



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

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OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

Mr. Paul Plath  
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Subject: Best Available Control Technology Requirements for Proposed Coal-Fired Power Plant Projects

Dear Mr. Plath:

Your firm's letter to me dated February 28, 2005, from D. Edward Settle, asks for the U.S. Environmental Protection Agency's (EPA) position regarding whether an analysis of Best Available Control Technology (BACT) for proposed coal-fired power plants must specifically include evaluation of alternative designs of coal-fueled processes such as integrated gasification combined cycle (IGCC). Generally, the Clean Air Act (CAA) requires an applicant to apply BACT as a condition for issuance of a prevention of significant deterioration (PSD) construction permit in an attainment area. This response provides EPA's view of how the CAA should be interpreted and EPA regulations applied under the particular circumstances presented based on prior EPA policy statements and adjudicatory decisions.

There are two different parts of the PSD permitting process where consideration of alternative designs or production processes may occur. One part is under Section 165(a)(2) where it is required that the permitting authority allow an "opportunity for interested persons ... to appear and submit written or oral presentations on the air quality impact of such source, *alternatives thereto*, control technology requirements, and other appropriate considerations" (emphasis added). The other part is section 165(a)(4), which requires that a proposed facility subject to PSD apply BACT. In Section 169(3) of the CAA, BACT is defined as "an emission limitation based on the maximum degree of reduction ... which the permitting authority ... determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant."

EPA's view is that, through this language, Congress distinguished "production processes and available methods, systems and techniques" that are potentially applicable to a particular type of facility and should be considered in the analysis of BACT from "alternatives" to the proposed source that would wholly replace the proposed facility with a different type of facility. Although we read this language to draw such a distinction, in practice, it is often not clear when another production process should be considered to fit within the BACT definition and when it should be considered an alternative to the proposed source. This distinction is especially difficult to make for coal gasification because the definition of BACT includes "innovative fuel combustion techniques" in a list of examples of production processes or available methods, systems, or techniques to be considered in the BACT analysis. However, even assuming that coal gasification were in all respects an innovative fuel combustion technique for producing electricity from coal, we do not believe Congress intended for an "innovative fuel combustion technique" to be considered in the BACT review when application of such a technique would redesign the proposed source to the point that it becomes an alternative type of facility, which, as discussed below, we believe would be the case if IGCC were applied to a proposed SCPC unit.

As noted in prior EPA decisions and guidance, EPA does not consider the BACT requirement as a means to redefine the basic design of the source or change the fundamental scope of the project when considering available control alternatives. For example, we do not require applicants proposing to construct a coal-fired steam electric generator to consider building a natural gas-fired combustion turbine as part of a BACT analysis, even though the turbine may be inherently less polluting per unit product (in this case electricity). In re SEI Birchwood Inc, 5 E.A.D. 25 (1994); In re Old Dominion Electric Cooperative, 3 E.A.D. 779 (1992).

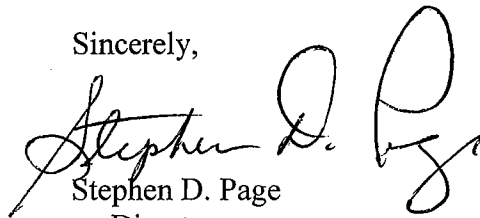
Therefore, the question in this instance is whether IGCC results in a redefinition of the basic design of the source if the permittee is proposing to build a supercritical pulverized coal (SCPC) unit. In this situation, EPA's view is that applying the IGCC technology would fundamentally change the scope of the project and redefine the basic design of the proposed source. Portions of an IGCC process are very similar to existing power generation designs that we have previously identified as a redefinition of the basic design of source when an applicant proposed to construct a pulverized coal-fired boiler. The combined cycle generation power block of an IGCC employs the same turbine and heat recovery technology that is used to generate electricity with natural gas at other electrical generation facilities. As noted above, we do not require applicants proposing to construct a coal-fired steam electric generator to consider building a gas-fired combustion turbine as part of a BACT analysis. Furthermore, the core process of gasification at an IGCC facility is more akin to technology employed in the refinery and chemical manufacturing industries than technologies generally in use in power generation (i.e., controlled chemical reaction versus a true combustion process). This technology would necessitate different types of expertise on the part of the company and its employees to produce the desired product (electricity) than the typical SCPC unit. Therefore, where an applicant proposes to construct a SCPC unit, we believe the IGCC process would redefine the basic design of the source being proposed.

Accordingly, consistent with our established BACT policy, we would not require an applicant to consider IGCC in a BACT analysis for a SCPC unit. Thus, for such a facility, we would not include IGCC in the list of potentially applicable control options that is compiled in the first step of a top-down BACT analysis. Instead, we believe that an IGCC facility is an alternative to an SCPC facility and therefore it is most appropriately considered under Section 165(a)(2) of the CAA rather than section 165(a)(4).

Your letter did not specifically request guidance on whether IGCC should be considered in a LAER analysis for a SCPC, but I am taking this opportunity to address the issue. As with BACT, an applicant must generally comply with LAER as a condition for issuance of a nonattainment new source review (NSR) permit in a nonattainment area. Section 173(a)(5) of the CAA requires an applicant to conduct, “an analysis of *alternative sites, sizes, production processes* and environmental control techniques for such proposed source.” (emphasis added). Because we believe IGCC results in a redefinition of the source in this situation, it should not be considered in a LAER analysis for a SCPC unit. Nonetheless, we believe that the technology should be considered under Section 173(a)(5) when an SCPC unit is proposed in nonattainment areas.

I trust that this response addresses the issues raised in your letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen D. Page". The signature is written in a cursive style with a large, looped initial "S".

Stephen D. Page  
Director  
Office of Air Quality, Planning  
and Standards