sparingly exercised," and that "most permit conditions should be finally determined at the Regional [state] level * * *." 45 Fed. Reg. 33,412 (May 19, 1980). The burden of demonstrating that the permit conditions should be reviewed is therefore on the petitioner. EPA Region IV has met its burden.

The issues raised by Kentucky's contentions are discussed below.

1. Ambient Air Quality and the BACT Determination

Kentucky argues that the benefits to ambient air quality from adding water injection are negligible, and are clearly outweighed by the additional economic costs associated with this form of NO_x control, which it estimates are \$2,121.00 for each additional ton of NO_x removed. According to modelling results, ambient concentrations of NO₂ from all sources (including the proposed facility) within 50 kilometers of the proposed facility will be 50.67 $\mu\text{g}/\text{m}^3$ without use of water injection and 50.65 $\mu\text{g}/\text{m}^3$ with use of water injection. In other words, the total reduction in NO₂ pollution is a mere 0.02 $\mu\text{g}/\text{m}^3$. This slight numerical improvement in air quality, according to Kentucky and the applicant, is not statistically significant, for it falls within the margin of error employed in the air quality model.

The Region does not dispute Kentucky's evaluation of air quality impacts as presented; however, according to the Region, when the focus is on actual NO_x emissions reductions from the facility itself, the costs of water injection are reasonable. Specifically, by using water injection the facility will emit 114.08 fewer tons of NO_x per year, at a cost of \$2,121.00 per ton of NO_x removed, which is below the range of costs (\$3,000 -

\$6,500) normally expended for NO_x removal. ^{1/} According to the Region, the definition of BACT mandates use of water injection, the most effective available technology for NO_x removal under consideration in this case, ^{2/} unless the applicant can demonstrate that the economic, environmental, or energy impacts from using this technology make the choice unreasonable. In the Region's opinion, Columbia Gulf did not demonstrate that any of these considerations made the choice of water injection unreasonable.

By looking at the modelled impact of the proposed facility's NO_x emissions, the Department argues that it has identified an environmental impact that it may consider for purposes of its BACT determination. I disagree. BACT is defined in the Clean Air Act as an "emission limitation" set by the permit issuer, based on the "maximum degree of reduction" that can be achieved for each regulated pollutant, on case-by-case basis, after "taking into account energy, environmental, and economic impacts

^{1/} The Region also argues that Kentucky has overestimated the incremental costs of NO_x removal using water injection. Kentucky computed the costs per ton assuming 6,000 hours of operation per year. The Region correctly points out that this assumption is unwarranted because the permit does not contain any restrictions limiting hours of operation to 6,000 hours per year. Unrestricted, the facility could operate 8,760 hours per year (24 hrs. x 365 days).

^{2/} The Region has conceded that although a more effective control technology, selective catalytic reduction, has been successfully employed on gas-fired turbines, that technology would be technically infeasible in this case due to source-specific factors.

and other costs." 42 U.S.C. §7479(3). ^{3/} The latter clause is in the BACT definition to temper the stringency of the technology requirements whenever one or more of the specified "collateral" impacts -- energy, environmental, or economic -- renders use of the most effective technology inappropriate. As explained by Senator Edmund S. Muskie, the principal architect of the Clean Air Act amendments of 1977:

One objection which has been raised to requiring the use of the best available pollution control technology is that a technology demonstrated to be applicable in one area of the country is not applicable at a new facility in another area because of difference [sic] in feedstock material, plant configuration or other reasons. For this and other reasons, the committee voted to permit emission limits based on best available technology on a case-by-case judgment at the State level. This flexibility should allow such differences to be accommodated and still maximize the use of improved technology.

Senate Debate on S.252 (June 8, 1977), reprinted in 3 Senate Committee on Environment And Public Works, A Legislative History

^{3/} The complete text of the statutory definition of BACT states:

The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of "best available control technology" result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 [new source standards] or 7412 [hazardous pollutant standards] of this title.

42 U.S.C. §7479(3).

of the Clean Air Act Amendments of 1977 at 729 (Comm. Print August 1978) (Congressional Research Service, Serial No. 95-16). In other words, the collateral impacts clause operates primarily as a safety valve whenever unusual circumstances specific to the facility make it appropriate to use less than the most effective technology. The permit applicant must install the most effective technology if it fails to demonstrate to the satisfaction of the permit issuer that such unusual circumstances exist. ^{4/}

Here, the Department argues that the modelled negligible impact of the proposed facility on overall air quality is an environmental impact that can be factored into the BACT analysis to justify using less than the most effective technology to

^{4/} The process of selecting the most effective technology is described in Pennsauken County Resource Recovery Facility, PSD Appeal No. 88-8 (EPA Administrator, Nov. 10, 1988) (Remand Order). Pennsauken cites recent Agency guidance on the subject, which refers to the process as the "top-down" approach to BACT analysis, and quotes from the guidance as follows:

The first step in this approach is to determine, for the emission source in question, the most stringent control available for a similar or identical source or source category. If it can be shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental or economic objections. Thus, the "top-down" approach shifts the burden of proof to the applicant to justify why the proposed source is unable to apply the best technology available. It also differs from other processes in that it requires the applicant to analyze a control technology only if the applicant opposes that level of control; the other processes required a full analysis of all possible types and levels of control above the baseline case.

control NO_x emissions. This argument is without merit. It gives no effect to the primary purpose of the collateral impacts clause, which, as the legislative history indicates, is to focus on local impacts that constrain the source from using the most effective technology. For example, if the most effective technology would impose exceptional demands on local water resources, so that use of the technology would have adverse impacts on the environment, then, under those circumstances, the applicant would have a sound basis for foregoing use of the most effective technology in favor of some less water-intensive technology. This would be a "water resources" equivalent of a "feedstock" or "plant configuration" constraint referred to by Senator Muskie. ^{5/}

In the present case, the Department and the applicant have not demonstrated the existence of any environmental impacts that would constrain or even remotely circumscribe the applicant's ability to use the most effective technology. The negligible air

^{5/} Depending on the factors present in a particular case, consideration of collateral impacts can also result in a more stringent BACT determination than would otherwise occur. For example, unusually high costs may represent an adverse economic impact that could, standing alone, justify rejection of the most effective control technology. However, the permitting authority could ultimately conclude that such adverse economic impacts are outweighed by adverse collateral environmental impacts associated with the less effective control option. See North County Resource Recovery Associates, PSD Appeal No. 85-2 (EPA June 3, 1986) (remand order) (environmental impact of pollutants not regulated under the Clean Air Act may necessitate a more stringent emission limit for regulated pollutants undergoing BACT review).

quality impact of the proposed NO_x emissions is clearly not a constraint on implementing the most effective technology. Because it is not a constraint, the modelled impact of the proposed facility's NO_x emissions on air quality should not be considered for purposes of making the BACT determination.

This conclusion is further confirmed by the statutory scheme of the Clean Air Act, which separates issues of overall air quality from issues of technology. Section 165(a)(3) of the Act, 42 USC §7475(a)(3), addresses the direct impact of regulated pollutants on ambient air quality by requiring an applicant for a PSD permit to demonstrate that the proposed facility will not cause or contribute to a violation of national ambient air quality standards or PSD increments, whereas section 165(a)(4) of the Act, 42 USC §7475(a)(4), is concerned exclusively with BACT, which is principally a technology-forcing measure that is intended to foster rapid adoption of improvements in control technology. ^{6/} Both of these provisions of the Clean Air Act

^{6/} Section 165 of the Clean Air Act provides, in relevant part, as follows:

(a) No major emitting facility on which construction is commenced after August 7, 1977, may be constructed in any area to which this part applies unless --

* * *

(3) the owner or operator of such facility demonstrates * * * that emissions from construction or operation of such facility will not cause, or contribute to, air pollution in excess of any (A) [increment], (B) national ambient air quality standard in any air quality control region, or (C)

(continued...)

must be satisfied by an applicant seeking a PSD permit, and compliance with one provision does not relieve or lessen an applicant's burden of complying fully with the other. Thus, even though Columbia Gulf's NO_x emissions will not cause a violation of ambient air quality standards in contravention of section 165(a)(3) of the Act, it must still satisfy the BACT technology requirements imposed by section 165(a)(4).

It does not appear to have done so in this instance, for the record on appeal does not show that any collateral impacts -- in particular, environmental impacts -- operate as a constraint on implementing the most effective technology.

2. Energy Consumption and Increased CO Emissions From Water Injection

Kentucky also claims that water injection is not BACT because it increases fuel consumption by 2.2 percent and carbon monoxide (CO) emissions by 4 tons per year (TPY) -- from 2 TPY to 6 TPY. The Region rejected these arguments, because the projected 2.2 percent increase in energy consumption is, in its opinion, insignificant, since the increase does not place any substantial strain on natural gas demand, and the additional 4 TPY increase

^{6/} (...continued)

any other applicable emission standard or standard of performance under this chapter; [and]

(4) the proposed facility is subject to the best available control technology [BACT] for each pollutant subject to regulation under this chapter emitted from, or which results from, such facility * * *.

in CO emissions will be offset by a much greater reduction in NO_x emissions -- from 193 TPY to 79 TPY -- which, in the Region's opinion, represents an environmentally beneficial trade-off.

I agree completely with the Region about the trade-off between the CO and NO_x emissions; the increase in CO emissions is simply insignificant in light of the reductions that can be achieved in NO_x emissions. I am less certain about the 2.2 percent increase in energy consumption and what it implies. Nevertheless, it is generally incumbent on the permit issuer and the permit applicant to demonstrate in the record the relevance or significance of any claimed basis for rejecting the most effective technology on energy or other statutory grounds. It is not enough for them to assert, without substantiation, that adoption of the most effective technology will result in an energy penalty. They must provide substantiation and they must show that the penalty is so substantial or unusual as to merit rejection of the most effective technology. They have not done so in this instance, for the record does not disclose any substantial information on the impact of the alleged energy penalty.

3. New Source Performance Standards (NSPS) and BACT

Kentucky believes that because the emission limitation it proposed for Columbia Gulf's NO_x emissions (178 ppm) is below the level specified by the NSPS (196 ppm), ^U this fact should serve as further proof that its BACT determination is correct.

^U See 40 CFR §60.332(d).

Kentucky notes in this respect that the NSPS contemplate use of dry controls for small gas turbines. Kentucky's reliance on the NSPS is misplaced. Simply meeting or exceeding the NSPS does not attest to the correctness of a BACT determination. As the language of the statute plainly indicates,^{8/} the applicable NSPS limitation merely serves as a floor for the BACT limitation, i.e., the BACT limitation must never fall below the level of stringency set by the NSPS. Although the NSPS are developed by considering many of the same factors that go into a BACT determination,^{9/} their utility is limited in any individual case by at least two considerations. The first is that BACT determinations are made on a case-by-case basis whereas the NSPS are set on an industry-wide basis. The second is that BACT determinations are made on the basis of currently available information, whereas the NSPS, although based on current information when promulgated, may not reflect the most current information avail-

^{8/} See footnote 3 (last sentence).

^{9/} The similarity between BACT and NSPS is reflected in the following definition of a "standard of performance" for new sources and by comparing it with the definition of BACT in footnote 3 above:

[A] standard of performance shall reflect the degree of emission limitation and the percentage reduction achievable through the application of the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

able at the time of making an individual BACT determination. These two considerations can combine in an individual case to create a substantial gap between the two emission levels. That appears to be the case here, based on the information in the record of this appeal. According to the Region, the applicable NSPS is ten years old and thus does not reflect the most current technological considerations. It therefore appears that Kentucky relied too heavily and, in the final analysis, relied improperly on the NSPS in this case. Moreover, I note that the Region cites three examples of comparable turbines currently using water injection or scheduling it for use -- thus effectively removing concern about the availability of this technology for small turbines. ^{10/} Kentucky has not shown that water injection is not an available technology for BACT purposes.

Conclusion

The Region has met its burden of showing that Kentucky's permit determination warrants review. As explained above, Kentucky's reliance on negligible ambient air quality impacts to justify using a control technology less effective than water injection represents clear error. Kentucky's rejection of water injection because of associated increases in CO emissions and because of its interpretation of BACT in relationship to the NSPS also represents clear error. Kentucky's concerns over increased

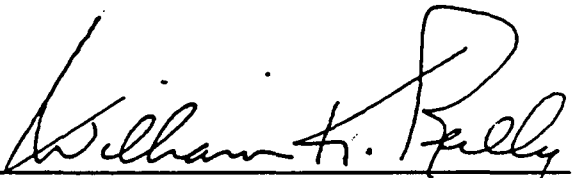
^{10/} See Letter from Bruce T. Miller, Chief, Air Programs Branch, EPA Region IV, to Ronald L. McCallum, Chief Judicial Officer, Attachment at 6, dated January 25, 1989.

energy consumption fail to establish that the increases are so substantial or unusual as to warrant rejection of the most effective technology. I therefore conclude that clear error has been shown here also.

According to the procedural rules governing petitions for review, a briefing period is supposed to follow the granting of review. 40 CFR §124.19(c). In a sense, one has already begun, since both Kentucky and the Region, following the filing of the petition, have submitted additional statements of their positions on the issues. Columbia Gulf, however, did not file any extensive submissions during this post-petition period, nor was it required to file any at this stage of the proceedings. Therefore, to restore balance to the record, I propose to set a briefing schedule that takes this background into consideration. Specifically, Columbia Gulf (and, as permitted by the rules, other interested persons) may submit a brief on the issues discussed in this order within thirty (30) days after public notice of the granting of review has been given. See 40 CFR §124.19(c). (Kentucky shall give notice of the briefing schedule and this order, as provided in 40 CFR §124.10.) Kentucky and the Region shall then file their respective responses within twenty (20) days after receipt of each brief filed during the first round of briefing. Columbia Gulf and, if applicable, other interested persons shall then have fifteen (15) days in which to file a reply to the responses.

Also, on or before the date public notice is given, Kentucky shall transmit to the undersigned a complete copy of the administrative record on which it made its permit determination, accompanied by an index of the contents of the administrative record. Copies of the index shall also be sent to the Region and Columbia Gulf and, if requested, to other interested persons. Thereafter, all persons filing briefs in this matter shall support their arguments and factual assertions with appropriate citations to the documents listed in the index.

So ordered.



William K. Reilly
Administrator

Dated: JUN 21 1989

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Order in the matter of Columbia Gulf Transmission Company, PSD Appeal No. 88-11 were sent by First Class Mail to the following persons:

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Dated: JUN 21 1989



Brenda H. Selden, Secretary
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