

APPENDIX F

DESCRIPTION OF A GENERALIZED PROCEDURE FOR DETERMINING BEST AVAILABLE CONTROL TECHNOLOGY

Best available control technology (BACT) determinations typically involve a methodical analysis of the applicable district's BACT definition, and past and recent BACT determinations. This appendix describes a generalized procedure for determining BACT. This generalized procedure reflects the common elements/provisions of district BACT definitions and consists of the following steps: 1) establishment of the "class or category of source," 2) determination of "achieved in practice levels," 3) evaluation of control measures and implementing rules and regulations contained in State Implementation Plans (SIPs), 4) identification of control technologies that are more stringent than what has been "achieved in practice," and 5) the determination of BACT.

As the requirement for BACT is pollutant-specific, the following generalized procedure should be repeated for each pollutant for which a proposed project's emissions will exceed BACT requirement thresholds. Also, when evaluating the information collected during each step of the generalized procedure, it may be necessary in some cases to reconsider the conclusions made at a previous step (i.e., one may need to repeat previous steps). For example, the "class or category of source" established in step one may be found to be overly broad, or narrow, after evaluation of information collected in latter steps.

Step 1. Establishing the "Class or Category of Source"

The effort to determine BACT begins with the establishment of the "class or category of source." The "class or category of source" establishes the scope of evaluations for the subsequent steps involving evaluations of control requirements. BACT determinations should be consistent within a "class or category of source."

"Class or category of source" provides the scope of what other basic equipment (or sources) will be used as comparables. The term "class or category of source" is not explicitly defined in federal, State, or district rules and regulations. As a practical matter, a facility's basic equipment, processes, and energy sources (fuel) should be considered when establishing "class or category of source." Equipment or processes of similar type or function are typically placed together in a "class or category of source." Different makes (manufacturers) or models of the same type of basic equipment generally should not be a consideration in establishing "class or category of source." However, the function and capacity of the basic equipment may be a consideration. It is noteworthy that the United States Environmental Protection Agency (U.S. EPA) has a technology transfer policy that broadens a "class or category of source" to include any sources with similar exhaust gas streams that could be controlled by the same or similar technology or any similar, but not necessarily identical, processes (e.g., similar coating

operations).¹

The establishment of an appropriate “class or category of source” is an important step; an appropriate selection will promote consistent BACT decisions that will help ensure that only the cleanest projects are approved. When the “class or category of source” that is otherwise applicable for a proposed project appears to be overly broad, the applicant has the burden of providing a demonstration to justify a narrower “class or category of source.” For example, boilers may be considered a “class or category of source.” Alternatively, one may want to consider boilers fired on natural gas and boilers fired on oil as two different “classes or categories of source.” Commonly, the “class or category of source” may have been restricted to account for differences in technological feasibility and performance of control equipment due to the size of the basic emitting equipment. In this case, the applicant would need to demonstrate to the district that there are changes in control efficiency, lack of demonstrated use, inability to obtain financing, or restrictive conditions of vendor guarantees or warranties, etc. that make the control technology infeasible. Air Resources Board (ARB) staff does not consider lack of vendor guarantees or warranties alone to be sufficient justification for altering a “class or category of source” determination.

Step 2. Establishing the “Achieved In Practice” Emission Control Level

This step identifies what emission limitation or control technology is the most stringent control level that has been achieved in practice for a relevant “class or category of source.” This step involves a review of past, and recent, performance of controls on other equipment units in the same “class or category of source.” The emission levels achieved with the various controls are compared and ranked to determine which control is the most stringent. Emission concentrations, normalized emissions rates (e.g., lb per Btu) and/or technology-specific requirements should be used to compare the performance of the required controls. Averaging times for emission measurement may be a factor in comparing the emission levels.

There are several sources of information on past BACT determinations. BACT determinations are cataloged in the clearinghouses maintained by the California Air Pollution Officers Association (CAPCOA) and the U.S. EPA.² In California, several districts, including the Bay Area Air Quality Management District, South Coast Air Quality Management District, and the San Joaquin Valley Unified Air Pollution Control District, have BACT guidance documents.

¹ August 29, 1998, U.S. EPA Memorandum entitled, “Transfer of Technology in Determining Lowest Achievable Emission Rate (LAER),” from John Calcagni, Director of Air Quality Management Division, to David Kee, Director of Air and Radiation Division, Region V.

² The CAPCOA and U. S. EPA RACT/BACT/LAER clearinghouses are available on the Internet at www.arb.ca.gov/bact/bact.htm and at <http://cfpub1.epa.gov/RBLC/>, respectively.

Step 3. Rules Or Regulations Contained In Any Approved State Implementation Plan

Typically, a BACT emission limitation must be at least as stringent as any control measure that is contained in any approved State Implementation Plan (SIP) that is applicable to the “class or category of source.” For example, a district may have a rule specifically limiting emissions from stationary gas turbines, or more general rules restricting opacity or fuel sulfur content from any emission source required to obtain a permit. The BACT emission limitation should not be less stringent or cause a violation of any of these applicable SIP-approved rules and regulations. Therefore, this step involves evaluation of the rules and regulations of all California districts as well as the rules and regulations of other states that may apply to emission sources within the same “class or category of source.” Rules and regulations for California districts are available from the ARB website.³

Step 4. Control Technologies More Stringent Than Those Achieved In Practice

Most districts in California are required to consider more stringent control technologies than those that are achieved in practice. The more stringent controls must be both technologically feasible and cost effective. Where more than one such control exists, staff suggests that the U.S. EPA’s “top-down,” decision-making procedures be used to rank the controls.⁴ Staff recommends that the district rank technologically feasible controls by stringency of emission control after making the following determinations or demonstrations:

- determine the technologies that are technologically achievable using data from prototype testing, utilization with another “class or category of source,” or limited operation not meeting achieved in practice criteria;
- determine the economic feasibility of each of the technologies identified above with a cost-effectiveness analysis;
- determine if the cost effectiveness is within the cost effectiveness limits of current BACT requirements or predetermined cost-effectiveness criteria established by the district; and
- rank the cost-effective control technologies from the most to least stringent.

³ <http://www.arb.ca.gov/drdb/drdb.htm>

⁴ See previous footnote 3.

Step 5. Making The BACT Decision

In the final step of the generalized procedure, a BACT decision is made. The BACT decision must be consistent with the provisions of the district's BACT definition including the requirement that the BACT emission limit must not be less stringent than an applicable New Source Performance Standard (NSPS) or National Emissions Standards for Hazardous Air Pollutants (NESHAP). In most cases, the BACT decision will be based on the most stringent emission level of the following three alternative minimum requirements identified in earlier steps:

- the most effective control achieved in practice identified (see Step 2),
- the most stringent emission control contained in any approved SIP (see Step 3), or
- any more stringent emission control technique found by the district to be both technologically feasible and cost effective (see Step 4).