COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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Department of Environmental Quality
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STATEMENT OF LEGAL AND FACTUAL BASIS

Clinch River Plant
Appalachian Power Company (APCo)
d.b.a., American Electric Power (AEP)
Carbo, Russell County, Virginia
Permit No. SWRO10236

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, American Electric Power has applied for renewal of the Title V Operating Permit for its Clinch River Plant located at Carbo, Russell County, Virginia. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: _____ Date: 5/08/2009
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Rob Feagins

Regional Director: _____ Date: 5/8/09
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FACILITY INFORMATION

Permittee
Clinch River Plant
Appalachian Power Co. (APCo)
d.b.a., American Electric Power (AEP)
1 Riverside Plaza
Columbia, OH 43215-2373

NET Facility ID No. 51-167-0003
ORIS Code: 3775

SOURCE DESCRIPTION

NAICS Code: 221112 – Electric Services (fossil fuel power generation)

The Clinch River Plant is a coal-fired electric power generating facility located at Carbo in Russell County, Virginia. The facility utilizes three (3) vertically-fired Babcock and Wilcox radiant tube boilers, each nominally rated at 2,100.9 million Btu (mmBtu) per hour design heat input capacity. The high pressure, high temperature steam produced by each boiler is used to turn turbines (two per unit) which are coupled to electric generators. Each of the three units is nominally rated at 235 net megawatts (MW) of electricity.

Units #1 and #2 were constructed in 1958 and Unit #3 was constructed in 1961. Each of the three units is fired by coal and distillate oil (but each also has the capacity to burn used oil, ion exchange resins, and metal cleaning fluid as supplemental fuels). Distillate oil is used during startup conditions before the coal is introduced into the boilers, and for flame stabilization and unit shutdown.

Bituminous coal is delivered to the facility by railcar and truck and temporarily stored in open storage piles. The coal is transported by conveyor into the plant and stored in bunkers (one per boiler) before passing to the pulverizers (seven per boiler) where it is crushed and transported into the boilers by primary combustion air. Water passing through miles of piping is heated and converted into steam. The steam is passed through high and low pressure turbines, condensed and recirculated back to the boiler. The coal combustion gases are passed through high efficiency electrostatic precipitators (ESP's), which remove more than 99.5% of the entrained particulate matter, before being exhausted to the atmosphere.

The bottom ash (the heavier type of ash generated by coal combustion) is removed through the bottom of each boiler in a water-cooled hopper. The ash-water mixture is pumped to a settling pond. The flyash collected from the exhaust gas is removed from the precipitators and either discharged into trucks for transport to an off-site landfill, sold to other industries (such as plastics and concrete/cement), or pumped to the settling pond.

Emission units at the facility include the three Babcock & Wilcox (B&W) radiant tube boilers, the ash handling system, and the coal storage and handling system.

The facility is a Title V major source of NO_X, SO_2, PM_{10}, CO, hydrogen fluoride, hydrochloric acid, and total hazardous air pollutant (HAP) emissions. This source is located in an attainment area for all criteria pollutants. The facility is permitted under a Phase II Acid Rain Permit that is effective from January 1, 2003 through December 31, 2007. A renewed acid rain permit will be issued with the Title V permit.

COMPLIANCE STATUS

The facility is inspected at least once every two years and the last full compliance evaluation (FCE) was conducted on October 28, 2008. The source was found to be in compliance with all applicable requirements.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Three Babcock and Wilcox Radiant Tube Boilers - Each boiler is nominally rated at 2,100.9 million Btu per hour and is capable of consuming over 80 tons per hour of bituminous coal. Particulate emissions from each boiler are controlled by two electrostatic precipitators (ESP's) operating in parallel.

Raw Coal Handling - Coal is delivered to the facility by railcar and truck. A locomotive is used to move the railcars to the track scale and hoppers at Station 1. Two railcars are simultaneously unloaded using vibrating car shakeouts. Coal delivered to the facility by truck is unloaded directly into the coal storage pile at Station 3.

Coal from Station 1 is transported by belt conveyor to Station 2 where tramp metal is removed (Magnet M-1) and the coal is sampled. The coal flows through diversion gates (DG-22 and DG-23) which direct the coal to either the distribution pile via conveyor 2, or to the surge pile via conveyor 3. Dozers and tractors move the coal from the distribution pile to the surge pile.

Four coal feeders located underneath the surge pile at Station 3 discharge coal to Conveyor 4, which transports the coal to Station 4. At Station 4, once again tramp metal is removed (Magnet M-4) and the coal is sampled before it is transferred to Tripper Conveyor 5 in the plant.

Tripper Conveyor 5 loads coal into the bunkers within the plant. Each of the three units has its own bunker, which is equipped with high level probes to prevent overfilling. Coal flows through feeders located just beneath the main plant floor, to the pulverizers (7 per unit) where it is finely ground. Primary air carries the ground coal to the boilers for combustion.

The boilers are vertically-fired units in which the coal and combustion air are introduced in the top of the combustion chamber and the flame is directed vertically downward. The combustion emissions from the three units are exhausted through two stacks, with units 1 and 2 sharing a common stack.

Ash Handling - Approximately 80% of the total ash generated from coal combustion is considered flyash, so named due to its lightweight properties. The flyash is carried out of the boilers with the flue gas to the electrostatic precipitators (ESP's), which remove particulate matter. The captured ash particles are collected in hoppers located below the precipitator chambers.

A vacuum system is used to clear the hoppers and transport the ash into the flyash head tank. The head tank is a temporary holding area used to hold the ash until it is transported via pipeline to either the ash pond or the ash silo. During startup periods, the flyash is usually sluiced to the bottom ash pond for settling. The ash silo is also a temporary holding area. The ash is stored in the silo until it can be loaded into trucks or railcars and landfilled or sold (as inert filler material in such commercial items as paints, plastics, ceramics, and cements). The ash silo loading area uses a water spray curtain and a conditioned (water added) ash to control fugitive dust.

The remaining 20% of the total ash is bottom ash, which has a medium to high fusion temperature and is collected as solidified slag which falls through the furnace hopper throat of each boiler. The bottom ash is collected in two ash hoppers located below the furnace hopper throat of each half of the furnace. Accumulated bottom ash is periodically removed by water sluicing it from the hoppers through an ash gate into a sump. A clinker grinder at the top of the sump crushes large pieces of slag to a suitable size for pumping. The bottom ash is then pumped to the bottom ash pond where it settles and drains and is later removed and either landfilled at the plant or sold for such typical uses as abrasives, road grading material, or snow control material.

EMISSIONS INVENTORY

The 2006 annual emissions (as reported on pages 12 and 13 of the Title V application) are summarized in the following table:

2006 Pollutant Emissions (Plantwide Total)	
Pollutant	Tons Emitted
Criteria Pollutants	
PM_{10}	287
VOC	49
NO_X	8,612
SO_2	28,087
CO	412
Lead	< 1
Hazardous Air Pollutants (HAP's)	
Hydrogen Fluoride (HF) *	101
Hydrochloric Acid (HCl) *	1,008
Ammonia	1
Methyl Chloroform	< 1
Methylene Chloride	< 1
Tetrachloroethylene	< 1
THAP *	1,109

- Note: Emission totals provided by AEP.

EMISSION UNIT APPLICABLE REQUIREMENTS

Babcock and Wilcox Radiant Tube Boilers

Limitations:

The following limitations are existing source limits obtained from 9 VAC 5 Chapter 40, Part II, Article 8, *Emission Standards for Fuel Burning Equipment* (9 VAC 5-40-880, et seq.).

- Particulate Matter: The allowable emission ratio (lbs of particulate per million Btu) was computed using the following formula from 9 VAC 5-40-900.A.1.b:

$$\text{Emission Ratio (E)} = 1.0906H^{-0.2594}$$

where H is the combined capacity of all fuel burning equipment at the facility expressed in mmBtu/hr (million Btu per hour).

$$E = 1.0906 * (6302.7 \text{ mmBtu/hr})^{-0.2594} = 0.113 \text{ lb/mmBtu}$$

The allowable particulate emission rate for each unit is the product of the emission ratio (0.113 lb/mmBtu) and the actual heat input (in mmBtu):

0.113 lb/mmBtu * H, where H = heat input in mmBtu

Based on the 2006 reported coal consumption and corresponding coal Btu content, the allowable annual particulate emissions for the three boilers were as follows:

Allowable Emissions:

Boiler/ Unit No.	Tons of Coal Consumed	Heat Content of Coal (mmBtu/ton)	Coal Ash %	Allowable Emissions	Calculated PM/TSP Emissions
1	499,109	24.24	13.58	684	102
2	551,081	24.27	13.57	756	112
3	596,407	24.28	13.57	818	162
Total	1,694,823			2,257	376

499,109 tons/yr coal * 24.24 mmBtu/ton * 0.113 lb/mmBtu) ÷ 2000 lb/ton = 683.56 tons/yr
551,081 tons/yr coal * 24.27 mmBtu/ton * 0.113 lb/mmBtu) ÷ 2000 lb/ton = 755.67 tons/yr
596,407 tons/yr coal * 24.28 mmBtu/ton * 0.113 lb/mmBtu) ÷ 2000 lb/ton = 818.16 tons/yr
Facility Total 2,257.39 tons/yr

Actual Emissions:

The actual particulate emissions are calculated using the following formula:

PM = Tons Coal Combusted × F × A × (1 – EFF%) ÷ 2000 lbs/ton

where: F = Particulate Emission Factor - 10 (TSP); 6.75 (PM_{10}); 3 ($PM_{2.5}$)
A = Coal Ash Content (weight %)
EFF% = ESP Control Efficiency

Reported PM_{10} emissions from the three boilers in calendar year 2006 totaled 254 tons.

- Visible Emissions: (9 VAC 5-40-80 - Standard for Visible Emissions) No owner or other person may cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any hour of not more than 60% opacity. Failure to meet these requirements due to the presence of water vapor will not be seen as a violation.

- Sulfur Dioxide Emissions: (9 VAC 5-40-930 - Standard for Sulfur Dioxide) No owner or other person may discharge into the atmosphere from any fuel burning equipment installation any sulfur dioxide emissions in excess of the following limit:

$$S = 2.64K$$

where: S = allowable emission of sulfur dioxide expressed in lbs/hr
K = heat input at total capacity expressed in mmBtu/hr.

- The Title V permit incorporates the acid rain permit requirements by reference. The current acid rain permit was issued November 11, 2003 and is valid for the 5-year period from January 1, 2003 to December 31, 2007. This permit will be renewed as of January 1, 2009. The acid rain permit requirements include the following:

- Sulfur Dioxide Allowances: The Phase II SO_2 allowance allocations for each of the three coal-fired units at the Clinch River Plant (as provided by the EPA Clean Air Markets Acid Rain Program Initial Allowance Allocation Report as of February 2009) are as follows:

- Clinch River SO_2 Allocations

Calendar Year	2009	2010	2011	2012	2013
Unit 1 Allocation	5346	5302	5302	5302	5302
Unit 2 Allocation	6111	6123	6123	6123	6123
Unit 3 Allocation	5649	5661	5661	5661	5661
Facility Total	17,106	17,086	17,086	17,086	17,086

The allowances shown in the table above are not emission limits, but rather the initial allocations for the three units at the Clinch River Plant. Additional allowances may be acquired from or transferred to other facilities. APCo must hold allowances in each unit's compliance subaccount not less than the total annual sulfur dioxide emissions from that unit during the previous calendar year (40 CFR 72.9c).

- Nitrogen Oxide Emission Limits: The applicable NO_X emission limitation under 40 CFR 76.6(a)(4) for each of the three vertically-fired units is 0.80 lb/mmBtu. The three units at Clinch River are included along with 49 units from 20 other AEP facilities in an approved Phase II NO_X Averaging Plan effective from 2007 through 2011. The alternative contemporaneous annual emissions limitation (ACEL) from each of the three Clinch River units is 0.80 lb NO_X/mmBtu.

Unit	NO_X Emission Limit (40 CFR 76.6(a)(4))	Alternative Contemporaneous annual Emissions Limitation (ACEL)	Annual Heat Input Limit (mmBtu/yr)
1	0.80 lb/mmBtu	0.80 lb/mmBtu	11,366,000
2	0.80 lb/mmBtu	0.80 lb/mmBtu	14,350,000
3	0.80 lb/mmBtu	0.80 lb/mmBtu	14,544,000

Monitoring:

- As required by 9 VAC 5-40-1000, *Monitoring*, the Clinch River Plant must install, calibrate, maintain, and operate systems for continuously monitoring and recording opacity. (Note: This requirement has been streamlined by the monitoring and recordkeeping requirements of 40 CFR Part 75.)

- 40 CFR Part 75 requires the owner or operator to install, certify, operate, and maintain continuous emission monitoring systems for SO_2 (including a flow monitoring system), NO_X, opacity, and CO_2. These monitoring systems are to incorporate automated data acquisition and handling systems for measuring and recording: SO_2 concentration (ppm); volumetric gas flow (scfh); NO_X concentration (ppm); O_2 or CO_2 concentration (%); SO_2 mass emissions (lb/hr); NO_X emission rate lb/mmBtu); and opacity (%).

  Although the provisions of the Phase II Acid Rain permit will be incorporated by reference in the Title V permit, these continuous monitoring requirements will be used to show compliance with the opacity and SO_2 emission limitations for existing stationary sources from 9 VAC 5-40-80 and 9 VAC 5-40-930, respectively.

Compliance Assurance Monitoring (CAM)

A Title V source is subject to 40 CFR Part 64 – Compliance Assurance Monitoring (CAM) if each of the following conditions are met:

- Emits or has the potential to emit uncontrolled quantities of one or more regulated air pollutants at or above major source levels;
- Is subject to one or more emission limitations for the regulated air pollutants for which it is major, and;
- Uses an add-on control device to achieve compliance with the emissions limitations.

The Clinch River facility has the potential to emit major quantities of particulate (PM-10), nitrogen oxides (NO_X), sulfur dioxide (SO_2), volatile organic compounds (VOC), carbon monoxide (CO), hydrogen chloride (HCl), hydrogen fluoride (HF), and total hazardous air pollutants (HAP). The facility is subject to emission limitations on particulate, SO_2, and NO_X. The Clinch River facility utilizes add-on electrostatic precipitators (ESP's) to control particulate emissions. Therefore, CAM is appropriate for the ESP's.

Electrostatic Precipitator (ESP) Monitoring Plan

Indicator	No. 1 - Opacity	No. 2 – ESP Electrical Data	No.3 – ESP Inspections	No. 4 – PM Emissions Testing
Measurement Approach	Continuous Opacity Monitoring Systems (COMS)	Transformer Rectifier (TR) set primary & secondary voltage and amperage level observations.	External inspections of the ESP are conducted on a daily basis. Internal inspections are conducted as needed during appropriate unit outages.	Particulate mass emissions testing (Method 5 or other approved test method).
Indicator Range	An excursion is defined as any non-exempt 6-minute COMS measurement of more than 20% opacity.	An excursion is defined as considerable variation in the voltage or amperage over several hours and/or readings that are outside of normally expected ranges considering unit operating conditions.	An excursion is defined as any inspection that reveals operations and/or equipment problems that significantly impact the proper operation of the ESP.	An excursion is defined as any mass emissions test that shows PM emissions in excess of 0.113 lbs/mmBtu.
Quality Improvement Plan (QIP) Threshold	Data indicating compliance < 98.5% of the operating quarter.	Operating ESP's at maximum power does not control average opacity to < 20%.	N/A	Any particulate stack test reporting more than 0.09 lb/mmBtu (80% of standard).
Verification of Operational Status	COMS will be installed, certified, and operated in accordance with 40 CFR Part 60, Appendix B, Performance Specification 1	The electrical voltage and amperage gauges shall be installed and calibrated in accordance with the manufacturer's recommendations.	N/A	N/A
QA/QC Practices and Criteria	COMS will be inspected and maintained in accordance with the plant's monitoring plan and the manufacturer's recommendations.	Trained personnel shall perform the regular monitoring, operation, calibration, and maintenance of the ESP electrical components.	Trained personnel perform the inspection, maintenance, and repair duties.	Certified personnel shall perform the particulate emissions testing (Method 5).
Monitoring Frequency	Continuous – 6-minute averages	Hourly during COM's excursions.	Daily external Inspections. Internal inspections are to be made during each scheduled unit outage of 72 consecutive hours and in no event less than once per calendar year	At least once per 5-year permit term, and in accordance with 40 CFR Part 60, Appendix A, Methods 1-5.

The Method 5 compliance testing is the only directly applicable indicator of compliance with the particulate standard of 0.113 lbs/mmBtu for each of the three boilers, however, it only assures compliance during the period in which the testing was conducted. The COMS data sets are the most appropriate indicators of continuous compliance with the particulate emissions standard since they provide essentially continuous opacity measurement during the operation of each boiler. Monitoring of additional ESP operating parameters such as transformer rectifier (TR) set voltage and current levels will also be used to evaluate ESP performance, however, like the COMS, this is not a direct indicator of compliance with the particulate emissions standard.

Continuous mass emissions monitoring devices have been installed in several coal-fired applications in recent years, however the reliability of these devices in high moisture exhaust stacks has not yet been proven on a large scale. As such, these devices were not considered as feasible alternatives for the Clinch River facility at the present time.

Opacity Monitoring Corrective Action Plan:

The following corrective action plan will be implemented at any time there is significant or a sudden increase in the stack opacity above normal operating levels. For the purposes of this plan, "*significant opacity*" is defined as a repetitive, non-exempt, six-minute average COMS value of more than 20%. "*Short duration significant opacity*" is defined as COMS values that exceed 20% opacity for more than five, but less than ten consecutive 6-minute periods (more than 30 but less than 60 minutes). "*Sustained significant opacity*" is defined as COMS values that exceed 20% opacity for ten or more consecutive 6-minute periods (60 minutes or longer). These corrective action procedures do not apply to significant opacity that occur once per hour, those caused by monitor malfunction, calibration, or maintenance, or those occurring during equipment or source malfunctions.

- Short duration significant opacity: Plant personnel will continue to monitor the COMS data and will initiate a collection and review of other available operating information (such as TR set status, voltage, current, etc.) in order to identify the cause of the significant opacity readings. Once the cause of the significant opacity is determined, plant personnel will take necessary steps to remedy the causal unit operating condition or equipment failure/malfunction.
- Sustained significant opacity: If the stack opacity does not return to and remain at normal operating levels within a period of 60 minutes, and the cause of the significant opacity is not known, plant personnel will continue to evaluate unit and auxiliary operating data for the purpose of identifying the cause and initiate appropriate corrective actions. Appropriate corrective actions will include the following:
  - Insure that ESP's are operating at maximum achievable power levels.
  - Any individual TR sets that are out-of-service or not operating at optimum power levels shall be repaired and/or adjusted as appropriate.
  - ESP rapping procedures may be initiated and/or adjusted as necessary.
  - Flue gas conditioning systems will be placed in service or adjusted as necessary.
  - Other corrective actions as deemed appropriate based on observed conditions.

  If the opacity level continues to exceed the 20% limit after these corrective actions have been implemented, plant personnel will contact appropriate management staff to obtain necessary approvals to reduce load, or commence a unit shutdown.

Reporting:

All opacity exceedances recorded by the COMS will be reported to the VA DEQ quarterly. All records of opacity exceedances, COMS QA/QC checks, ESP voltage and current level checks, ESP inspections and any corrective actions associated with these checks, shall be maintained for a minimum of five years. The results of all particulate emissions (Method 5) tests shall be reported to the VA DEQ and records retained for a minimum of five years.

Recordkeeping:

- The owners and operators of the source and each affected unit at the source must keep the following documents on site for a period of five (5) years from the date each is created (per 40 CFR Part 72.9):
  - the certificate of representation for the designated representative;
  - all emissions monitoring information, copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program;
  - copies of all documents used to complete the Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
- 9 VAC 5-40-50 and 9 VAC 5-80-110 require that records of all emissions data and operating parameters necessary to demonstrate compliance with the permit, be maintained.
- If, for any reason, the affected facilities or related air pollution control equipment fails or malfunctions and may cause excess emissions for more than one hour, the owner must notify the Director, Southwest Regional Office, within four (4) daytime business hours of the occurrence. In addition, the owner must provide a written statement, within 14 days, explaining the problem, corrective action taken, and the estimated duration of the breakdown/shutdown, per 9 VAC 5-80-250.

Testing:

40 CFR Part 75 requires annual relative accuracy test audits (RATA) for each monitor or continuous monitoring system. A table of test methods has been included in the permit if additional testing is to be performed. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

State-Only Applicable Requirements:

The provisions of 9 VAC 5-40-960 (Standard for Odor) and 9 VAC 5-40-970 (Standard for Toxic Pollutants) are state-only enforceable and thus have not been included in the Title V permit.

Streamlined Requirements:

The opacity monitoring and recording requirements of 9 VAC 5-40-1000, *Monitoring*, are met by the requirements of 40 CFR Part 75, *Continuous Emission Monitoring*. Part 75 is the more restrictive regulation (as it also includes numerous requirements for monitoring other pollutants) and will thus be used to streamline the opacity requirements of 9 VAC 5-40-1000.

Raw Coal Handling

Limitations:

The following limitations are existing source limits obtained from 9 VAC 5 Chapter 40, Part II, Article 1, *Visible Emissions and Fugitive Dust/Emissions* (9 VAC 5-40-60, et seq.) and Article 4, *Emission Standards for General Process Operations* (9 VAC 5-40-240, et seq.).

- Visible Emissions: (9 VAC 5-40-80 - Standard for Visible Emissions) No owner or other person may cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any hour of not more than 60% opacity. Failure to meet these requirements due to the presence of water vapor will not be seen as a violation.

- Particulate Matter: (9 VAC 5-40-260) The allowable particulate emissions from any process unit (in excess of 60,000 lb/hr) cannot exceed the limit calculated using the following formula:

$$E = 55.0 * P^{0.11} - 40$$

where: E = emission rate in lb/hr
P = process weight rate in tons/hr

Therefore, particulate emissions from each coal processing and handling unit is limited to:

$$E = 55.0 * 950^{0.11} - 40 = 76.9 \text{ lb/hr}$$

Monitoring & Recordkeeping:

9 VAC 5-40-50 and 9 VAC 5-80-110 require that records of all emissions data and operating parameters necessary to demonstrate compliance with the permit, be maintained.

Testing:

The coal processing and handling equipment will be observed visually at least once each calendar week to detect the presence of visible emissions. If visible emissions are detected, a 40 CFR 60 Appendix A Method 9 visible emissions evaluation must be performed on the subject emissions unit. Each emissions unit observed having above-normal visible emissions must be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.

A table of test methods has been included in the permit if other testing is performed. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Streamlined Requirements:

There are no streamlined requirements for the coal processing and handling operation.

Ash Handling

The following limitations are existing source limits obtained from 9 VAC 5 Chapter 40, Part II, Article 1, *Visible Emissions and Fugitive Dust/Emissions* (9 VAC 5-40-60, et seq.) and Article 4, *Emission Standards for General Process Operations* (9 VAC 5-40-240, et seq.).

- Visible Emissions: (9 VAC 5-40-80 - Standard for Visible Emissions) No owner or other person may cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any hour of not more than 60% opacity. Failure to meet these requirements due to the presence of water vapor will not be seen as a violation.

- Particulate Matter: (9 VAC 5-40-260) The allowable particulate emissions from any process unit (not to exceed 60,000 lb/hr) are not to exceed the limit calculated using the following formula:

$$E = 4.10 * P^{0.67}$$

where: E = emission rate in lb/hr
P = process weight rate in tons/hr

Therefore, particulate emissions from each bottom ash processing and handling unit (nominal throughput = 162 tons/day) 24 hr/day = 7 tons/hr) is limited to:

$$E = 4.10 * 7^{0.67} = 15.1 \text{ lb/hr}$$

Particulate emissions from each flyash processing and handling unit (nominal throughput = 648 tons/day) 24 hr/day = 27 tons/hr) is limited to:

$$E = 4.10 * 27^{0.67} = 37.3 \text{ lb/hr}$$

Monitoring & Recordkeeping:

9 VAC 5-40-50 and 9 VAC 5-80-110 require that records of all emissions data and operating parameters necessary to demonstrate compliance with the permit, be maintained.

Actual particulate emissions from processing and handling bottom ash are expected to be negligible due to the aggregate nature of the bottom ash and the fact that it is transported in a slurry form. Therefore, no monitoring for visible or particulate emissions will be required for the bottom ash processing and handling equipment.

The flyash silo loadout has the potential to generate fugitive particulate emissions. However, a fugitive particulate emission rate greater than 92 lb/ton would be required to exceed the 37.3 lb/hr limit when considering the wet suppression and partial enclosure (95% and 70% control respectively) techniques currently in use [Emission Factor = (37.3 lb/hr emissions)) (27 ton/hr flyash)) (1 - 95%)) (1 - 70%) = 92.1 lb/ton].

Testing:

Compliance with both the opacity and particulate emissions limits will be demonstrated through a weekly opacity check. The flyash loadout must be observed visually at least once each calendar week, while in operation, to detect the presence of visible emissions. If visible emissions are detected, a 40 CFR 60 Appendix A Method 9 visible emissions evaluation must be performed on the subject emissions unit. Each emissions unit observed having above-normal visible emissions must be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.

A table of test methods has been included in the permit if additional testing is performed. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Streamlined Requirements:

There are no streamlined requirements for the coal ash processing and handling operations.

FACILITY-WIDE REQUIREMENTS

Phase II Acid Rain Permit

The Phase II Acid Rain Permit for this facility, issued pursuant to 9 VAC 5 Chapter 80, Part II, Article 3, *Acid Rain Operating Permits* (9 VAC 5-80-360 et seq.), in effect from January 1, 2003 through December 31, 2007, is incorporated by reference into the Title V permit. A copy of the acid rain permit is attached to the Title V permit.

Emissions from the three units at the Clinch River Plant may not exceed any allowances that it holds under its Title IV acid rain permit. No permit revision will be required for increases in emissions that are authorized by allowances acquired pursuant to Title IV of the Clean Air Act or 9 VAC 5-80-360, et seq., provided that such increases do not require a permit revision under any other applicable requirement. The Clinch River Plant may hold any number of allowances authorized by its acid rain permit, but these allowances may not be used as a defense for a non-compliance with any other applicable requirement. Any allowance authorized by the acid rain permit must be accounted for according to procedures established under 9 VAC 5-80-360, et seq. or under regulations pursuant to Title IV of the Clean Air Act. Nothing in the Title V permit may alter or affect the applicable requirements of the acid rain program pursuant to Title IV of the Clean Air Act. Should an applicable requirement of the Clean Air Act, or of this permit, be more stringent than an applicable requirement from state or federal regulations promulgated under Title IV of the Clean Air Act, both provisions will appear in the Title V permit and both will be enforceable by the Administrator of the U.S. EPA (40 CFR Part 70, section 70.6(a)).

NO_X Budget Trading Permit

The NO_X Budget Trading permit is included in the Title V permit. Units 1, 2, and 3 at the Clinch River plant meet the definition of NO_X Budget Units and are therefore subject to the NO_X emission limitations under 9 VAC 5-140-40. The NO_X Budget Trading permit is administered by the DEQ under the authority of 9 VAC 5 Chapter 80, Part II, Article 3 (9 VAC 5-80-360 et seq.) and 9 VAC 5 Chapter 140, Part I (9 VAC 5-140-10 et seq.).

The NO_X Budget permit requires monitoring systems for NO_X emission rate, NO_X concentration, heat input, and flow. The permittee is required to hold NO_X allowances in quantities equal to or greater than the tons of NO_X emitted during the control period. Onsite recordkeeping is to include the certificate of representation, emissions monitoring information, compliance certifications, and copies of all documents needed to prepare the NO_X Budget permit application.

Clean Air Interstate Rule (CAIR) Permit

The CAIR permit for the Clinch River facility is incorporated in the Title V permit. CAIR is a cap-and-trade program designed to permanently cap emissions of sulfur dioxide (SO_2) and nitrogen

oxides (NO_X) in 28 eastern states and the District of Columbia, and thereby reduce the concentrations of fine particulates and ozone in the eastern United States. The program is expected to ultimately achieve reductions of 60% in SO_2 and 70% in NO_X emissions from their 2003 emission levels. The program requires that the affected facilities acquire one allowance for each ton of emissions and includes stringent emissions monitoring and reporting requirements with significant automatic penalties for noncompliance. The current timelines for the CAIR program are: Phase I cap in place for NO_X in 2009; Phase I cap in place for SO_2 in 2010; and Phase II cap in place for NO_X and SO_2 in 2015.

Limitations:

Visible Emissions: (9 VAC 5-40-80 - Standard for Visible Emissions) No owner or other person may cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any hour of not more than 60% opacity. Failure to meet these requirements due to the presence of water vapor will not be seen as a violation.

Monitoring & Recordkeeping:

9 VAC 5-40-50 and 9 VAC 5-80-110 require that records of all emissions data and operating parameters necessary to demonstrate compliance with the permit, be maintained.

Testing:

The permit does not require facility-wide source testing. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:

9 VAC 5-80-250 requires that AEP notify DEQ within four (4) hours of any malfunction that results in excess emissions for more than one (1) hour. Within 14 days, AEP must provide a written statement explaining the problem, the corrective action taken, and estimated duration of the malfunction.

Streamlined Requirements:

There are no facility-wide streamlined requirements.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

STATE-ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have not been included in the Federal Operating Permit:

9 VAC 5-40-340, Standard for odor; and
9 VAC 5-40-350, Standard for Toxic Pollutants.

FUTURE APPLICABLE REQUIREMENTS

The Clean Air Mercury Rule (CAMR) was vacated in 2008.

INAPPLICABLE REQUIREMENTS

The provisions of 40 CFR 60 Subparts D, Da, and Db do not apply since the Clinch River plant was constructed prior to the effective dates of these regulations.

The provisions of 9 VAC 5-40-290 (Standard for Hydrogen Sulfide) are not appropriate since no H_2S emissions are expected from the facility.

The provisions of 9 VAC 5-40-300 (Standard for Volatile Organic Compounds) and 9 VAC 5-40-310 (Standard for Nitrogen Oxides) are not appropriate since the Clinch River Plant is not located in the Northern Virginia Emissions Control Area.

The startup, shutdown, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shutdown will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting will be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
Tank 110	110,000 gallon Fuel Oil Tank	VOC	110,000 gal
Gas	Underground Storage Tank - Gasoline	VOC	1000 gal
TP	Thaw Pit Burners	SO_2, NO_X, Particulate, VOC	168 gal/hr (Typical use is <150 hr/yr)
TL1	Turbine Lube Oil Tank (Unit 1)	VOC	9870 gal (approx)
TL2	Turbine Lube Oil Tank (Unit 2)	VOC	9870 gal (approx)
TL3	Turbine Lube Oil Tank (Unit 3)	VOC	1000 gal
Used Oil	Used Oil Tank (emissions per compartment; 2 compartments)	VOC	12,500 gal
Return Oil	1000 Gal return Oil tank	VOC	1000 gal
Parts washers	Safety-Kleen Parts Washers	VOC	5 gallon wash basin capacity, each
OWS1, OWS2	Oil-Water Separator	VOC	220 gal/yr each
The criteria citation for each of the insignificant activities is 9 VAC 5-80-720B – Insignificant due to emission levels.			

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are available for public review.

PUBLIC PARTICIPATION

The addition of the NO_X Budget Trading Permit requirements in the Title V permit is considered to me a minor modification and does not require public notification or participation.

A public notice appeared in The Lebanon News on February 18, 2009 announcing a 30-day public comment period for the renewal of the Title V permit. Notice was also provided to Kentucky, North Carolina, Tennessee, and West Virginia as affected states. No comments or requests for a hearing were received.