Sheplak, Scott - GL -

From: Sheplak, Scott
Sent: Friday, December 21, 2007 4:54 PM
To: 'Sandra_V_Silva@fws.gov'
Cc: Linero, Alvaro
Subject: FW: Mosaic Fertilizer, LLC 0570008-055-AC DRAFT BART Permit
Attachments: 0570008-055-AC BART - cover letter.pdf; 0570008-055-AC BART - written notice.pdf; 0570008-055-AC BART - public notice.pdf; 0570008-055-AC BART - TEPD.pdf; 0570008-055-AC BART - draft permit.pdf; 0570008-055-AC BART - Figure A.pdf; 0570008-055-AC BART - insert cover pages.pdf; 0570008-055-AC BART Table1.htm; 0570008-055-AC BART - appendices.pdf; SIGNED DOCUMENT COPY - DEP FILE - 0570008-055-AC-DRAFT.pdf

Please pass this one onto him (Dean Gillam) also. Thanks.

From: Adams, Patty
Sent: Tuesday, December 18, 2007 5:40 PM
To: 'Alan.Lulf@mosaicco.com'; 'jeff.stewart@mosaicco.com'; 'Buff, Dave'; 'smohammad@golder.com'; 'lee@hpchc.org'; Zhang-Torres; 'little.james@epa.gov'; 'Forney.Kathleen@epamail.epa.gov'; Dee_Morse@nps.gov
Cc: Harvey, Mary; Sheplak, Scott; Gibson, Victoria
Subject: Mosaic Fertilizer, LLC 0570008-055-AC DRAFT BART Permit

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: http://www.adobe.com/products/acrobat/readstep.html.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

- file

0570008-055-AC -

TEPD and Draft Permit cuts --

Visibility Regulations and the Relevance of this Project

Recent federal regulations intended to improve visibility in Class I areas were enacted in two phases; the first phase being BART and the second known as Reasonable Further Progress (RFP). The regulations intend to reduce the impact of certain visibility impairing air pollutant emissions from stationary sources. Under the first phase known as BART, certain sources with an impact had been identified. The Riverview facility had been identified as a BART source. In the second phase, sources with a larger impact on visibility are further regulated under the RFP. The Riverview facility has not been identified as a source to be regulated under the RFP.[i] Four phosphate fertilizer manufacturers submitted BART determination requests: Mosaic-New Wales (Facility ID No. 1050059); Mosaic-Riverview; CFI-Plant City (Facility ID No. 0570005); and, PCS-White Springs (Facility ID No. 0470002). The White Springs facility is currently subject to the RFP phase.

The Riverview facility has three sulfuric acid plants capable of producing a combined total of 9,300 tons per day of 100% sulfuric acid. All three SAP's were initially constructed in 1974. SAP Nos. 7 and 8 began operating in 1961 and 1965, respectively while SAP No. 9 began operating in 1974. These plants are 46, 42 and 23 years old, respectively, according their dates of commencing operations.

The facility is approximately 87 kilometers (54 miles) to the nearest Class I area, the Chassahowitzka National Wilderness Area (NWA) which is located in Hernando and Citrus Counties.[ii] A map showing the Class I areas in Florida, the facility's location and areas within 300 km of the facility are shown in **Figure A.**

Scott M. Sheplak 12/17/07

Scott M. Sheplak

5. BART ANALYSIS AND PRELIMINARY BART DETERMINATION FOR NOS. 7, 8 & 9 SULFURIC ACID PLANTS

As indicated in Appendix Y to 40 CFR Part 51 - Guidelines for BART Determinations, section IV.C., EPA indicates that it may be possible to streamline the BART analysis by accepting the recent BACTs and/or the recent EPA NSR/PSD settlements as being BART. The pertinent parts of section IV.C. are excerpted below.

> " ... States may streamline the analysis ...
>
> We believe that the same rationale also holds true for emissions standards developed for municipal waste incinerators under CAA section 111(d), and for many NSR/PSD determinations and NSR/PSD settlement agreements. However, we do not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels.
>
> Where you are relying on these standards to represent a BART level of control, you should provide the public with a discussion of whether any new technologies have subsequently become available (emphasis added)."

The Department believes new SO_2 control technologies are available. Steps 2. through 5. of the BART analysis are therefore required.

In Appendix Y to 40 CFR Part 51 - Guidelines for BART Determinations, section IV.D.1. Step 1.9. provides:

> "If you find that a BART source has controls already in place which are the most stringent controls available (note that this means that all possible improvements to any control devices have been made), then it is not necessary to comprehensively complete each following step of the BART analysis in this section. As long these most stringent controls available are made federally enforceable for the purpose of implementing BART for that source, you may skip the remaining analyses in this section, including the visibility analysis in step 5. Likewise, if a source commits to a BART determination that consists of the most stringent controls available, then there is no need to complete the remaining analyses in this section (emphasis added)."

However, all possible improvements to the existing SO_2 control technology or the addition of new SO_2 control technologies have not been made. Steps 2. through 5. of the BART analysis are therefore required.

Step 2. Eliminate technically infeasible options.

Each technology is addressed individually below. Technically feasible options are noted and emphasized.

Process Modifications - Double Absorption System

The most common technology used by sulfuric acid plants is the double absorption system. In using this design, there are no by-products or waste products from scrubbing materials. All three SAPs use a double absorption system. This technique is "available" and "applicable" therefore, it is technically feasible for the SAPs.

Process Modifications - Catalyst Enhancements

The applicant did not address catalyst enhancements. As previously mentioned above, further improvements or enhancements to the catalysts are possible.

Using different types of catalyst materials can enhance catalyst activity thus improving the process and reducing emissions as previously mentioned in Step 1. In the Response to Additional Information dated July 9, 2007, the applicant identified a platinum catalyst from 70 years ago but, it is not being used because it is "excessively expensive." This technique is not readily "available" in today's market therefore it is not technically feasible.

An enhanced catalyst, cesium promoted vanadium, is currently in use in the 4th converter of the Nos. 8 and 9 SAPs. The No. 7 SAP does not use the enhanced catalyst. The catalyst being used in the SAP No. 7 beds is "Topsoe VK38" which is a vanadium catalyst.[iii] This technique is "available" and "applicable" therefore, it is technically feasible for the continued use in Nos. 8 & 9 SAPs and for the new use in the No. 7 SAP.

It may be possible to further improve catalyst activity by using different types of catalysts in the absorber tower beds. Changes specifically related to the size, shape or design of the catalyst material can improve the catalyst as previously indicated. Due to limited resources in this area, the Department realizes process engineers would promote these enhancements for the sake of a more efficient sulfuric acid manufacturing process implementing these advancements over time. An optimization study of the catalyst could be required to be performed if not recently already done and be submitted to the Department for review. This technique is "available" and "applicable" therefore, it is technically feasible for the SAPs.

Additional Control Technologies

Note, the Department did not find a double absorption SAP in Florida with the additional control devices identified below in place.

Scrubbing Technologies - Ammonia Scrubbing

An advantage to using ammonia scrubbing is the availability of ammonia at a fertilizer plant and the potential use of the scrubbed effluent (ammonium sulfate) in the fertilizer manufacturing process. The applicant indicated this technique has been used by SAPs (see the Application, Section 5.1.2.1 Control Technology Feasibility). Ammonia scrubbing has been used by the single-absorption SAPs at CFI-Plant City in Florida. This technique is "available" and "applicable" therefore, it is technically feasible for the SAPs.

Scrubbing Technologies - Hydrogen Peroxide Scrubbing

The applicant indicated this technique has been used by SAPs (see the Application, Section 5.1.2.1 Control Technology Feasibility). The A&WMA manual indicates the DuPont process has been used at single absorption plants. The applicant claims due to the high cost of hydrogen peroxide this technique is not feasible. The Department recognizes this technique as not being "applicable" nor "available" therefore, it is not technically feasible for the SAPs.

Scrubbing Technologies - Scrubbing with a Wet Limestone Scrubber Flue Gas Desulphurization (FGD)

The applicant indicated this technique has not been used by a SAP (see the Application, Section 5.1.2.1 Control Technology Feasibility). The Department accepts that this control is not applicable to SAPs. This technique is not "applicable" therefore, it is not technically feasible for the SAPs.

Scrubbing Technologies - Molecular Sieves

The Department agrees with the applicant's evaluation that this technology is not applicable to a SAP (see the Application, Section 5.1.2.1 Control Technology Feasibility). The molecular sieves could act as ideal absorbers but, lack the ability to convert the absorbed SO_2

to SO_3. This technology is not "applicable" therefore, it is a technique that is not technically feasible.

Sorbent Injection

The Department accepts the applicant's evaluation that this technology is not applicable to a SAP (see the Application, Section 5.1.2.1 Control Technology Feasibility). It seems that sorbent injection would in fact interfere with the sulfuric acid manufacturing process. This technology is not "applicable" therefore, it is a technique that is not technically feasible.

Oxidation

The Department did not find a double absorption SAP with this type of additional control in place. The applicant indicated this technology has been used at single absorption plants but, it is not applicable to a double absorption SAP (see the Application, Section 5.1.2.1 Control Technology Feasibility). The Department accepts the applicant's evaluation and deems this technology as not being "applicable" to these double absorption SAPs. This technology is therefore not technically feasible.

Step 3. Evaluate control effectiveness of remaining control technologies.

In summary, the remaining 3 (three) air pollution control techniques identified as technically feasible by the Department can be summarized as follows:

Process Modifications - Double Absorption System

Process Modifications - Catalyst Enhancements

Additional Control Technologies Scrubbing Technologies - Ammonia Scrubbing

The applicant evaluated and ranked air pollution control technologies and measures based on their control efficiency (see the Application, Table 5-2). Based on the applicant's ranking, their top (#1) air pollution control technology or measure identified was "Process Modification," specifically, double absorption system which is currently employed by the SAPs. The Department concurs with the applicant that the use of a double absorption system by a SAP would have the most efficiency, with an efficiency of at least 99.7%.

Based on the applicant's stated control efficiencies, the next best control technique with an efficiency of up to 98% removal of SO_2 is the use of an FGD with a ranking of #2. The Department has ruled this technique out due to its infeasibility. The next controls identified by the applicant were the use of either hydrogen peroxide scrubbers with an efficiency of greater than 90% or ammonia scrubbers with an efficiency of greater than 90% both with rankings of #3. Because these SAPs are located at a fertilizer complex with a source of ammonia, the Department would rank ammonia scrubbing over hydrogen peroxide scrubbing.

Obviously, the addition of a new control device would further reduce emissions by at least another 90%. However, it is important to note that additional reductions can be achieved simply by using different catalysts resulting in an increased efficiency beyond the 99.7% efficiency of a double absorption system.

Step 4. Evaluate the impacts of the remaining technologies and document the results.

The applicant provided a very detailed evaluation on ammonia scrubbing. Perhaps the single most important impact to consider as part of this evaluation is with regard to costs. Specific information on the remaining technologies obtained during the application processing was limited and is shown below as it relates to this step.

Process Modifications - Double Absorption System

This technology is currently successfully in use at each SAP.

Process Modifications - Catalyst Enhancements

The applicant stated that the SAP No. 7 could use a cesium promoted vanadium catalyst in the 4th converter but, it would cost $1.7 million to replace the full bed. The applicant provided an estimate of $8.00/liter to replace all the catalyst in the 4th bed (see Additional Information Response dated July 9, 2007). The applicant indicated converting all of this bed would require the plant to cut the production rate and could damage the SAP. It may be possible to replace a portion of the catalyst in the 4th bed.

Additional Control Technologies

Scrubbing Technologies - Ammonia Scrubbing

The applicant provided a cost effectiveness range of $4,440 - $5,300/ton of SO_2 removed with the addition of an ammonia scrubbing system to the double absorption plants. This cost effectiveness range was calculated by the applicant using potential emissions (allowable emissions) rather than actual emissions from the CEMS. Allowable emissions used in this BART analysis for the Nos. 7, 8 & 9 SAPs were 467.0 lb/hour (24-hour average), 393.8 lb/hour (24-hour average), and 495.8 lb/hour (24-hour average) equivalent to 2,045 tons per year (TPY), 1,724.8 TPY, and 2,171.6 TPY respectively. The use of actual CEMS data would increase the cost effectiveness values slightly. A remaining useful life of 20 years was used in this cost estimate as the applicant has no plans to shutdown the SAPs. The fertilizer market is currently robust.[iv] The energy impacts were included in this cost range. This cost estimate was based primarily on the CFI-Plant City ammonia scrubber project. The Department accepts the updated cost estimate derived from the CFI-Plant City project.

The applicant indicated the improvement to visibility from this reduction equates to $30 - $33 million per dv reduction (see the July 9, 2007 Additional Information Response).

The applicant considered the cost effective range and the cost per dv reduction to be "extremely high." The Department finds the cost effectiveness range to be typical of a BACT.

Step 5. Evaluate visibility impacts.

The applicant assumed 90% control efficiency with an ammonia scrubber as a possible BART control technology. The reduced emission rates from 90% control efficiency provided visibility impacts of 0.065, 0.05 and 0.06 dv for SAP Nos. 7, 8, 9 respectively. The changes in visibility impact are much lower than 1 dv.

Mosaic Riverview SO_2 BART Analysis for CNWR

Percent Contribution to 8th Highest Visibility Impact			
Source	**Actual Visibility Impact (dv)**	**Impact with 90% Control (dv)**	**Change in Visibility Impact (dv)**

No. 7 SAP	0.206	0.065	0.141
No. 8 SAP	0.174	0.05	0.124
No. 9 SAP	0.220	0.06	0.16

The applicant concluded that the BART control technology proposed was not cost effective based on the reduction in visibility.

The Department accepts this evaluation however, additional actions can be taken to ensure continuous SO_2 emission reductions using the currently employed control technologies.

SO_2 Emission Standards and Limitations

BART requires by definition an emission limitation to be established on a case-by-case basis for each BART pollutant. The BART also requires the application of the best system of continuous emission reduction for each BART pollutant.

In Appendix Y to 40 CFR Part 51 - Guidelines for BART Determinations, section IV.C. U.S. EPA describes how the BART is related to MACT and other emission limitations required under the CAA. EPA states:

> "... We believe that the same rationale also holds true for emissions standards developed for municipal waste incinerators under CAA section 111(d), and for many NSR/PSD determinations and NSR/PSD settlement agreements. However, we do not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels (emphasis added). Where you are relying on these standards to represent a BART level of control, you should provide the public with a discussion of whether any new technologies have subsequently become available. ..."

Sulfuric acid plants are not regulated under a maximum available control technology (MACT) standard. The Department believes EPA is implying in section IV.C. of the Guideline that retrofits from recent BACTs and NSR/PSD settlement agreements may represent BART. Clearly, BART is not represented by "older levels" as specified in the circa 1970's NSPS for sulfuric acid plants. The NSPS for sulfuric acid plants (40 CFR 60 Subpart H) contains the following emission standards: 4 lb SO_2/ton 100% H_2SO_4 produced; 0.15 SAM/ton 100% H_2SO_4 produced; and, 10% opacity. Under the NSPS compliance is demonstrated by a performance (stack) test. Under the NSPS an SO_2 CEMS is required to be used for monitoring. The implied averaging period for the compliance demonstration is a 3-hour average or the run time of the stack test.

New sulfuric acid plants in Florida are regulated under Rule 62-296.402, F.A.C., *Sulfuric Acid Plants*, which contains the following emission standards: 4 lb SO_2/ton 100% H_2SO_4 produced; 0.15 SAM/ton 100% H_2SO_4 produced; and, 10% opacity, essentially the same as the NSPS. Likewise, the SO_2 CEMS requirement is the same.

The BACT emission limitations currently in effect are:

No. 7 SAP (from PSD-FL-250, issued in 1998)

SO_2
4 lb/ton 100% H_2SO_4 produced, 3-hour block average; and, 533 lb/hr.
3.5 lb/ton 100% H_2SO_4 produced, 24-hour daily (block implied) average; 467 lb/hr, and, 2,044 TPY.

SAM (H_2SO_4 mist)

0.12 lb/ton 100% H_2SO_4 produced (3-hour average implied), 16 lb/hr, 70 TPY.

Visible Emissions
10% opacity, 6-minute average.

No. 8 SAP (from PSD-FL-315, issued in 2001)

SO_2
4 lb/ton 100% H_2SO_4 produced, 3-hour block average; and, 450.0 lb/hr.
3.5 lb/ton 100% H_2SO_4 produced, 24-hour block average; 393.8 lb/hr, and, 1,724.6 TPY.

SAM (H_2SO_4 mist)
0.10 lb/ton 100% H_2SO_4 produced (3-hour average implied), 11.3 lb/hr, 49.3 TPY.

Visible Emissions
10% opacity, 6-minute average.

No. 9 SAP (from PSD-FL-315)

SO_2
4 lb/ton 100% H_2SO_4 produced, 3-hour block average; and, 566.7 lb/hr.
3.5 lb/ton 100% H_2SO_4 produced, 24-hour block average; 495.8 lb/hr, and, 2,171.8 TPY.

SAM (H_2SO_4 mist)
0.10 lb/ton 100% H_2SO_4 produced (3-hour average implied), 14.2 lb/hr, 62.1 TPY.

Visible Emissions
10% opacity, 6-minute average.

Again, BART requires by definition an emission limitation to be established on a case-by-case basis for each BART pollutant and the BART requires the application of the best system of continuous emission reduction for each BART pollutant. EPA also states in the section V. of the Guidelines for BART Determinations in Appendix Y to 40 CFR Part 51, that "... Section 302(k) of the CAA requires emissions limits such as BART to be met on a continuous basis. ..."

EPA has determined that pre-1990 federal regulations may not contain sufficient periodic monitoring to assure compliance. EPA has recommended that installed CEMS be used for continuous compliance demonstration.

The Department acknowledges that an acceptable emission limitation should include a buffer.

Based on these SO_2 CEMS data interpretations, a 4.0 lb/ton 100% H_2SO_4 produced, 3-hour average as demonstrated by SO_2 CEMS is easily achieved by each SAP presently. A 3.5 lb/ton 100% H_2SO_4 produced, 24-hour average as demonstrated by SO_2 CEMS is currently met by each SAP. It is worthy to note that based on the CEMS data, the emissions of SO_2 from the No. 9 SAP are lower than SAP Nos. 8 and 9. Each SAP currently operates with no less than a 15% buffer of the current 3-hour and 24-hour SO_2 standards. It appears that by even leaving a 10% buffer, each SO_2 standard could be effectively reduced by 5%. This would result in a 3.8 lb SO_2/ton 100% H_2SO_4 produced, 3-hour average and a 3.3 lb SO_2/ton 100% H_2SO_4 produced, 24-hour average. However, the applicant has indicated that lowering the SO_2 standards could result in a reduction in SAP production.

Based on this stack test data, a 3.5 lb SO_2/ton, 3-hour average may be achievable by Nos. 7 & 8 SAP. A 3.0 lb SO_2/ton, 3-hour average may be attainable by No. 9 SAP. The actual SO_2 emissions based on the stack tests from SAP No. 9 are lower than the Nos. 7 & 8 SAP.

The conclusion of the BART analysis was the same as in the issued TEPD.

SAM Emission Standards and Limitations

The Title V permit, Permit Number 0570008-045-AV, contains the test methods & procedures for SAM emissions.

Proposed SAM Standards and Limitations for Draft Permit

PM/PM_{10} - SAM Emission Standards: Emissions of SAM shall not exceed 0.12 lb SO_2/ton 100% H_2SO_4 produced based on a 3-hour average as determined by stack test data from No. 7 SAP. Emissions of SAM shall not exceed 0.10 lb SO_2/ton 100% H_2SO_4 produced based on a 3-hour average as determined by stack test data from Nos. 8 & 9 SAPs. Emissions of SAM from SAP Nos. 7, 8, and 9 shall not exceed 16.0, 11.3, and 14.2 pounds per hour based on a 3-hour average as determined by stack test. The equivalent tons per year (TPY) values for SAP Nos. 7, 8, and 9 are: 70; 49.3; and, 62.1 TPY respectively. {These standards are current existing standards.} [Rule 62-296.340 (BART), F.A.C.]

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[i] Rule Making Workshop Materials for Reasonable Future Progress.

[ii] Pages 1-3 and Figure 1-1 in APPENDIX A - Revised Air Modeling Protocol for Riverview Facility submitted with Air Construction Permit Application dated January 31, 2007.

[iii] World wide web site. Haldor Topsoe brochure on Sulfuric Acid Catalysts for Today and the Future, VK Series. http://www.topsoe.com/site.nsf/vALLWEBDOCID/KVOO-5PGF6R/$file/Cat%20-%20HT%20VK%20brochure.pdf . Accessed on November 30, 2007.

[iv] World wide web site. Mosaic News Release. Investor Relations - News Release.htm. http://www.mosaicco.com . Accessed on August 8, 2007.

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0570008-055-AC-

BART Analysis, Steps 2. through 5 Requirement

SMS
02/26/07

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> We believe that the same rationale also holds true for emissions standards developed for municipal waste incinerators under CAA section 111(d), and for many NSR/PSD determinations and NSR/PSD settlement agreements. However, we do not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels.
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> Where you are relying on these standards to represent a BART level of control, you should provide the public with a discussion of whether any new technologies have subsequently become available (emphasis added)."

The Department believes new control technologies are available. Steps 2. through 5. of the BART analysis are therefore required.

In Appendix Y to 40 CFR Part 51 - Guidelines for BART Determinations, section IV.D.1. Step 1.9. provides:

> "If you find that a BART source has controls already in place which are the most stringent controls available (note that this means that all possible improvements to any control devices have been made), then it is not necessary to comprehensively complete each following step of the BART analysis in this section. As long these most stringent controls available are made federally enforceable for the purpose of implementing BART for that source, you may skip the remaining analyses in this section, including the visibility analysis in step 5. Likewise, if a source commits to a BART determination that consists of the most stringent controls available, then there is no need to complete the remaining analyses in this section (emphasis added)."

However, all possible improvements to the existing control technology or the addition of new control technologies have not been made. Steps 2. through 5. of the BART analysis are therefore required.

(4) The remaining useful life of the facility,

(5) The energy and non-air quality environmental impacts of control options

(6) The visibility impacts analysis.

B. What is the scope of the BART review?

Once you determine that a source is subject to BART for a particular pollutant, then for each affected emission unit, you must establish BART for that pollutant. The BART determination must address air pollution control measures for each emissions unit or pollutant emitting activity subject to review.

Example: Plantwide emissions from emission units within the listed categories that began operation within the "time window" for BART [11] are 300 tons/yr of NO_X, 200 tons/yr of SO_2, and 150 tons/yr of primary particulate. Emissions unit A emits 200 tons/yr of NO_X, 100 tons/yr of SO_2, and 100 tons/yr of primary particulate. Other emission units, units B through H, which began operating in 1966, contribute lesser amounts of each pollutant. For this example, a BART review is required for NO_X, SO_2, and primary particulate, and control options must be analyzed for units B through H as well as unit A.

[11] That is, emission units that were in existence on August 7, 1977 and which began actual operation on or after August 7, 1962.

C. How does a BART review relate to Maximum Achievable Control Technology (MACT) Standards under CAA section 112, or to other emission limitations required under the CAA?

For VOC and PM sources subject to MACT standards, States may streamline the analysis by including a discussion of the MACT controls and whether any major new technologies have been developed subsequent to the MACT standards. We believe that there are many VOC and PM sources that are well controlled because they are regulated by the MACT standards, which EPA developed under CAA section 112. For a few MACT standards, this may also be true for SO_2. Any source subject to MACT standards must meet a level that is as stringent as the best-controlled 12 percent of sources in the industry. Examples of these hazardous air pollutant sources which effectively control VOC and PM emissions include (among others) secondary lead facilities, organic chemical plants subject to the hazardous organic NESHAP (HON), pharmaceutical production facilities, and equipment leaks and wastewater operations at petroleum refineries. We believe that, in many cases, it will be unlikely that States will identify emission controls more stringent than the MACT standards without identifying control options that would cost many thousands of dollars per ton. Unless there are new technologies subsequent to the MACT standards which would lead to cost-effective increases in the level of control, you may rely on the MACT standards for purposes of BART.

We believe that the same rationale also holds true for emissions standards developed for municipal waste incinerators under CAA section 111(d), and for many NSR/PSD determinations and NSR/PSD settlement agreements. However, we do not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels.

Where you are relying on these standards to represent a BART level of control, you should provide the public with a discussion of whether any new technologies have subsequently become available.

D. What Are the Five Basic Steps of a Case-by-Case BART Analysis? The five steps are:

STEP 1—Identify All [12] Available Retrofit Control Technologies,

[12] In identifying "all" options, you must identify the most stringent option and a reasonable set of options for analysis that reflects a comprehensive list of available technologies. It is not necessary to list all permutations of available control levels that exist for a given technology—the list is complete if it includes the maximum level of control each technology is capable of achieving.

STEP 2—Eliminate Technically Infeasible Options,

STEP 3—Evaluate Control Effectiveness of Remaining Control Technologies,

STEP 4—Evaluate Impacts and Document the Results, and

STEP 5—Evaluate Visibility Impacts.

1. STEP 1: How do I identify all available retrofit emission control techniques?

1. Available retrofit control options are those air pollution control technologies with a practical potential for application to the emissions unit and the regulated pollutant under evaluation. Air pollution control technologies can include a wide variety of available methods, systems, and techniques for control of the affected pollutant. Technologies required as BACT or LAER are available for BART purposes and must be included as control alternatives. The control alternatives can include not only existing controls for the source category in question but also take into account technology transfer of controls that have been applied to similar source categories and gas streams. Technologies which have not yet been applied to (or permitted for) full scale operations need not be considered as available; we do not expect the source owner to purchase or construct a process or control device that has not already been demonstrated in practice.

2. Where a NSPS exists for a source category (which is the case for most of the categories affected by BART), you should include a level of control equivalent to the NSPS as one of the control options. [13] The NSPS standards are codified in 40 CFR part 60. We note that there are situations where NSPS standards do not require the most stringent level of available control for all sources within a category. For example, post-combustion NO_X controls (the most stringent controls for stationary gas turbines) are not required under subpart GG of the NSPS for Stationary Gas Turbines. However, such controls must still be considered available technologies for the BART selection process.

[13] In EPA's 1980 BART guidelines for reasonably attributable visibility impairment, we concluded that NSPS standards generally, at that time, represented the best level sources could install as BART. In the 20 year period since this guidance was developed, there have been advances in SO_2 control technologies as well as technologies for the control of other pollutants, confirmed by a number of recent retrofits at Western power plants. Accordingly, EPA no longer concludes that the NSPS level of controls automatically represents "the best these sources can install." Analysis of the BART factors could result in the selection of a NSPS level of control, but you should reach this conclusion only after considering the full range of control options.

3. Potentially applicable retrofit control alternatives can be categorized in three ways.

- Pollution prevention: use of inherently lower-emitting processes/practices, including the use of control techniques (*e.g.* low-NO_X burners) and work practices that prevent emissions and result in lower "production-specific" emissions (note that it is not our intent to direct States to switch fuel forms, *e.g.* from coal to gas),

- Use of (and where already in place, improvement in the performance of) add-on controls, such as scrubbers, fabric filters, thermal oxidizers and other devices that control and reduce emissions after they are produced, and

- Combinations of inherently lower-emitting processes and add-on controls.

4. In the course of the BART review, one or more of the available control options may be eliminated from consideration because they are demonstrated to be technically infeasible or to have unacceptable energy, cost, or non-air quality environmental impacts on a case-by-case (or site-specific) basis. However, at the outset, you should initially identify all control options with potential application to the emissions unit under review.