

**AEP APPALACHIAN  
POWER**  
*A unit of American Electric Power*  
Mountaineer Plant  
P. O. Box 419  
New Haven, WV 25265  
304-882-2151



November 2, 2016

Mr. William Durham  
West Virginia Department of Environmental Quality  
Division of Air Quality  
601 57<sup>th</sup> Street, S.E.  
Charleston, West Virginia 25304

Re: Appalachian Power Company, Mountaineer Plant  
Facility ID - 05300009  
Request for Administrative Permit Modification – R13-0075H

Mr. Durham:

This request is for an administrative permit modification of Permit R13-0075H to incorporate Consent Decree<sup>1</sup> requirements applicable to Mountaineer Plant Unit 1. In accordance with Section 4.2.b.1 of Regulation 13, this is a request for a Class II Administrative Amendment to include permit conditions that result in no change of an existing regulated air pollutant. By the terms of the Consent Decree, the Flue Gas Desulphurization (FGD) system is required to be installed and continuously operated on December 31, 2007 and the Selective Catalytic Reduction System (SCR) installed and continuously operated by January 1, 2008. The FGD process was installed in 2007 and the SCR in 2001, with both controls being operated prior to the Consent Decree dates.

The Consent Decree also requires that AEP apply to include the unit-specific operational requirements of the Consent Decree into a non-Title V permit and/or site-specific amendment to the SIP to reflect the new requirements within one year from commencement of operation of each pollution control device. The request for a site-specific SIP amendment was submitted December 22, 2008, for Unit 1. AEP is now submitting this request for an administrative amendment to incorporate these requirements into the subject Regulation 13 Permit and withdraw our previous request for a SIP amendment applicable to Mountaineer Plant.

Suggested language to address the Applicable Emissions Limitations/Control Measures is provided below:

- 4.1.1.1 In accordance with the requirements of the Consent Decree, on and after December 31, 2007, Unit 1 shall be equipped with a flue gas desulfurization (FGD) system which shall be continuously operated for the reduction of SO<sub>2</sub> emissions.
- 4.1.1.2 In accordance with the requirements of the Consent Decree, on and after January 1, 2008, Unit 1 shall be equipped with a selective catalytic reduction (SCR) system which shall be continuously operated for the reduction of nitrogen oxides (NOx) emissions.

Incorporating these consent decree requirements into the Reg. 13 permit will provide an applicable requirement that can be incorporated into the Title V Permit for this facility.

In addition, the definition of “continuous operation” from the Consent Decree should be added as an Additional Term and Condition in Section 2, as follows:

2.1.4 Pursuant to the Consent Decree, “continuously operated” means that when SCR and/or FGD is used at Unit 1, except during a malfunction, it shall be operated at all times such unit is in operation, consistent with the technological limitations, manufacturers’ specifications, and good engineering and maintenance practices for such equipment and the unit so as to minimize emissions to the greatest extent practicable. (This definition is applicable to conditions 4.1.1.1 and 4.1.1.2.

After receipt of the Reg. 13 permit, APCO will submit an application to incorporate these requirements into the Title V permit for the Mountaineer Plant, including appropriate recordkeeping and reporting requirements.

If you have any questions or need additional information, please contact Dave Thompson at (304) 882-4023 or Jeff Novotny at 614-716-1294.

Sincerely,



Debra L. Osborne

Plant Manager

<sup>1</sup>United States, et al, v. American Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree).



WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF AIR QUALITY  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
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**PERMIT DETERMINATION FORM  
(PDF)**

FOR AGENCY USE ONLY: PLANT I.D. # \_\_\_\_\_  
PDF # \_\_\_\_\_ PERMIT WRITER: \_\_\_\_\_

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):  
**Appalachian Power Company**

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):  
**Mountaineer Plant**

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE:  
**221112**

4A. MAILING ADDRESS:  
**Appalachian Power Company (dba American Electric Power)  
1 Riverside Plaza  
Columbus, Ohio 43215**

4B. PHYSICAL ADDRESS:  
**State Route 62  
New Haven, WV 25265**

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE MAP AS ATTACHMENT A): **Facility is located on State Route 62, Approximately 1-mile east of New Haven, West Virginia.**

5B. NEAREST ROAD:  
**State Route 62**

5C. NEAREST CITY OR TOWN:  
**New Haven**

5D. COUNTY:  
**Mason**

5E. UTM NORTHING (KM):  
**4314.70**

5F. UTM EASTING (KM):  
**419.04**

5G. UTM ZONE:  
**17**

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:  
**John Hendricks**

6B. TITLE: **Director, Air Quality Section,  
American Electric Power**

6C. TELEPHONE:  
**(614) 716 - 1238**

6D. FAX:  
**(614) 716 - 2255**

6E. E-MAIL:  
**jchendricks@aep.com**

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):  
**053-00009**

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR AN EXISTING FACILITY ONLY):  
**R13-0075H, R30-05300009-2014**

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST:  
**No**

8A. TYPE OF EMISSION SOURCE (CHECK ONE):  
 NEW SOURCE     ADMINISTRATIVE UPDATE  
 MODIFICATION     OTHER (PLEASE EXPLAIN IN 11B)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN?  
 YES     NO

9. IS DEMOLITION OR PHYSICAL RENOVATION AT AN EXISTING FACILITY INVOLVED?     YES     NO

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE:  
**N/A**

10B. DATE OF ANTICIPATED START-UP:  
**N/A**

11A. PLEASE PROVIDE A DETAILED PROCESS FLOW DIAGRAM SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS ATTACHMENT B.

11B. PLEASE PROVIDE A DETAILED PROCESS DESCRIPTION AS ATTACHMENT C.

12. PLEASE PROVIDE MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS ATTACHMENT D. FOR CHEMICAL PROCESSES, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.

**13A. REGULATED AIR POLLUTANT EMISSIONS:**

⇒ FOR A NEW FACILITY, PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ FOR AN EXISTING FACILITY, PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

| POLLUTANT               | HOURLY PTE (LB/HR)  | YEARLY PTE (TON/YR)<br>(HOURLY PTE MULTIPLIED BY 8760 HR/YR)<br>DIVIDED BY 2000 LB/TON |
|-------------------------|---|--|
| PM                      | No changes are being made to the existing emissions or the potential to emit. |  |
| PM <sub>10</sub>        |   |  |
| VOCs                    |   |  |
| CO                      |   |  |
| NO <sub>x</sub>         |   |  |
| SO <sub>2</sub>         |   |  |
| Pb                      |   |  |
| HAPs (AGGREGATE AMOUNT) |   |  |
| TAPs (INDIVIDUALLY)*    |   |  |
| OTHER (INDIVIDUALLY)*   |   |  |

\* ATTACH ADDITIONAL PAGES AS NEEDED

**13B. PLEASE PROVIDE ALL SUPPORTING CALCULATIONS AS ATTACHMENT E.**

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

**14. CERTIFICATION OF DATA**

I, DEBRA L. OSBORNE (TYPE NAME) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A **RESPONSIBLE OFFICIAL**\*\* (PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL:

TITLE: MANAGER, MOUNTAINEER PLANT

DATE: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

\*\* THE DEFINITION OF THE PHRASE 'RESPONSIBLE OFFICIAL' CAN BE FOUND AT 45CSR13, SECTION 2.23.

**NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:**

ATTACHMENT A     ATTACHMENT B     ATTACHMENT C     ATTACHMENT D     ATTACHMENT E

RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

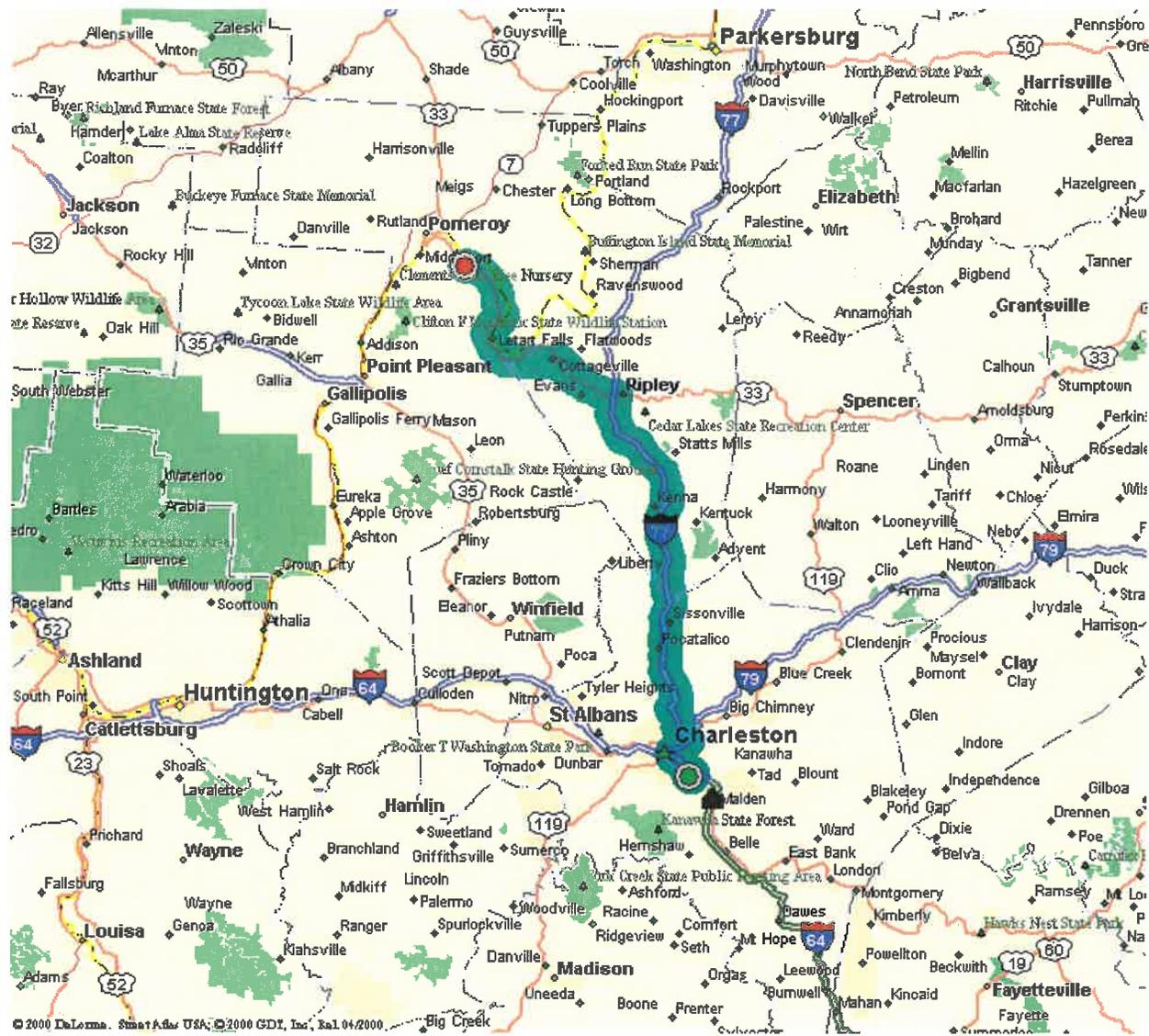
THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

## **Attachment A**

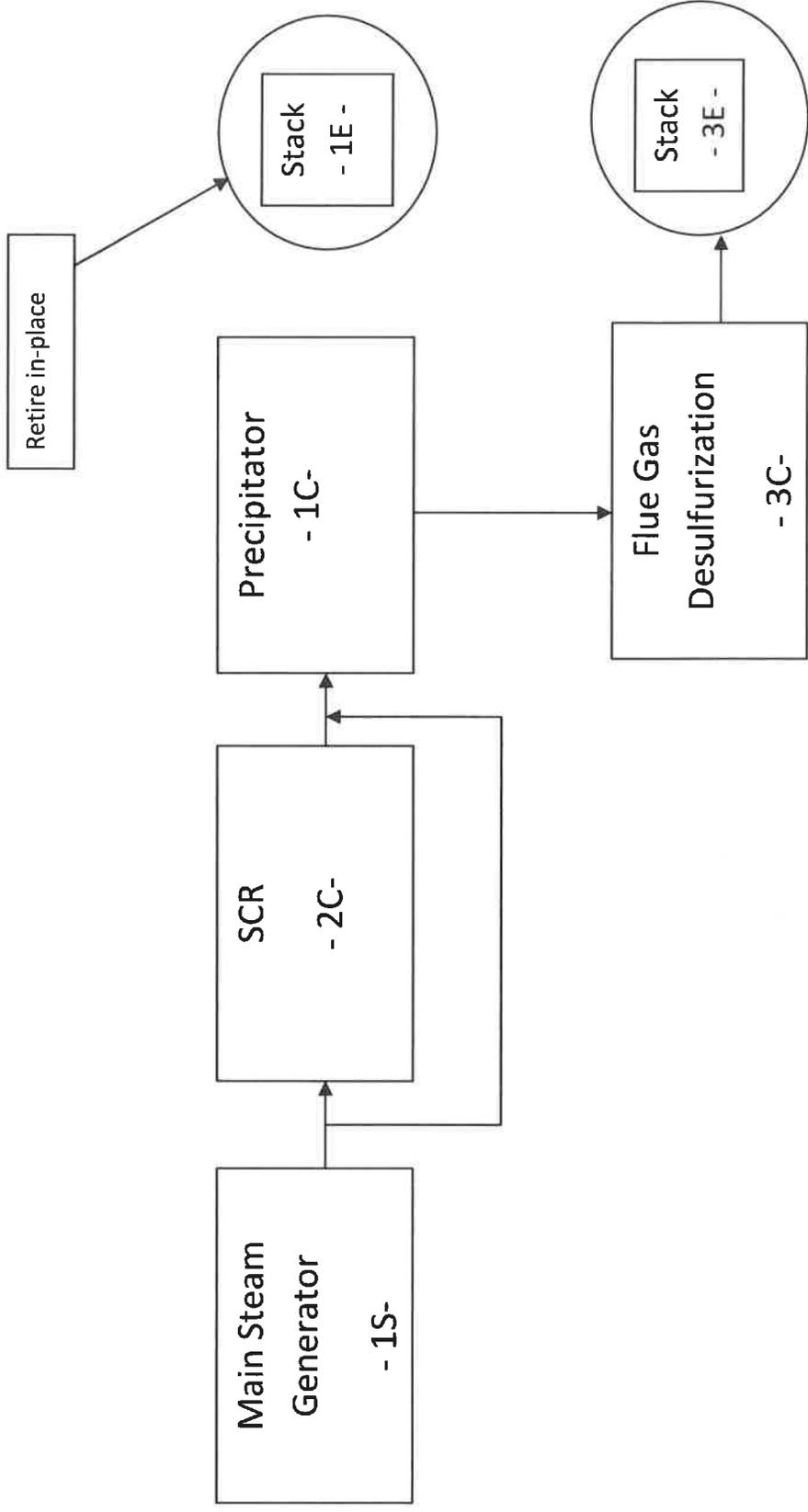
Directions to Facility

(From Form Section 5A)



Attachment B  
Detailed Process Flow Diagram  
(From Form Section 11A)

The process flow diagram has not changed from prior applications associated with Permit R13-0075H. This application does not propose a change to the emission source nor a modification to the process emission point. The changes in this permit determination are related to the inclusion of initial continuous operation dates for the SCR and FGD systems along with the requirement to continuously operate those systems as defined by the consent decree.



## **Attachment C**

Detailed Process Description

(From Form Section 11B)

# Unit 1 Steam Generator Process Description

## FACILITY OVERVIEW

The Mountaineer Power Plant is located on State Route 62, near New Haven, WV, (NNW of Charleston, WV). It is situated on the west bank of the Ohio River, Mason County, West Virginia, southeast of New Haven. The generating station is composed of a single coal-fired, steam-electric generating unit, designated as Unit 1 and nominally rated at 1320 MW net. The Mountaineer unit was placed in service in 1980. The unit is equipped with an electrostatic precipitator for particulate control, selective catalytic reduction (SCR) for nitrogen oxide and mercury control, and a limestone based flue gas desulfurization system. For the purposes of this administrative amendment, only NO<sub>x</sub> and SO<sub>2</sub> are addressed in accordance with the Consent Decree requirements. The flue gases are emitted to the environment through the wet chimney. The station also includes several supporting material handling systems for coal, urea, limestone and byproducts such as ash and gypsum.

## COMBUSTION PROCESS DESCRIPTION

The combustion process combines pulverized coal and air in the furnace to provide heat to the steam generator tubing and the water or steam within those tubes. Number two fuel oil is used to initiate coal combustion in the furnace and used at times to stabilize the coal fire. The heat developed by combustion is transferred to the fluids via radiant heat at the combustion location and from conduction of the tubing surface area with the hot gases resulting from combustion. The air source is heated primary air that is used to transfer the pulverized coal from the coal mills to the furnace. Overfire air and secondary air comes from the forced draft fans and supports complete combustion by providing excess oxygen, as needed for stoichiometric combustion reactions. The combustion of coal yields ash in two forms. Bottom ash is collected and sluiced to settling ponds. Flyash is smaller and lighter ash particles that remain in the gas stream.

The gases exit the steam generator and are directed to the SCR system. The system consists of vanadium based catalyst bed arranged in layers in the flue gas duct along with the gaseous phase ammonia injection system. The ammonia along with the catalyst reacts to oxidize NO<sub>x</sub> compounds. In addition, mercury in the flue gas is converted to a form that can be collected in the precipitator and FGD system as it passes through the SCR.

The gases then flow into the electrostatic precipitator. As stated earlier, the combustion of coal yields ash in two forms. Bottom ash is collected and sluiced to settling ponds. Flyash consists of smaller and lighter ash particles that remain in the gas stream. Operation of a precipitator depends upon the formation of an electrostatic field to electrically charge the flyash in the flue gas as it passes through the precipitator. The flyash in the gas stream is charged as it passes through this electrostatic field. The majority of the flyash particles are charged negatively or opposite in polarity to that of the collecting plates which are grounded and are thus attracted to the surfaces of the plates and adhere to them until removed by rapping. A small amount of the flyash is attracted to the high voltage discharge electrodes. This collected flyash is periodically removed from the plates and discharge electrodes by a system of rappers and falls by gravity into the precipitator hoppers and are removed from the gas stream. The gases flow from the precipitator to the FGD.

The FGD utilizes a limestone forced oxidation process designed to reduce the amount of SO<sub>2</sub> within the flue gas. Within the FGD system, an alkaline reagent reacts with SO<sub>2</sub> in the flue gas stream to form a calcium based byproduct. The FGD system functions by contacting alkaline reagent slurry via several layers of sprays with the flue gas stream. In addition to SO<sub>2</sub> removal, oxidized mercury and acid gases in the flue gas stream are water soluble, and are subsequently dissolved into the alkaline reagent slurry.

## **Attachment D**

Material Safety Data Sheets  
(From Form Section 12)

This application does not propose a change to the emission source or a modification to the process emission point. No additional or changes to chemicals utilized in the process is being requested. The changes in this permit determination are related to the inclusion of initial continuous operation dates for the SCR and FGD systems along with the requirement to continuously operate those systems as defined by the consent decree.

## **Attachment E**

Supporting Calculations  
(From Form Section 13B)

No changes are being made to the existing emissions or the potential to emit. The changes in this permit determination are related to the inclusion of initial continuous operation dates for the SCR and FGD systems along with the requirement to continuously operate those systems as defined by the consent decree.