



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 23 1991

CERTIFIED MAIL
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DEC 30 1991

Division of Air
Resources Management

Mr. J.S. Crall, Director
Environmental Division
Orlando Utilities Commission
500 South Orange Avenue
P.O. Box 3193
Orlando, Florida 32803

RE: Orlando Utilities Commission, Stanton Energy Center Unit 2
PSD-FL-084

Dear Mr. Crall:

The review of your application to modify the commence construction date for Stanton Unit 2 along with a determination of best available control technology (BACT) for this unit has been completed pursuant to federal Prevention of Significant Deterioration (PSD) regulations found at 40 CFR §52.21. A request for public comment was published on September 29, 1991. The only comments were submitted by the U.S. Fish and Wildlife Service and Orlando Utilities Commission.

Authority to construct a stationary source is hereby granted for the Orlando Utilities Commission, Stanton Energy Center Unit 2, subject to the conditions in the permit to construct (enclosed). This authority to construct is based solely on the requirements of 40 CFR §51.21, the federal regulations governing significant deterioration of air quality and in no way affects approvals under other Federal or State regulatory authorities. Please be advised that a violation of any condition issued as part of this approval, as well as any construction which proceeds in material variance with information submitted in your application, may subject Orlando Utilities Commission to enforcement action.

This final permitting decision is subject to appeal under 40 CFR §124.9 by petitioning the Administrator of the U.S. EPA within 30 days after receipt of this letter of approval to construct. The petitioner must submit a statement of the reasons for the appeal and the Administrator must decide on the petition within a reasonable time period. If the petition is denied, the permit becomes immediately effective. The petitioner may then seek judicial review.

Any questions concerning this approval may be directed to Winston A. Smith, Director, Air, Pesticides, and Toxics Management Division at (404) 347-3043.

Sincerely yours,

Greer C. Tidwell
for Greer C. Tidwell
Regional Administrator

Enclosures.

cc: Mr. C.H. Fancy, FDER

B. Owen

P. Lewis

A. Mena

C. Collins, C. Dist,

**FINAL DETERMINATION
AND RESPONSE TO COMMENTS**

**PERFORMED FOR ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER UNIT 2
ORANGE COUNTY, FLORIDA
PSD-FL-084**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
AIR, PESTICIDES AND TOXICS MANAGEMENT DIVISION**

DECEMBER 1991



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

PSD-FL-084

PERMIT TO CONSTRUCT UNDER THE RULES FOR THE
PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Pursuant to and in accordance with the provisions of Part C, Subpart 1 of the Clean Air Act, as amended, 42 U.S.C. §7470 et seq., and the regulations promulgated thereunder at 40 C.F.R. §52.21, as amended at 45 Fed. Reg. 52676, 52735-41 (August 7, 1980),

Orlando Utilities Commission
500 South Orange Avenue
P.O. Box 3193
Orlando, Florida 32802

is hereby authorized to construct/modify a stationary source, specifically Unit 2, at the following location:

Curtis E. Stanton Energy Center
Orlando, Florida

UTM Coordinates: 484.0 km East, 3150.5 km North

Upon completion of this authorized construction and commencement of operation/production, this stationary source shall be operated in accordance with the emission limitations, sampling requirements, monitoring requirements and other conditions set forth in the attached Specific Conditions (Part I) and General Conditions (Part II).

This permit shall become effective on the date signed below.

If construction does not commence within 18 months after the effective date of this permit, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time this permit shall expire and authorization to construct shall become invalid.

This authorization to construct/modify shall not relieve the owner or operator of the responsibility to comply fully with all applicable provisions of Federal, State, and Local law.

Date Signed

Greer C. Tidwell

Greer C. Tidwell
Regional Administrator

The Specific Conditions of federal permit PSD-FL-084 shall be modified as follows:

1. The proposed steam generating station shall be constructed and operated in accordance with the capabilities and specifications of the application including the 4,136 MMBTU/hr heat input rate for Unit 1 and the 4,286 MMBTU/hr heat input rate for Unit 2.
2. The emissions for Unit 1 shall not exceed the allowable emission limits listed in the following Table for SO₂, PM, NO_x and visible emissions:

Allowable Emissions

<u>Pollutant</u>	<u>lb/MMBTU</u>
PM	0.03
SO ₂	1.14 (3-hr average) and 90 percent reduction (30-day rolling average)
NO _x	0.60 (30-day rolling average)
Visible Emissions	20% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity

The emissions for Unit 2 shall not exceed the allowable emission limits listed in the following Table for SO₂, PM, NO_x, CO, VOC, and visible emissions:

Allowable Emissions

<u>Pollutant</u>	<u>lb/MMBTU</u>
PM	0.02
PM ₁₀	0.02
SO ₂	0.25 (30-day rolling average) 0.67 (24-hour average) 0.85 (3-hour average)

<u>Pollutant</u>	<u>lb/MMBTU</u>
NO _x	0.17 (30-day rolling average)
CO	0.15
VOC	0.015
Visible Emissions	20% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity.

Additional conditions are added to PSD-FL-084 as follows:

14. Compliance with the emission limits contained in Specific Condition #2 for Unit 2 shall be determined as follows:

PM	Compliance with the particulate limits in this permit shall be demonstrated by emission tests conducted in accordance with the provisions of 40 CFR §60.48a(b).
SO ₂	Compliance with the SO ₂ emission limits and emission reduction requirements in this permit shall be demonstrated in accordance with the provisions of 40 CFR §60.48a(c).
NO _x	Compliance with the NO _x emission limits in this permit shall be demonstrated in accordance with the provisions of 40 CFR §60.48a(d).
VOC	Compliance with the volatile organic compound limit shall be determined in accordance with Reference Method 25 or 25A of 40 CFR Part 60, Appendix A.
CO	Compliance with the carbon monoxide limit shall be determined in accordance with Reference Method 10A or 10B of 40 CFR Part 60, Appendix A.
VE	Compliance with the opacity limit in this permit shall be demonstrated using EPA Reference Method 9 in accordance with the provisions of 40 CFR §60.11.

15. The nitrogen oxide emissions from Unit 2 shall be controlled with low-NO_x burners, advanced combustion controls, and Selective Catalytic Reduction (SCR) technology. The SCR system will be designed to achieve a NO_x emission rate of less than 0.1 lb/MMBTU.
16. Ammonia slip from the NO_x control system shall be limited to less than 5 ppmvw, uncorrected. An ammonia monitoring protocol shall be submitted to EPA for review and approval prior to the operation of Unit 2.
17. In the event that alternative technologies capable of achieving the NO_x emission limit specified in Condition #2 for Unit 2 are developed prior to the operation of Unit 2, such technologies, after review and approval by the EPA Regional Office, may be implemented in place of the SCR system. Such alternative technologies will be required to meet the NO_x emission limit specified in Condition #2.
18. The flue-gas desulfurization system and mist eliminators for Unit 2 will be maintained and operated in a manner consistent with good air pollution practice for minimizing emissions pursuant to the requirements of 40 CFR §60.11(d).

The General Conditions are hereby modified as follows:

9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to:

Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division
U.S. EPA Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

Response to Comments on EPA's September 20, 1991, Preliminary Determination for OUC

Public notice was published on September 29, 1991, for the purpose of soliciting comments on the preliminary determination issued by EPA for Orlando Utilities Commission. Comments were received from two parties: The United States Fish and Wildlife Service and OUC.

The comments from the United States Fish and Wildlife Service can be summarized as follows:

NO_x BACT

COMMENT: There is overwhelming support for Selective Catalytic Reduction (SCR) as BACT for new pulverized coal boilers. Therefore, we agree with you that SCR, in combination with low-NO_x burners and combustion controls, is BACT for Stanton Unit 2. We also agree that the 0.17 lb/million BTU (MMBTU) limit (design rate of 0.10 lb/MMBTU) reflects a level that can be achieved on a continuous basis.

RESPONSE: None necessary

SO₂ BACT

COMMENT: Regarding your SO₂ analysis, we understand that the basis for your BACT determination is the use of 2.0 percent sulfur coal, along with a wet limestone scrubber with a continuous removal efficiency of 92 percent, resulting in a SO₂ limitation of 0.25 lb/MMBTU (30-day rolling average). We agree that a wet flue gas desulfurization system is BACT for Unit 2. However, we are aware of two other recent BACT determinations for coal-fired utility projects that were not referenced on page 12 of your PDD.

RESPONSE: The comment referred to the permits issued for South Carolina Public Service Authority (PSA) Cross Generating Station and Old Dominion Electric Cooperative (ODEC) Clover Station. The permit for PSA Cross required an SO₂ removal rate of 95 percent; however, the permit allowed 15 percent of the flue-gas to by-pass the scrubber, resulting in an emission limit of 0.34 lb/MMBTU. The permit for OUC will require an emission limit of 0.25 lb/MMBTU.

As stated in the comment letter, "The ODEC permit contains SO₂ limitations of 0.10 lb/MMBTU (annual average) and 0.156 lb/MMBTU (30-day rolling average)." The ODEC unit is not a zero (water) discharge unit as is OUC Unit 2. As explained in the preliminary determination, the recycling of the scrubber effluent, while environmentally beneficial from a water standpoint, causes a buildup of trace constituents such as chlorides in the scrubber system. This buildup is expected to slightly degrade scrubber efficiency based on experience with OUC Unit 1, thus resulting in a lower actual removal efficiency than the design of 95 percent.

Relevant Comments received from Orlando Utilities Commission were as follows:

COMMENT: SCR systems have not been used at facilities burning eastern United States coal. As such, OUC has significant concerns regarding the effect of trace elements on catalyst life. The most significant catalyst poisons are arsenic and alkali elements. For example, average arsenic concentrations (the most active catalyst poison) for eastern US coals are three to four times the worldwide average. The average and maximum expected arsenic concentrations for OUC coal is 22 and 113 ppm, respectively. The average worldwide arsenic concentration is 5.0 ppm. Therefore, considering the level of SCR demonstration status in the United States it is reasonable and prudent that caps on potential catalyst life be included in the final PSD permit.

Precedent for this recommendation has already been established in the PSD permit issued for the Chambers Cogeneration Project to be located in Carneys Point, New Jersey. In this permit, catalyst replacements were limited to no more than 50 percent of the initial catalyst charge within each 5-year operating period. This permit condition was drafted to maintain a Lowest Achievable Emission Rate (LAER) NO_x emission limit of 0.10 lb/MBtu consistent with nonattainment status for VOC emissions (ozone). Recognizing the uncertainties associated with transfer of this technology, this permit allowed a maximum emission of 0.17 lb/MBtu should this catalyst life threshold be exceeded. Similarly, for Unit 2 considering the higher allowable BACT NO_x emission limit for Unit 2, but also considering the SCR synergy for fly ash sales and waste fixation (related to zero water discharge status from the

Stanton site and the sound environmentally balanced disposal practices currently utilized in the plant design) it is recommended that should an SCR system be used, catalyst changeouts be limited to no more than

50 percent of the initial catalyst charge within each 5-year operating period. Should changeouts exceed this threshold an appropriate NO_x emission limit will be established up to a maximum of 0.22 lb/MBtu.

RESPONSE: The commentor is correct in that the average expected arsenic concentration for OUC coal is 22 ppm. An EPA document, Estimating Air Toxics Emission From Coal and Oil Combustion Sources (EPA-450/2-89-001), provides data which shows the mean concentration of arsenic in United States bituminous coals to be 20.3 ppm while the mean concentration of arsenic in Appalachian coals is 22.2 ppm. The correlation between OUC coal and the worldwide average arsenic concentration in coal is not apparent. The EPA document shows a trend in United States coals that the arsenic concentrations in bituminous coals (20.3 ppm) and lignite coals (22.8 ppm) are higher than in subbituminous coals (6.17 ppm) or anthracite coals (7.67 ppm). In addition, mean arsenic concentrations in the United States range from 22.2 ppm (Appalachian) to 4.72 ppm (Rocky Mountains).

The fact that the worldwide average arsenic concentration in coal is stated by the applicant to be 5.0 ppm is not particularly relevant. What is relevant is the arsenic concentration of the coals currently being utilized in operations with SCR systems in Japan and West Germany. To date, the applicant has not provided information to indicate that the arsenic concentrations of coals used in these applications are substantially different from the coal projected to be utilized by OUC.

The commentor related the NO_x emission limit set for Chambers Cogeneration Project to the emission limit proposed for OUC Unit 2. What the commentor did not point out is that the emission limit for the Chambers Cogeneration Project is based on a 180-minute average, whereas the OUC Unit 2 NO_x emission limit was proposed as a 30-day rolling average. Catalyst changeout, control of ammonia slip and protecting downstream equipment were all considered when

establishing the OUC limit on a 30-day rolling average. It is EPA's position that this averaging time allows OUC the flexibility to operate the unit in a reliable manner. It is therefore unnecessary to establish permit requirements related to the timing of catalyst changeout or to increase the NO_x emission limit.

COMMENT: As stated on page 24 of the preliminary determination and page 3 of the draft permit modifications the basis of the nitrogen oxides emission limitation is use of a SCR system designed to achieve a NO_x emission of 0.1 lb/MBtu.

However, discussion on page 24 of the preliminary determination indicated that to maintain unit reliability and to minimize ammonia slip emissions, the NO_x emission limit established by the EPA for Unit 2 is 0.17 lb/MBtu on a 30-day rolling average. In addition, the preliminary determination and the draft permit modifications provided flexibility for permit revisions to incorporate the use of a technology other than SCR (either low NO_x burners, selective non-catalytic reduction, or other alternative NO_x emission control technologies) for use on Unit 2. The preliminary determination and the draft permit modifications also indicate that permit revisions are required should OUC be capable of demonstrating the capability of an alternate NO_x emission control technology. OUC does not feel that permit revisions should be necessary to obtain flexibility.

As previously stated, the nitrogen oxides emission limit for Unit 2 has been set at 0.17 lb/MBtu. Design of a post combustion NO_x control system for a LAER emission level of 0.1 lb/MBtu adds substantial cost to the project above the considerable cost impact already agreed to for reducing NO_x emissions from 0.32 to the BACT level of 0.17 lb/MBtu. A requirement for a LAER design target of 0.1 lb/MBtu also eliminates consideration or development of more cost effective systems such as a selective non-catalytic reduction (SNCR) systems, or a hybrid of SNCR and SCR systems.

This position as earlier referenced is further substantiated by the statutory definition of BACT determinations in 40 CFR 52.21(b)(12). Accordingly, a source is free to select the means of meeting emission limitations insofar as compliance is maintained with said and enforceable standard. This flexibility allows source owners and engineers to select

either existing or newly developed, cost effective, reliable control technologies. Therefore, OUC, in exercising its right independently to select control technologies, must make sure such technologies are capable of meeting the Unit 2 NO_x emission limit of 0.17 lb/MBtu (30 day rolling average). In addition, no permit revisions should be required for this flexibility. The independent determination of NO_x emissions control technology will also ensure that adverse impacts on unit availability are minimized. Based on the legislated definition of BACT all references specifically requiring a SCR system and all references to a design target of 0.1 lb/MBtu should be removed from the final determination and permit modifications, consistent with the operative terms and regulatory thrust of the preliminary determination and the Draft permit modifications.

RESPONSE: As stated on page 7 of the preliminary determination, "Best available control technology" is defined in 40 CFR § 52.21(b)(12) as: "an emissions limitation (including a visible emissions standard) based upon the maximum degree of reduction for each pollutant...(emphasis added)."

The requirement for the design of the SCR system to achieve 70 percent removal (i.e. 0.10 lb/MMBTU) of NO_x emissions is based on the capability of the SCR systems in foreign experience on coal and both foreign and United States experience on gas and fuel oil. As stated earlier, the emissions limit of 0.17 lb/MMBTU was established to provide operational flexibility and reliability of the Unit. To design the SCR systems for a limit of 0.17 lb/MMBTU would remove such flexibility.

In addition, the commentor believes that the design level of 0.10 lb/MMBTU would apply to any alternate technology selected. This is not the case. To clarify this, condition #15 of the permit will be modified as follows:

15. The nitrogen oxide emissions from Unit 2 shall be controlled with low-NO_x burners, advanced combustion controls, and Selective Catalytic Reduction (SCR) technology. The SCR system will be designed to achieve a NO_x emission rate of less than 0.10 lb/MMBTU.

The commentor expressed an added concern that the wording of the preliminary determination did not allow the flexibility for the source to demonstrate an alternate technology without requiring a permit revision, contrary to the intent of the permit. The preliminary determination stated EPA's position on alternate technologies on page 24 as follows:

OUC Stanton Unit 2 is not scheduled to begin operation until 1997. In deference to the constant improvement in burner technologies and the development of other NO_x control technologies such as SNCR, the permit is being conditioned such that should OUC be able to demonstrate the capability of a technology other than SCR to be able to meet the established limit, the permit may be revised to incorporate the alternative technology.

In addition, specific condition #17 of the draft permit stated:

17. In the event that alternative technologies capable of achieving the NO_x emission limit specified in condition #2 for Unit 2 are developed prior to the operation of Unit 2, such technologies, after review and approval by EPA Regional Office, may be implemented in place of the SCR system.

The intent of EPA in preparing this permit was to allow the source flexibility in developing a NO_x control option while receiving adequate assurances that the option selected by the source would meet specific requirements. It is not the intent of EPA that the implementation of an alternative technology would necessitate a permit revision. Rather, condition #17 was written to allow the implementation of such technology upon review and approval by EPA. In order that the No_x BACT analysis will be consistent with the intent of the permit as well as specific condition #17, the analysis is being revised as follows:

OUC Stanton Unit 2 is not scheduled to begin operation until 1997. In deference to the constant improvement in burner technologies and the development of other NO_x control technologies such as SNCR, the permit is being conditioned such that should OUC be able to

demonstrate the capability of a technology other than SCR to be able to meet the established limit, the alternative technology, after review and approval by EPA, may be incorporated

Further, to clarify specific condition #17, the condition is revised as follows:

17. In the event that alternative technologies capable of achieving the NO_x emission limit specified in Condition #2 for Unit 2 are developed prior to the operation of Unit 2, such technologies, after review and approval by EPA Regional Office, may be implemented in place of the SCR system. Such alternative technologies will be required to meet the NO_x emission limit of Condition #2.

COMMENT: Page 3 of the draft permit modifications dictates the use of aqueous ammonia (less than 28 percent in water) should be used with a SCR system and presumably in a SNCR system. Once again OUC believes that the permit should be silent on the specific technological requirements of meeting emission requirements. If use of aqueous ammonia is more effective, and can be stored, handled, and permitted appropriately, OUC should make the technical selection of an ammonia type. The discussion of aqueous ammonia should be eliminated.

In addition, the commentor noted that the estimates of annual NO_x and NH₃ emissions on page 19 of the preliminary determination were incorrect and that the ammonia concentrations should be expressed as volumetric wet, uncorrected.

RESPONSE: The estimates of annual emissions of MO_x and NH₃ on page 19 of the preliminary determination were calculated based on the existing permit limit of 4,136 MMBTU/hr. The corrected estimates based on the requested heat input of 4,286 MMBTU/hr with NH₃ concentrations expressed as volumetric wet, uncorrected, are as follows:

	<u>EMISSIONS NO₃</u>		<u>EMISSIONS NH₃</u>	
	<u>lb/MMBTU</u>	<u>TPY</u>	<u>PPM</u>	<u>TPY</u>
Conventional Burner	0.60	11,263	N/A	N/A
Low-NO _x Burner	0.32	6,007	N/A	N/A
LNB + SNCR (40% removal)	0.19	3,567	20	476
LNB + SNCR (30% removal)	0.22	4,130	10	238
LNB + SCR (47% removal)	0.17	3,191	5	119
LNB + SCR (70% removal)	0.10	1,877	5	119

The permit required the use of aqueous ammonia due to concerns expressed about safety and precedent sit in permitting of Chambers Cogeneration. The selection of reagent, however, should be the choice of the source after an evaluation of safety as well as environmental concerns. Thus, EPA will remove the requirement of the use of aqueous ammonia from the permit. Specific condition #16 will be revised to read as follows:

16. Ammonia slip from the NO_x control system shall be limit to less than 5 ppm_{vw}, uncorrected.

COMMENT: In page 13 of the preliminary determination the EPA recognized the potential eventuality of restricted low sulfur coal supplies and resultant price increases. This will require Unit 2, a source designed for 95 percent SO₂ removal, to burn a coal that directly competes with others sources implementing fuel switching to achieve compliance with the 1990 Clean Air Act Amendments. This scenario will likely lead to restricted supplies of low sulfur coal and increased price. Accordingly, OUC believes that language should be added to the SO₂ BACT determination to cap this potential economic burden.

RESPONSE: As stated in the preliminary determination, EPA cannot be a prognosticator of future coal market conditions. The BACT determination was made based on information available today. This does not mean that the applicant cannot request a permit revision in the future should market conditions drastically affect the cost and availability of low sulfur coal. The same option is available to any permitted source. EPA cannot "cap" potential economic burden when this burden has not been established.

COMMENT: OUC believes that only site specific cost considerations should be included in the final determination. Costs presented in OUC's BACT analysis were prepared for Unit 2 based on site specific manufacturer quotations and cost factors. Comparison with other facilities cost estimates or generalized industry information is inappropriate. Should the EPA be inclined to correlate economics, site specific comparisons could then be made. OUC requests that economic comparisons could then be made. OUC requests that economic comparisons made on a non-site specific basis be eliminated from the final determination.

RESPONSE: Not only is comparison with other facilities cost estimates or generalized industry information appropriate, but is in fact recommended by EPA's New Source Review Workshop Manual. The use of comparisons to other facilities or industry wide information is a useful tool in establishing whether a particular determination is consistent with other recent determinations and as an indicator of potential economic differences from one source to the next.

COMMENT: Page 19, last paragraph, and page 24, first paragraph discusses sulfur resistant catalysts. OUC is not aware of this product offering nor are recognized suppliers of SCR systems who have been contacted regarding this description. Please clarify or eliminate discussion.

RESPONSE: The term sulfur resistant catalyst refers to the new generation of catalysts (typically of the extruded type) which have low conversion (< 1%) of SO₂ to SO₃. Such catalysts are referred to in the following papers presented at the 1991 Joint Symposium on Stationary Combustion NO_x Control.

1. L. Balling, et al. "Poisoning Mechanisms in Existing SCR Catalytic Converters and Development of a New Generation for Improvement of Catalytic Properties"
2. E. Brehens, et al. "SCR Operating Experience on Coal-Fired Boilers and Recent Progress"
3. B.K. Speronello, et al. "Application of Composite NO_x SCR Catalysts In Commercial Systems"
4. T.R. Gouker, et al. "SCR Catalyst Developments for the U.S. Market"
5. R. Jaerschky, et al. "SO₃ Generation - Jeopardizing Catalyst Operation?"

COMMENT: Page 22, paragraph 2 discusses that there have been recent reductions in catalyst costs. These reductions are reflected in the site specific economic analyses submitted by OUC for Unit 2. Either relate this comment specifically to Unit 2 or delete paragraph.

RESPONSE: Page 22 of the preliminary determination states "[a] trend in the catalyst manufacturer industry in which catalyst costs have steadily decreased over time." This is supported by a statement from the T.R. Gouker paper referenced earlier which reads: "Since its introduction in Japan in the 1970's, the cost of SCR has dropped continually, primarily because of technological advances.

COMMENT: Page 19 or 20 of the preliminary determination did not describe how spent catalyst will be classified and how it will be disposed. This would appear to be a significant environmental impact. What provisions will be incorporated in the permit to allow for safe and effective spent catalyst disposal? OUC is concerned about the classification of this potentially hazardous waste product due to the concentration of catalyst poisons inherent with Eastern coals. Again this is but one factor in balancing the various environmental concerns.

RESPONSE: The selection of catalyst to be used if an SCR System is constructed is up to the source. This may or may not involve the classification of spent catalyst as hazardous waste, depending upon the catalyst. According to catalyst

vendors, the current practice is for the catalyst manufacturer to accept back spent catalyst. In any event, should the source choose a catalyst which would be classified as hazardous waste when used, the disposal procedures would be established under RCRA regulations rather than specified in a federal PSD permit.

COMMENT: Either page 19 or 20 should also indicate the potential increase in sulfuric acid mist emissions as an environmental impact of SCR use.

RESPONSE: The commentor indicated that approximately 1% of the sulfur in coal would be converted to SO_3 . According to AP-42 approximately 0.7% of the sulfur in bituminous coal is converted to SO_3 . In addition, the commentor stated that approximately 1% of the SO_2 in the flue gas would be converted to SO_3 due to the catalyst. Many catalyst manufacturers will guarantee an SO_2 to SO_3 conversion of less than 1%. The applicant received a quote from one catalyst supplier of a 0.5 to 0.6% conversion rate of SO_2 to SO_3 .

The formation of sulfuric acid mist (H_2SO_4) will be affected by many variables including the sulfur content of the coal, any formation of SO_3 due to combustion, oxidation of SO_2 to SO_3 on the SCR catalyst bed, the rate of formation of any ammonium salts, and the effectiveness of the flue-gas desulfurization (FGD) system as well as the mist eliminators in reducing the emissions of H_2SO_4 .

Without being able to predict an emission rate of H_2SO_4 with certainty due to the number of variables potentially affecting emissions, EPA feels that the BACT requirements for sulfuric acid mist can be met through the application of work practice standards (i.e., good operation and maintenance of the FGD system and state-of-the-art mist eliminators.)

Specific condition 18 will be added to the permit as follows:

18. The flue-gas desulfurization system and mist eliminators for Unit 2 will be maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions pursuant to the requirements of 40CFR §60.11(d).