ATTACHMENT C: CONTROL TECHNOLOGY ANALYSIS

This document applies to analyses for the following types of control technology determinations:

Best Available Control Technology (BACT). BACT means an emission limitation (including opacity limits) based on the maximum degree of reduction which is achievable for each pollutant, taking into account energy, environmental, and economic impacts, and other costs. This definition is applicable to both the federal Prevention of Significant Deterioration (PSD) regulations and state Rule 702 (R 336.1702). {Ref. 40 CFR 51.21(b)(12)}

Lowest Achievable Emission Rate (LAER). LAER means the more stringent of the following: {Ref. R 336.1112(f) [Rule 112(f)]}

(1) The most stringent emission limitation which is contained in the implementation plan of any state for such class or category of process or process equipment, unless the owner or operator of the proposed major offset source or major offset modification demonstrates that such limitation is not achievable.

(2) The most stringent emission limitation which is achieved in practice by such class or category or process or process equipment.

Best Available Control Technology for Toxics (T-BACT). T-BACT means the maximum degree of emission reduction the commission [Department] determines is reasonably available for each process that emits toxic air contaminants, taking into account energy, environmental, and economic impacts, and other costs. {Ref. R 336.1102(a) [Rule 102(a)]}

I. General Requirements

A. The analysis must be pollutant and emission unit specific with respect to each pollutant subject to review.

B. The analysis must evaluate the entire range of demonstrated options, including alternatives that may be transferable or innovative.

C. The level of detail in the control options analysis should vary with the relative magnitude of the emissions and the emissions reduction achievable.

D. All emission limits should be expressed in pounds per hour (based on maximum capacity) and in terms of process unit variables such as material processed, fuel consumed or pollutant concentrations (e.g., lbs/10^6 BTU, lbs/gal of solids applied, g/dscm).

E. Emission limits and work practice standards must be enforceable as a practical matter. Permit conditions should specify appropriate stack testing, continuous emission monitoring, continuous process monitoring, recordkeeping, and any other parameters necessary to make the emission limitations enforceable as a practical matter.

II. Specific Procedure (step-by-step)

A. Pollutant Applicability

1. Rule 702 BACT is applicable to volatile organic compounds (VOC) only.

2. PSD BACT and LAER. Determine which "regulated pollutants" are emitted in significant quantities. Fugitive emissions must be included for those source categories listed in 40 CFR 52.21(a)(1) and R 336.1116(m) for BACT and LAER respectively. Regulated pollutants include all pollutants which have a National Ambient Air Quality Standard (NAAQS), are regulated under the federal Performance Standards for New Stationary Sources (NSPS) under the federal Clean Air Act (CAA), or are regulated under the federal National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asbestos, Beryllium, Mercury, or Vinyl Chloride. Pollutants which fall into two categories must be accumulated in each category (e.g., Dimethyl Sulfide is both a reduced sulfur compound and a VOC). Exception: Pollutants that are Hazardous Air Pollutants (HAPs) regulated under Section 112 of the federal CAA are not regulated under PSD as HAPs (e.g., hexane is a HAP and a VOC, but would only be regulated under PSD as a VOC).

3. T-BACT applies to all pollutants considered to be toxic air contaminants (TACs) as defined under Rule 120(f), unless specifically exempted under R 336.1230(4) [Rule 230(4)].

B. Emission Unit Applicability

Determine all potential emission units and emission points, including fugitive units as described above. Examples of emission points include each stack, relief valve, pump, storage pile or tank, conveyor, and valve.

C. Potentially Sensitive Concerns

Identify any potentially sensitive concerns involving energy, economic, and environmental issues. All potentially sensitive air quality concerns, including the control of non-targeted pollutants, should be addressed. For example, limestone may have to be injected upstream of a baghouse to control hydrogen chloride even though particulate is the regulated pollutant of concern in the analysis.

D. Selection of Alternative Control Strategies

1. **BACT (Rule 702 and PSD) and T-BACT only.** Determine a base case. The base case is the control strategy that, in the absence of a control requirement, would normally have been applied.

2. Identify all alternative control strategies including: (a) transferable and innovative control technologies, (b) processes that inherently produce less pollution, and (c) various configurations of same technology which achieve different control efficiencies. For BACT and T-BACT, these are strategies affording greater control than the base case. All of the following sources of information should be investigated to ensure that all possible control strategies are identified:

a) Literature

b) Industrial surveys

c) The U. S. Environmental Protection Agency's (EPA) RACT/BACT/LAER Information Clearinghouse

d) EPA/State/Local air pollution control agency surveys

e) **(LAER only)** State and Local regulations

3. **PSD BACT only.** Rank all possible control technology alternatives in descending order based on overall control efficiency.

E. Selection of final control strategy

1. **BACT (Rule 702 and PSD) and T-BACT.** Normally the most efficient or stringent alternative is chosen. If the most efficient alternative is not feasible because of energy, economic or environmental impacts or other costs, continue evaluating the less efficient technologies. BACT is the most efficient alternative which is not demonstrated to be infeasible. The following are examples when energy, economic, or environmental impacts may make an alternative not feasible.

a) Energy: Natural gas for operating an afterburner is not available based on local regulations.

b) Economic:

(1) The increased cost of the final product (e.g., automobile, cement, coke, etc.) would increase to a level that the project would no longer be feasible. This demonstrations requires that the facility submit financial information to verify this claim.

(2) The increased and/or incremental cost is out of proportion to the environmental benefit. (e.g., The increased cost of going from 93% control to 94% control increases the capital cost from $2,000,000 to $4,000,000 and the operating costs from $500,000/year to $1,000,000/year and only reduces the emissions of nitrogen oxides by 50 tons per year.)

c) Environmental: A wet scrubber may create a by-product which cannot be disposed of without creating a more detrimental impact.

2. **LAER.** The application of the most stringent alternative is required unless it can be proven to be technologically infeasible or unachievable.

F. Establish emission limits with reasonable margin of safety (e.g., 95% confidence level of available test data); establish averaging time if necessary. Establish other requirements such as stack testing, continuous emission monitoring, recordkeeping, and reporting requirements to make the emission limitation enforceable as a practical matter.