ATTACHMENT B

VDEQ Proposed Comprehensive State Operating Permit for PRGS including:

- Letter from Jim Sydnor to SAPCB Members
- Stationary Source Permit to Operate (5 Stack Version)
- VDEQ Statement of Legal and Factual Basis
- Public Notice for Comment on a Draft State Operating Permit for the Mirant Potomac River LLC's PRGS Recommended by the Department of Environmental Quality

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.virginia.gov

L. Preston Bryant, Jr
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

TO: State Air Pollution Control Board Members
FROM: James E. Sydnor, Air Division Director
SUBJECT: Proposed State Operating Permits for Mirant Potomac River Generating Station
DATE: October 5, 2007

Please find attached two proposed comprehensive State Operating Permits (SOP) for the Mirant Potomac River Generating Station (PRGS). The following is a general overview of the permit contents. A more in-depth explanation will be presented at the October 10, 2007 Air Board Meeting.

The first proposed SOP assumes the current 5 stack configuration and expands upon the June 1, 2007, SOP by including all pollutants. The permit sets annual and hourly limits for SO_2, NO_x, PM, PM-10, PM-2.5, VOC, HCl, and HF. The annual limits were established using the June 1 SOP. Although only one pollutant, SO_2, had an annual limit as a condition in the June 1 SOP, the other pollutants were limited based on the operational constraints imposed by the permit. The hourly limits are based on modeled values that demonstrate NAAQS compliance. Unlike the June 1 SOP, this permit sets limits on each boiler. Additionally, more testing, monitoring and recordkeeping are required than in the June 1 permit.

The second proposed SOP is essentially the same as the 5 stack SOP but assumes the 5 stacks have been reconfigured into 2 stacks (stack merge). This permit sets the same annual limits as in the June 1 SOP and the proposed 5 stack configuration permit. The hourly limits are based on modeled numbers that demonstrate compliance with the NAAQS and assumes dispersion credit for SO_2, PM, PM-10, PM-2.5, HCl and HF. To date, these pollutants have been shown as being controlled as a result of the addition of Trona. The hourly limits are higher in the 2 stack configuration than in the 5 stack configuration due to the greater dispersion created by going from 5 stacks to 2 stacks. Note this is not an NSR permit that would authorize construction.

A technical support document will be prepared and released at the time of public hearing notice.

STATIONARY SOURCE PERMIT TO OPERATE
(5 STACK version)
This permit supersedes/replaces your permit dated June 1, 2007

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Mirant Potomac River LLC
8301 Professional Place
Suite 230
Landover, MD 20785
Registration No.: 70228

is authorized to operate

an electricity generating facility

located at

1400 North Royal Street
Alexandria, VA 22314

in accordance with the Conditions of this permit.

Approved on DRAFT.

Director, Department of Environmental Quality

Permit consists of 24 pages.
Permit Conditions 1 to 48.

INTRODUCTION

This permit approval is based on the results of air dispersion modeling conducted using a protocol approved by the Department of Environmental Quality (DEQ) to ensure that the Mirant Potomac River Generating Station (PRGS) does not contribute to a modeled exceedance of the National Ambient Air Quality Standards (NAAQS). Any changes to an existing facility which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in an enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-20 and 9 VAC 5-80-810 of the State Air Pollution Control Board's (Board) Regulations for the Control and Abatement of Air Pollution (Regulations). The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board's Regulations for the Control and Abatement of Air Pollution. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

PROCESS REQUIREMENTS

1. **Equipment List** - Equipment at this facility consists of the following:

Equipment to be modified			
Reference No.	**Equipment Description**	**Maximum Rated Capacity (as calculated from CEM data)**	**Manufactured Date**
C1 Cycling Unit	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	1053 MMBtu/hr	1949
C2 Cycling Unit	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	1029 MMBtu/hr	1950
C3 Base Unit	Combustion Engineering, controlled circulation, tangentially coal-fired with superheater, single air reheater and economizer with low NOx burners and over fired air.	1018 MMBtu/hr	1954
C4 Base Unit	Combustion Engineering, controlled circulation, tangentially coal-fired with superheater, single air reheater and	1087 MMBtu/hr	1956

	economizer with low NOx burners and over fired air.		
C5 Base Unit	Combustion Engineering, controlled circulation, tangentially coal-fired with superheater, single air reheater and economizer with low NOx burners and over fired air.	1107 MMBtu/hr	1957
Reference No.	**Equipment Description**	**Maximum Rated Capacity**	**Manufactured Date**
Ash Silos	Two (2) fly ash silos and one (1) bottom ash silo	480 tons per day	n/a
Ash Loader	Fly ash and bottom ash truck loading from silos and ash truck roadway dust	880 tons per day	n/a
Coal Handling	Coal pile wind erosion, coal stack-out conveyor system, coal railcar dumper	711,836 tons per year	n/a
Sodium sequacarbinate Handling Dry Sorbent	Pneumatic upload system, full enclosure	n/a	n/a

Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.
(9 VAC 5-80-830)

2. **Nitrogen Oxides (NO_x) Emission Controls** - NO_x emissions from boilers C1 and C2 shall be controlled by the use of low NO_x burners. The low NOx burners shall be provided with adequate access for inspection and shall be in operation when the boilers are operating.
(9 VAC 5-80-850)

3. **Nitrogen Oxides (NO_x) Emission Controls** - NO_x emissions from boilers C3, C4 and C5 shall be controlled by the use of low NO_x burners and separated over-fire air (SOFA). The low NO_x burners and SOFA systems shall be provided with adequate access for inspection and shall be in operation when the boilers are operating.
(9 VAC 5-80-850)

4. **Sulfur Dioxide (SO_2) and Acid Gas Emission Controls** – SO_2 emissions from boilers C1, C2, C3, C4 and C5 shall be controlled by the use of low sulfur coal and dry sorbent injection (Sodium sesquacarbinate or equivalent). An alternate dry sorbent may be used for SO_2 emission controls after it has been demonstrated that the alternate dry sorbent will reduce SO_2 emissions and acid gas emissions (HCl and HF) at an emission rate equivalent to or greater than those produced by sodium sesquacarbinate and that meets the emissions limits in this permit. The dry sorbent injection system shall be provided with adequate access for inspection. Dry sorbent (Sodium sesquacarbinate or equivalent) shall be injected anytime a boiler is operating on coal.
(9 VAC 5-80-850)

5. **Particulate Matter (PM) Emission Controls** – Particulate emissions from boilers C1, C2, C3, C4 and C5 shall each be controlled by hot side electrostatic precipitator followed in series by cold side electrostatic precipitator, designated as HSEP1, HSEP2, HSEP3, HSEP4 and HSEP5 and CSEP1, CSEP2, CSEP3, CSEP4 and CSEP5, and dry sorbent injection (Sodium sesquacarbinate or

equivalent) respectively. The electrostatic precipitators shall be provided with adequate access for inspection and shall be in operation when each boiler is operating.
(9 VAC 5-80-850)

6. **Particulate Matter (PM) Emission Controls** – Particulate emissions from the two (2) fly ash silos shall be controlled by baghouse fabric filters and by routing the baghouse fabric filter exhausts to the boiler C1 hot side electrostatic precipitator. The baghouse fabric filters shall be provided with adequate access for inspection and shall be in operation when the fly ash silos are being utilized (filling and unloading).
(9 VAC 5-80-850)

7. **Particulate Matter (PM) Emission Controls** – Particulate emissions from the bottom ash silo shall be controlled by a baghouse fabric filter. The baghouse fabric filter shall be provided with adequate access for inspection and shall be in operation when the bottom ash silo is being utilized (filling and unloading).
(9 VAC 5-80-850)

8. **Particulate Matter (PM) Emission Controls** – Particulate emissions from fly ash and bottom ash transfer from the ash silos to trucks shall be controlled by partial enclosure and wet suppression within the loading chute and water fogging within the enclosure. The partial enclosure system shall be provided with adequate access for inspection and shall be utilized whenever fly ash and bottom ash loading from the silos to trucks is occurring.
(9 VAC 5-80-850)

9. **Particulate Matter (PM) Emission Controls Coal Handling** – Particulate emissions from the coal pile (via wind erosion) shall be controlled by the installation of a wind screen and use of a surfactant during loading of the coal pile. Particulate emissions from the coal stack-out conveyor system shall be controlled by the use of an enclosed conveyor and the installation of a telescopic chute. Particulate emissions from coal railcar dumping shall be controlled by partial enclosure with heavy duty curtains and by the use of water fogging spray header. All controls shall be functional and in operation whenever coal pile and/or railcar dumping activities are in operation.
(9 VAC 5-80-850)

10. **Particulate Matter (PM) Emission Controls** – Particulate emissions from dry sorbent (Sodium sesquacarbinate or equivalent) handling shall be controlled by use of a pneumatic uploading system and total enclosure.
(9 VAC 5-80-850)

11. **Electrostatic Precipitator (ESP) Control Efficiency** - The electrostatic precipitators (HSEP1 + CSEP1, HSEP2 + CSEP2, HSEP3 + CSEP3, HSEP4 + CSEP4, and HSEP5 + CSEP5) shall achieve an overall control efficiency for all PM that demonstrates compliance with the emission limitations in this permit and shall be demonstrated as required in conditions 33 and 35. Continued control effectiveness shall be determined using daily readings of secondary voltage and current. These

readings shall be compared to those readings taken during the compliance demonstration stack test to demonstrate continued control efficiency.
(9 VAC 5-80-850)

12. **Fugitive Dust and Fugitive Emission Controls** – Fugitive emission controls shall include but are not limited to the following, or equivalent, as approved by DEQ:

    a. Use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, grading of roads, or clearing of land.
    b. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of the roadways in a clean condition.
    c. Open equipment for conveying or transporting materials likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion.
    d. Prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.
    e. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Trucks leaving the site shall have clean wheels achieved by use of a wheel washer or equivalent.

    (9 VAC 5-40-90 and 9 VAC 5-80-850)

13. **Monitoring - Continuous Opacity Monitoring Systems (COMS)** - Continuous Opacity Monitoring Systems meeting the design specifications of 40 CFR Part 60, Appendix B shall be installed to measure and record the opacity of emissions from the stacks of boilers C1, C2, C3, C4 and C5. Except where otherwise indicated in this permit, the COMS shall be installed, calibrated, maintained and operated in accordance with the requirements of 40 CFR 60.13 and Appendix B or DEQ approved procedures which are equivalent to the requirements of 40 CFR 60.13 and Appendix B. Data shall be reduced to six minute averages. The COMS may be used to satisfy the visible emission evaluation requirement in lieu of 40 CFR, Part 60, Appendix A, Method 9. In the event that the COMS is used in lieu of a 40 CFR, Part 60 Appendix A Method 9 evaluation, the reported data shall include averages of all six minute continuous periods within the reported period and within the duration of any mass emission performance tests being conducted. It is the responsibility of the permittee to demonstrate that the monitoring system has met the requirements of the applicable performance specification as defined in 40 CFR Part 60, Appendix B, that the monitoring system has been properly maintained and operated, and that the resulting data has not been altered in any way. In the event that the COMS data indicates compliance for a period during which Method 9 data indicates non-compliance, the Method 9 data may be used to determine compliance with the visible emission limit.
    (9 VAC 5-80-890, 9 VAC 5-40-40, 9 VAC 5-50-20 and § 10.1-1307.3.B)

14. **Monitoring - Continuous Emission Monitoring Systems (CEMS)** - CEMS meeting the design specifications of 40 CFR Part 60, Appendix B and 40 CFR Part 75 shall be installed to measure and record, SO_2, and NO_x (as ppmv corrected to 7% O_2 or 12% CO_2), volumetric flow rate, and CO_2 or O_2 and PM from the stacks of boilers C1, C2, C3, C4 and C5. The requirement to install and

operate a PM CEMS is deferred until such time that all performance specifications and operations requirements applicable to PM CEMS have been promulgated by EPA, become effective and DEQ has notified the permittee in writing of a deadline for installing the PM CEMS. The permittee shall inform the Air Compliance Manager of the Northern Regional Office (NRO) as to which diluent will be used to normalize the SO_2, and NO_x. Before changing the diluent to be used for normalization, the permittee shall justify in writing to the Air Compliance Manager of the NRO the reasons for the change in diluent. Except where otherwise indicated in this permit, the CEMS shall be installed, calibrated, maintained, audited and operated in accordance with the requirements of 40 CFR 60.13 and Appendices B and/or F or DEQ approved procedures which are equivalent to the requirements of 40 CFR 60.13 and Appendices B and/or F. CEMS data shall be sent to a data acquisition and handling systems (DAHS) to be reduced to pounds per million Btu, one hour averages, 3 hour block averages, 24 hour rolling averages, 30 day rolling averages, and 12-month rolling averages. The span values for SO_2 and NO_x shall comply with the requirements of 40 CFR Parts 60 and 75. The permittee shall utilize monthly recorded CEMS data to calculate annual CO, SO_2, and NO_x, emissions (in tons per year) monthly as the sum of each consecutive 12-month period. Calculations shall be maintained on-site for the most recent 5-year period and shall demonstrate compliance with the emission limitations set forth in Conditions 23 through 28. (9 VAC 5-80-890 and 9 VAC 5-80-850)

15. **Monitoring- CEMS- Carbon Monoxide (CO)** – Within twelve months of the effective date of this permit, the permittee shall have installed CO CEMS meeting the design specifications of 40 CFR Part 60, Appendix B to measure and record CO, from the stacks of units C1, C2, C3, C4 and C5. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. A performance evaluation of the CO continuous monitoring system shall be conducted in accordance with 40 CFR Part 60, Appendix B. Two copies of the performance evaluation report shall be submitted to the Air Compliance Manager, NRO within forty-five days of the evaluation. A thirty day notification, prior to the demonstration of the continuous monitoring system's performance, and subsequent notifications shall be submitted to the Air Compliance Manager, NRO. The permittee shall accumulate CO data for at least six months and submit that data to the DEQ for the establishment of a permited CO emission limitation. (9 VAC 5-40-40)

16. **Monitoring** – The permittee shall calculate monthly the emissions of PM, PM-10, PM-2.5, VOC, HCl, and HF from boilers C1, C2, C3, C4 and C5. The permittee shall calculate monthly emissions utilizing monthly boiler heat input data or monthly fuel throughput, control equipment efficiency as appropriate, and an appropriate F-factor or AP-42 emission factors in order to demonstrate compliance with the emission limitations set forth in Conditions 23 through 27. Calculated emissions shall take into account any emissions associated with startup and shutdown of the boilers. Startup and shutdown emissions shall be identified as such in any emissions calculations. (9 VAC 5-80-890 and 9 VAC 5-80-850)

17. **Monitoring Devices** - Each fabric filter baghouse shall be equipped with a device to continuously measure and record pressure drop across the filter. The device shall be installed in an accessible location and shall be maintained by the permittee such that it is in proper working order at all times.

Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the silos are operating.
(9 VAC 5-80-890 and 9 VAC 5-80-850)

18. **Monitoring Devices – ESP** - A condition assessment shall be conducted on the electrostatic precipitators daily by the permittee in order to determine whether the equipment is in proper operating condition. The details of the condition assessment shall be arranged with the Air Compliance Manager of the NRO. The permittee shall maintain a record of each assessment on-site or in a data base accessible from the PRGS for the most recent 5-year period. Records shall include the date and the time of the assessment, and any findings or corrective actions taken.
(9 VAC 5-80-890 and 9 VAC 5-80-850)

19. **Monitoring Device Observation-** For the purpose of this permit normal business hours shall be considered to be from 8:00 AM to 5:00 PM Monday through Friday. Nothing contained here in shall make an inspection time unreasonable during an emergency.

    a. To ensure good performance, each monitoring device used to continuously measure pressure drop across the fabric filters shall record monitored data on a continuous basis within the Control Room of the PRGS.

    b. At least once per daylight shift, an observation of the presence of visible emissions from each fabric filter baghouse shall be made.

    c. If visible emissions are observed and are greater than 10%, the permittee shall take immediate corrective action such that the fabric filter baghouses operate with emissions less than 10%.

    d. In the event that visible emissions greater than 10% are observed from the bottom ash silo, a visible emission evaluation (VEE) in accordance with 40 CFR 60, Appendix A, Method 9, shall be performed to assure visible emissions from the fabric filter baghouse do not exceed 10% opacity.

        i. The VEE shall be conducted for a minimum of six minutes.

        ii. If any two consecutive 15 second observations exceed 10% opacity, the VEE shall be conducted for a total of sixty minutes.

        iii. If compliance is not demonstrated by the one hour VEE, immediate corrective action shall be taken such that the fabric filter baghouse resumes operation with visible emissions of 10% or less.

    e. The permittee shall maintain an observation log on-site or in a data base accessible from the PRGS during normal business hours, as defined above, for the most recent 5-year period to demonstrate compliance. The log shall include the date and the time of the observations,

whether or not there were any visible emissions, any VEE recordings, and any necessary corrective action.

f. The continuously recorded measurements of the pressure drop shall be maintained on-site or in a data base accessible from the PRGS during normal business hours, as defined above, for the most recent 5-year period and shall be made available for inspection.

(9 VAC 5-80-890 and 9 VAC 5-80-850)

OPERATING LIMITATIONS

20. **Fuel** - The approved fuels for boilers C1, C2, C3, C4 and C5 are bituminous coal and distillate oil. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-850)

21. **Fuel** - The coal and distillate oil shall meet the specifications below:

COAL:
Minimum heat content: 8,500 Btu/lb HHV
as determined by ASTM D2015, D3286, or a DEQ-approved equivalent method.

The sulfur content on a per shipment basis shall be between 0.65% and 1.2% and the annual average sulfur content shall not exceed 1.0%, both sulfur contents shall be determined by ASTM D3177, D4239, or a DEQ-approved equivalent method

Maximum ash content per shipment: 11.0%
as determined by ASTM D3174, or a DEQ-approved equivalent method.

DISTILLATE OIL which meets the ASTM D396 specification for numbers 1 or 2 fuel oil:
Maximum sulfur content per shipment: 0.5%

(9 VAC 5-80-850)

22. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of coal and distillate oil. Each fuel supplier certification shall include the following:

a. The name of the fuel supplier or third party independent laboratory;

b. The date on which the coal was shipped or distillate oil was received;

c. The quantity of coal or distillate oil delivered in the shipment;

d. A statement that the distillate oil complies with the American Society for Testing and Materials specifications (ASTM D396) for numbers 1 and 2 fuel oil;

e. The sulfur content of the coal or distillate oil;

f. Documentation of sampling of the coal or distillate oil indicating the location of the fuel when the sample was taken and;

g. The methods used to determine the sulfur and ash contents of the coal;

Fuel sampling and analysis meeting appropriate ASTM standards, independent of that used for certification, as may be periodically required or conducted by DEQ, may be used to determine compliance with the fuel specifications stipulated in Condition 21. The permittee may propose an alternate method of demonstrating compliance with the fuel sulfur requirements of this section. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.
(9 VAC 5-80-890)

EMISSION LIMITS – The following emissions limits become effective upon issuance of this permit.

23. **Process Emission Limits** - Emissions from the operation of the boiler C1 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu (unless noted otherwise)	lbs/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	57.92	1,389.96
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	57.92	1,389.96
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	57.92	1389.96
Sulfur Dioxides (SO_2)	0.99 3 hr block avg	0.99	1,042.47 3 hr block avg	25,019.28
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		336.96 30 day rolling avg	
Carbon Monoxide (CO)	680.90 ppmv 3 hr avg		714.93 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.21	
Hydrogen Chloride	0.021		22.11	
Hydrogen Fluoride	0.0076		8.00	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

24. **Process Emission Limits** - Emissions from the operation of the boiler C2 shall not exceed the limits specified below:

Pollutant	**lbs/MMBtu**	**lb/MMBtu 24 hr block avg**	**lbs/Hour**	**lbs/Day 24 hr block avg**
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	56.60	1,358.28
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	56.60	1,358.28
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	56.60	1,358.28
Sulfur Dioxides (SO_2)	1.02 3 hr block avg	0.90	1,049.58 3 hr block avg	22,226.40
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		329.28 30 day rolling avg	
Carbon Monoxide (CO)	688.60 ppmv 3 hr avg		732.99 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.12	
Hydrogen Chloride	0.021		21.61	
Hydrogen Fluoride	0.0076		7.82	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

25. **Process Emission Limits** - Emissions from the operation of the boiler C3 shall not exceed the limits specified below:

Pollutant	**lbs/MMBtu**	**lb/MMBtu 24 hr block avg**	**lbs/Hour**	**lbs/Day 24 hr block avg**
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	55.99	1,343.76
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	55.99	1,343.76
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	55.99	1,343.76
Sulfur Dioxides (SO_2)	0.80 3 hr block avg	0.66	814.40 3 hr block avg	16,125.12
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		325.76 30 day rolling avg	
Carbon Monoxide (CO)	1,040.00 ppmv 3 hr avg		1,033.67 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.07	
Hydrogen Chloride	0.021		21.38	
Hydrogen Fluoride	0.0076		7.74	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

26. **Process Emission Limits** - Emissions from the operation of the boiler C4 shall not exceed the limits specified below:

Pollutant	**lbs/MMBtu**	**lbs/MMBtu 24 hr block avg**	**lbs/Hour**	**lbs/Day 24 hr block avg**
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	59.79	1,434.84
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	59.79	1,434.84
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	59.79	1,434.84
Sulfur Dioxides (SO_2)	0.77 3 hr block avg	0.60	836.99 3 hr block avg	15,652.80
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		347.84 30 day rolling avg	
Carbon Monoxide (CO)	1040.00 ppmv 3 hr avg		994.79 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.35	
Hydrogen Chloride	0.021		22.83	
Hydrogen Fluoride	0.0076		8.26	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

27. **Process Emission Limits** - Emissions from the operation of the boiler C5 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lbs/MM Btu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	60.89	1,461.24
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	60.89	1,461.24
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	60.89	1,461.24
Sulfur Dioxides (SO_2)	0.70 3 hr block avg	0.53	774.90 3 hr block avg	14,081.04
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		354.24 30 day rolling avg	
Carbon Monoxide (CO)	1040.00 ppmv 3 hr avg		968.75 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.43	
Hydrogen Chloride	0.021		23.25	
Hydrogen Fluoride	0.0076		8.41	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

28. **Process Emission Limits – Multiple Operating Scenarios** - Emissions for the operation of combination unit operations shall not exceed the limits specified below.

The operating scenarios listed below may be expanded as Mirant has suggested that there are additional scenarios that they would like to propose that will be NAAQS complaint and will provide the facility with additional flexability.

Operating Scenario	**SO_2 3 hr block avg lbs/MMBtu per unit**	**SO_2 3 hr block avg lbs/Hr**	**SO_2 24 hr block avg lbs/MMBtu**	**SO_2 24 hr block average lbs/Day**
2 cycling	0.50	1,041.00	0.48	23,984.64
2 base	0.37	811.78	0.28	14,743.68
1 cycling/1 base	0.42	907.20	0.36	18,662.40
2 cycling/ 1 base	0.29	924.81	0.27	20,664.72
1 cycling/ 2 base	0.27	876.69	0.23	17,923.44
3 base	0.25	803.00	0.21	16,188.48

Operating Scenario	PM 1 hr avg Lb/MM Btu	PM 1 hr avg Lb/Hr	PM 24 hr block avg Lb/MM Btu	PM 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	PM_{10} 1 hr avg Lb/MM Btu	PM_{10} 1 hr average Lb/Hr	PM_{10} 24 hr block avg Lb/MM Btu	PM_{10} 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	$PM_{2.5}$ 1 hr average Lb/MM Btu	$PM_{2.5}$1 hr avg Lb/Hr	$PM_{2.5}$ 24 hr block avg Lb/MM Btu	$PM_{2.5}$ 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	NOx 1 hr avg Lb/MM Btu (30-day rolling avg.)	NOx 1 hr avg Lb/Hr (30 day rolling avg)	NOx 24 hr average Lb/MM Btu	NOx 24 hr average Lb/Day
Max value for any case	0.32	1,039.04		

Operating Scenario	CO 1 hr avg Lb/MM Btu	CO1 hr avg Lb/Hr	CO 24 hr block avg Lb/MM Btu	CO 24 hr block avg Lb/Day
Max value for any case		2,997.20		

Operating Scenario	HCl 1 hr avg Lb/MM Btu	HCl 1 hr avg Lb/Hr	HCl 24 hr average Lb/MM Btu	HCl 24 hr avg Lb/Day
Max value for any case	0.021	68.19		

Operating Scenario	HF 1 hr avg Lb/MM Btu	HF1 hr avg Lb/Hr	HF 24 hr avg Lb/MM Btu	HF 24 hr avg Lb/Day
Max value for any case	0.0076	24.68		

These tables were developed using the worst case scenario of operating combination of units which would exhibit the worse case emissions.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16.
(9 VAC 5-80-850)

29. **Emission Calculations** – The permittee shall calculate emissions of PM, PM-10, PM-2.5, HCl, HF, and VOC in tons per year from boilers C1, C2, C3, C4 and C5. The permittee shall calculate annual emissions monthly as the sum of each consecutive 12-month period utilizing monthly boiler heat input data or monthly fuel throughput, control equipment efficiency, and appropriate F-factors or AP-42 emission factors in order to demonstrate compliance with the emission limitations set forth in Conditions 30. Calculated emissions shall take into account any emissions associated with startup and shutdown of the boilers. Startup and shutdown emissions shall be identified as such in any emissions calculations.
(9 VAC 5-80-890 and 9 VAC 5-80-850)

30. **Facility wide Emission Limits** - Total emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed the limits specified below:

	Tons/Year
Particulate Matter (PM) including condensable PM	562
PM-10 including condensable PM-10	377
PM-2.5 including condensable PM-2.5	163
Sulfur Dioxides (SO_2)	3813
Oxides of Nitrogen (as NO_2)	3700
Oxides of Nitrogen (as NO_2) (Ozone Season until 12/31/08)	1600
Carbon Monoxide (CO)	215
Volatile Organic Compounds (VOC)	26
Hydrogen Chloride (HCl)	100
Hydrogen Fluoride (HF)	36.22

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 29.
(9 VAC 5-80-850)

31. **Visible Emissions Limit – Bottom Ash Silo** - Visible emissions from the bottom ash silo shall not exceed 10% opacity as determined by 40 CFR Part 60, Appendix A, Method 9.
(9 VAC 5-80-850)

32. **Visible Emission Limit** - Visible emissions from the boilers C1, C2, C3, C4 and C5 shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). The COMS may be used to satisfy the visible emission evaluation requirement in lieu of 40 CFR, Part 60, Appendix A, Method 9. In the event that the COMS is used in lieu of a 40 CFR, Part 60, Appendix A, Method 9 evaluation, the reported data shall include averages of all six minute continuous periods within the reported period and within the duration of any mass emission performance tests being conducted. It is the responsibility of the permittee to demonstrate that the monitoring system has met the requirements of the applicable performance specification defined in 40 CFR Part 60, Appendix B that the monitoring system has been properly maintained and operated, and that the resulting data has not been altered in any way. In the event that the COMS data indicates compliance for a period during which Method 9 data indicates non-

compliance, the Method 9 data may be used to determine compliance with the visible emission limit. This condition applies at all times except during startup, shutdown, and malfunction.
(9 VAC 5-80-850 and §10.1-1307.3.B)

COMPLIANCE DETERMINATION

33. **Stack Test** - Performance tests shall be conducted for PM, PM-10, PM-2.5, HCl, and HF from C1, C2, C3, C4 and C5 using appropriate and approved 40 CFR Part 60 Appendix A reference methods to determine compliance with the emission standards contained in Conditions 23 through 27. CO shall be tested for the purpose of establishing a baseline for future emissions limitation determination. Additionally, the hot and cold side ESP efficiencies shall be determined during this performance testing and the secondary volts and current shall be recorded as the base line for monitoring the ESP operation. If the permittee determines that it is in the best interest of good air pollution control practices to utilize a lower sulfur coal than that required in condition 21, a test may be conducted to demonstrate the rate of dry sorbent injection necessary to provide the appropriate level of HCl and HF reduction to ensure compliance with the Significant Ambient Air Concentration values. The tests shall be performed and demonstrate compliance within 180 days after the effective date of this permit. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-40-30 and 9 VAC 5-60-30. The details of the tests are to be arranged with the Air Compliance Manager, NRO. The permittee shall submit a test protocol at least 30 days prior to testing. One paper copy and two electronic copies on removable media of the test results shall be submitted to the Air Compliance Manager, NRO within sixty days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-40-30 and 9 VAC 5-60-30)

34. **Visible Emissions Evaluation** – Concurrently with the initial performance tests, and during the Method 5 compliance demonstration test, a Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on each stack, C1, C2, C3, C4 and C5. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Air Compliance Manager, NRO of the DEQ. The permittee shall submit a test protocol at least thirty days prior to testing. The evaluation shall be performed, during compliance demonstration testing required in Condition 33. Should conditions prevent concurrent opacity observations, the Air Compliance Manager, NRO of the DEQ shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within thirty days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. The continuous opacity monitoring system may be used to satisfy the visible emission evaluation requirement in lieu of 40 CFR, Part 60, Appendix A, Method 9. In the event that the COMS is used in lieu of a 40 CFR, Part 60, Appendix A, Method 9 evaluation, the reported data shall include averages of all six minute continuous periods within the reported period and within the duration of any mass emission performance tests being conducted. One copy of the test result shall be submitted to the Air Compliance Manager, NRO of the DEQ within sixty days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-40-30)

CONTINUED COMPLIANCE

35. **Annual Compliance Testing**

a. The permittee shall demonstrate compliance on an annual basis with the limits in Conditions 23 through 28 utilizing appropriate 40 CFR Part 60, Appendix A reference test methods in the testing of PM-10, PM-2.5, HCl, HF, and Hg.

b. The hot and cold side ESP particulate removal effectiveness shall be determined during this performance testing and the secondary volts and current shall be recorded as the base line for continued monitoring of the ESP operation.

c. These tests shall be performed annually on two base load units and one cycling unit. Testing performed the next year shall be on at least two units that were not tested the previous year.

d. These tests shall be arranged with the Air Compliance Manager, NRO.

e. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-40-30 and 9 VAC 5-60-30.

f. The permittee shall submit a test protocol at least 30 days prior to testing.

g. One paper copy of the test results and two electronic copies, on removable media, of the test results shall be submitted to the Air Compliance Manager, NRO within sixty days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-40-30 and 9 VAC 5-60-30)

RECORDS

36. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. These records shall be maintained on site or in a data base accessible from the PRGS. The content and format of such records shall be arranged with the Air Compliance Manager, NRO. These records shall include, but are not limited to:

a. All fuel supplier certifications.

b. Annual emissions calculations for PM, PM-10, PM-2.5, HCl, HF, and VOC's in tons per year and Hg in pounds per year from the boilers using calculation methods approved by the Air Compliance Manager NRO to verify compliance with the ton/yr emissions limitations in Condition 30.

c. CEMS and COMS maintenance and calibration records including but not limited to continuous monitoring system quarterly gas audits and daily continuous monitoring system calibrations and calibration checks, percent operating time, and excess emissions.

d. All recorded CEMS and COMS data necessary to demonstrate compliance with the requirements of Conditions 14 and 16 and with the emission limitations outlined in Conditions 23 through 27.

e. Any required visible emissions evaluations (VEEs) and visible emission evaluation logbook data.

f. Operation and control device monitoring records for the electrostatic precipitators and fabric filters as required in Conditions 11, 17, 18 and 19.

g. All records of compliance demonstration, CEM certifications and CEM Relative Accuracy Audit Tests.

h. Scheduled and unscheduled maintenance and operator training.

i. The annual average sulfur content of coal shipped to the facility shall be calculated monthly as the average of each consecutive twelve month period.

j. Daily records of the operating scenarios under which the facility operated for each calendar day in a format approved by the Air Compliance Manager, NRO.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-80-890)

37. **CEMS/COMS Performance Evaluations** - Performance evaluations of the continuous monitoring systems shall be conducted in accordance with 40 CFR Part 60, Appendix B, and may take place during any performance tests conducted in accordance with 9 VAC 5-40-30 or within thirty days thereafter or as directed by the DEQ. Two copies of the performance evaluations report shall be submitted to the Air Compliance Manager, NRO within forty-five days of the evaluation. The continuous monitoring systems shall be installed and operational prior to conducting initial performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device. A thirty day notification, prior to the demonstration of continuous monitoring system's performance, and subsequent notifications shall be submitted to the Air Compliance Manager, NRO.
(9 VAC 5-50-40)

38. **CEMS/COMS Quality Control Program** - A CEMS/COMS quality control program which meets the requirements of 40 CFR 60.13 and Appendix B and/or F and 40 CFR Part 75 shall be

implemented for all continuous monitoring systems except that Relative Accuracy Test Audits (RATA) may be required less frequently if approved by DEQ.
(9 VAC 5-50-40)

REPORTING REQUIREMENTS

39. **Quarterly Reports for Continuous Monitoring Systems** - The permittee shall furnish written reports to the Air Compliance Manager NRO of excess emissions from any process monitored by a continuous monitoring system (COMS/CEMS) on a quarterly basis, postmarked no later than the 30th day following the end of the calendar quarter. These reports shall include, but are not limited to the following information:

    a. The magnitude of excess emissions, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions;

    b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the process, the nature and cause of the malfunction (if known), the corrective action taken or preventative measures adopted;

    c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and

    d. When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in that report.

    (9 VAC 5-40-50)

40. **Semi-Annual Report** - The permittee shall submit reports to the NRO within ~~thirty~~ sixty days after the end of each semi-annual period. The semi-annual periods are defined as January 1st through June 30th and July 1st through December 31st of each year. The permittee may submit the reports in electronic format as approved by the Air Compliance Manager, NRO, within thirty days after the end of each semi-annual period. Each semi-annual report shall include the dates included in the semi-annual period and the following:

    a. For SO_2, CO and NO_x emissions and continuous emissions monitoring:

        i. Each 30-day average emission rate in lbs/MMBtu;

        ii. Identification of days for which CO, SO_2, NO_x, either O_2, or CO_2 data have not been obtained by an approved method for at least 75 percent of operating hours, reasons for not obtaining sufficient data and corrective actions taken;

        iii. Identification of any time intervals when emissions data have been excluded from the

calculation of average emission rates, justification for excluding data and a description of corrective action taken if data have been excluded for periods other than when oil was not combusted in the unit;

iv. Identification of the F-factor used in calculations, method of determination for each type of fuel combusted, and type of fuel combusted;

v. Identification of any times when the pollutant concentration exceeded the full span of the continuous emissions monitor;

vi. Description of any modifications to the continuous emissions monitor that could effect its ability to comply with the performance specifications under 40 CFR 60, Appendices B and/or F; and

vii. Summary of the results of daily continuous emissions monitor drift tests and semi-annual accuracy assessments as required by 40 CFR 60, Appendix F, Procedure 1.

b. For visible emissions and opacity monitoring, the permittee shall report all excess opacity and the percentage of operating hours for which opacity monitoring data have not been obtained. If no excess opacity occurred or opacity monitoring data were obtained for all operating hours during the reporting period, the semi-annual report shall contain a statement as such. All semi-annual opacity monitoring reports shall conform to the Opacity Monitoring Report Format enclosed with this permit.

(9 VAC 5-170-160 and 9 VAC 5-40-50)

GENERAL CONDITIONS

41. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;

c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and

d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-130)

42. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown, soot blowing, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

    The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to boilers C1, C2, C3, C4 and C5 and electrostatic precipitators HSEP1, HSEP2, HSEP3, HSEP4, and HSEP5 and CSEP1, CSEP2, CSEP3, CSEP4, and CSEP5, and dry sorbent (Sodium sesquacarbinate) injection system:

    a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.

    b. Maintain a reasonable inventory of spare parts.

    c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.

    d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

    Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
    (9 VAC 5-50-20 E and 9 VAC 5-80-890)

43. **Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour or opacity in excess of 20% for any two consecutive, 6 minute periods. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.
    (9VAC 5-20-180 J)

44. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Air Compliance Manager NRO of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph or other electronic means acceptable to the DEQ. Such notification shall be made as soon as practicable but no later than four daytime business hours

after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Air Compliance Manager NRO. (9 VAC 5-20-180 C)

45. **Exceedance of Ambient Air Quality Standard** - Regardless of any other provision of this section, the owner of any facility subject to the Regulations for the Control and Abatement of Air Pollution shall, upon request of the board, reduce the level of operation at the facility if the board determines that this is necessary to prevent a violation of any primary ambient air quality standard. Under worst case conditions, the board may order that the owner shut down the facility, if there is no other method of operation to avoid a violation of the primary ambient air quality standard. The board reserves the right to prescribe the method of determining if a facility will cause such a violation. In such cases, the facility shall not be returned to operation until it and the associated air pollution control equipment are able to operate without violation of any primary ambient air quality standard. (9 VAC 5-20-180 I)

46. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the NRO of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-940)

47. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-170-180)

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Northern Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Mirant Potomac River Generating Station
Alexandria, Virginia
Permit No. 70228

State Operating Permit

October 19, 2007

I. Purpose

The Virginia Department of Environmental Quality (VDEQ) – Division of Air Quality has been requested by the State Air Pollution Control Board (Board) to develop a comprehensive State Operating Permit which establishes emission limitations for sulfur dioxide (SO_2), nitrogen oxides (NO_X), total particulate matter (PM), particulate matter equal to or less than ten microns (PM10), particulate matter equal to or less than two and one half microns (PM2.5), volatile organic compounds (VOC), carbon monoxide (CO), and the acid gases hydrochloric acid (HCl), and hydrogen fluoride (HF) on both a short-term and an annual basis that are protective of the National Ambient Air Quality Standards (NAAQS) for the operation of five coal-fired boilers at the Mirant Potomac River, LLC's Potomac River Generating Station (PRGS) facility. This document sets forth the background information used to create a record of the engineering evaluation for the proposed permit.

The emission limitations established in this permit have been demonstrated to be protective of the SO_2 3-hour, 24-hour, and annual NAAQS through the use of the most up to date version of AERMOD. The permit also requires the use of Continuous Emission Monitor Systems (CEMS) for SO_2, NO_X, (CO), carbon dioxide (CO_2) and/or oxygen (O_2), to demonstrate compliance with all emission limitations of this State Operating Permit.

II. Facility Background

The PRGS is a 482-MW electricity generating facility located on the Potomac River in Alexandria, Virginia. Mirant Potomac River, LLC (formerly Southern Energy Potomac River, LLC) purchased the PRGS from the Potomac Electric Power Company (PEPCO) in December 2000. Electricity generated at the facility is transmitted to the Pennsylvania/New Jersey/Maryland (PJM) distribution grid and services Washington D.C. for use by a variety of customers including federal agencies, businesses, residences, and the D.C. Water and Sewer Authority's Blue Plains Wastewater Treatment Plant.

The facility consists of five tangentially-fired boilers (designated as boilers C1, C2, C3, C4, and C5), each supplying steam to a boiler specific steam turbine connected to a dedicated electrical generator for that boiler. Each boiler utilizes coal as the primary which is delivered by rail car to the facility. Boilers C1 and C2 are cycling boilers that offer more flexibility in how they are dispatched. Cycling boilers can be brought online quickly to respond to increases in demand. Boilers C3, C4 and C5 are considered base load boilers and are called into service more often than boilers C1 and C2. The base load boilers typically run 24 hours a day. In addition to the primary fuel, No. 2 fuel oil is stored in two aboveground storage tanks and is used to provide ignition, warm-up, and flame stabilization for the boilers.

Each boiler's gas stream is discharged into the atmosphere through a dedicated stack for that boiler. The five stacks are identical and are each 161 feet above ground level.

Summary of PRGS Combustion Boilers

Boiler ID	Manufacturer	Description	Maximum Rated Input Heat Capacity (MMBtu/hr)	Generation Capability (MW)	Began Service
C1	Combustion Engineering, Inc.	Natural circulation, tangentially coal-fired with superheater and economizer	1053	93	1949
C2	Combustion Engineering, Inc.	Natural circulation, tangentially coal-fired with superheater and economizer	1029	93	1950
C3	Combustion Engineering, Inc.	Controlled circulation, tangentially coal-fired with superheater, single reheater and economizer	1018	108	1954
C4	Combustion Engineering, Inc.	Controlled circulation, tangentially coal-fired with superheater, single reheater and economizer	1087	108	1956

C5	Combustion Engineering, Inc.	Controlled circulation, tangentially coal-fired with superheater, single reheater and economizer	1107	108	1957

The facility is a Title V major source of sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter equal to or less than ten microns in diameter (PM10), and carbon monoxide (CO). This facility is also located in a nonattainment area for the 8-hour ozone standard ("moderate" classification) and a nonattainment area for particulate matter equal to or less than 2.5 microns in diameter (PM2.5) (no classification assigned by EPA at this time). The area is in attainment of the standards for all other pollutants. The VDEQ Northern Regional Office is currently drafting the Title V permit and Statement of Basis for the facility.

Because the boilers were constructed between 1949 and 1957 and the requirements of 40 CFR 60, Subparts, D, Da, and Db were not effective for units earlier than August 17, 1971, these units are "grandfathered", therefore there are no NSR permits applicable to this source. The facility entered into a consent order with VDEQ on July 10, 1998, to establish Reasonable Available Control Technology (RACT) for NO_x as required by the Virginia State Implementation Plan. A state operating permit dated June 5, 2000, was issued to the facility to establish RACT for VOC. The facility is also regulated under a Phase II Acid Rain Permit dated February 28, 2003, and a State Operating Permit dated September 29, 2000, for control of NO_x during the ozone control season, May 1st through September 30th. In 2005 the facility submitted modeling results from the "downwash study" which indicated an exceedance of the SO2 NAAQS. As a result of this modeling result the facility was issued a administrative consent order by EPA which required that modeling be conducted each day and the operational scenarios developed for the following day's operation which would insure that the NAAQS would not be exceeded. This operational requirement expired on May 31, 2007 and VDEQ issued a State Operating Permit dated June 1, 2007, that sets hourly limits on SO_2 and an annual SO_2 limit of 3813 tpy.

II. Pollution Controls

Each boiler (C1, C2, C3, C4, and C5) has a hot-side and a cold-side electrostatic precipitator (ESP) on its boiler exhaust gas stream to control particulate emissions.

Mirant installed Low-NO_x Burners (LNB) on all boilers (C1, C2, C3, C4, and C5) and Separated Over-Fire Air (SOFA) technology on boilers C3, C4, and C5 as a result of a 2004 judicial consent decree. This consent decree became enforceable on April 20, 2007.

The use of LNBs limits the formation of NO_x by controlling the stoichiometric and temperature profiles of the combustion process in each burner zone. Emissions are controlled by the design of the LNB which may reduce oxygen levels in the combustion

zone (limits fuel NO_x formation), reduce flame temperature (limits thermal NO_x formation), and/or reduce residence time at peak temperature (limits thermal NO_x formation).

SOFA is a technique that involves removing a percentage of combustion air and adding excess air above the burners. This limits thermal NO_x by partially delaying and extending the combustion process resulting in less intense combustion and lower flame temperatures. It also suppresses the fuel NO_x formation by reducing the concentration of air in the combustion zone where volatile fuel nitrogen is evolved. SOFA can reduce NO_x by 20 to 30 percent from uncontrolled levels and can be turned off.

Beginning in 2005 Mirant employed the use of Trona to reduce SO_2 emissions from the facility, which dispersion modeling had shown to be a contributor to a predicted exceedance of the NAAQS. Trona is a naturally occurring mineral (sodium sesquicarbonate), which is non-flammable and similar to baking soda. It has been used in dry sorbent injection systems where it reacts with acid gases to form a non-corrosive product that will not damage the equipment. When injected into the combustion exhaust gas stream, the dry powder also forms a bond with SO_2. The compounded particulate material is then removed from the exhaust gas by existing emissions control equipment and collected with the ash. Test results at PRGS indicate that Trona injection could consistently remove a significant portion of the SO_2 from exhaust gas, increase the efficiency of the control device in reducing particulate emissions, and provide a reduction in the acid gases HCl and HF. Particulate matter can also form in the atmosphere with the emitted gases, such as sulfur dioxide which will condense to create sulfate particles; so when the amount of sulfur dioxide decreases, the amount of condensable particulate matter is reduced accordingly.

III. Permit Description

Permit Condition	Purpose and Basis of the Condition
1.	Specifies the emitting boilers to which the permit conditions apply. In this case, the boilers are all of the boilers supplying steam for electric power generation.
2.	The type of NO_X emissions control (low-NO_X burners) required for boilers C1 and C2 are specified in this condition.
3.	The type of NO_X emissions control (low-NO_X burners and separated over-fire air; SOFA), required by the Consent Decree, that has been installed on C3, C4, and C5 are specified in this condition.
4.	Describes the emission control for SO_2 and acid gases.
5.	Describes the emission controls for PM from the boilers C1 through C5.
6.	Describes the emission controls for PM from the two fly ash silos.

7. Describes the emission controls for PM from the bottom ash silo.

8. Describes the emission controls for PM from fly ash and bottom ash truck transfer operation.

9. Describes the emission controls for PM from the coal handling operations.

10. Describes the emission controls for PM from the dry sorbent handling systems.

11. Describes the electrostatic precipitator's designations and operational requirements.

12. Describes the fugitive dust control requirements for the facility.

13. States compliance with opacity limits in the State Operating Permit may be determined by continuous opacity monitoring. Mirant already has continuous opacity monitors and with the recent incorporation in the Virginia regulations the opacity monitors may now be used as a direct compliance tool.

14. States that compliance will be determined by continuous emissions monitoring and specifies the requirements for installation, operation, maintenance, and quality assurance of the CEMS. Mirant already has CEMS for purposes of determining compliance with Acid Rain and reasonably available control technology (RACT) provisions of the Clean Air Act. Monitoring requirements for the Acid Rain provisions of the Clean Air Act are covered in Part 75 of Title 40 of the Code of Federal Regulations (CFR). To maintain consistency between Mirant's obligation to meet the Acid Rain requirements for CEMS and those of this permit, this condition also requires that the monitoring be done in accordance with Part 75.

15. Requires the installation, operation, maintenance, and quality assurance for CO CEMS. Also, within this condition there is a requirement to collect six months of CO data to be used in establishing a permitted CO emission limit.

16. States that the permittee must calculate monthly emissions of pollutants which do not have CEMS from each of the boilers C1 through C5 to determine compliance with the boiler specific limitations of Conditions 23 through 27.

17. Sets the requirement to operate, maintain, and record the pressure drop across the fabric filters installed on the fly ash and bottom ash silos.

18. Requires that the permittee conduct a condition assessment of the hot and cold side ESPs on a daily basis. This assessment is required to insure that the ESPs are in proper operating condition.

19. Requires the permittee to make daily evaluations of the monitoring devices installed to insure the proper operation and that all emission sources are within the limits set forth in this State Operating Permit. This condition also specifies corrective action to be taken by the permittee should malfunctions or exceedance be discovered.

20. Specifies the approved fuel.

21. Sets the specification of all fuels and the analysis method accepted by DEQ.

22. Requires the permittee to obtain and maintain fuel certifications from the fuel suppliers. The information required in this certification is also delineated.

23. Establishes the emission limits for boiler C1. Emissions are prescribed specific to the pollutant and the averaging period for that pollutant. These limits are derived from the estimated overall emission contribution from the operating limits. Emission limitations for SO_2 have been established based on the most up to date atmospheric dispersion modeling utilizing AERMOD (Model Version 07026) and uses (Equivalent Building Dimensions) as input to the model. The EBD were derived from a wind tunnel study which was specific to the building configuration at PRGS.

24. Establishes the emission limits for boiler C2. Emissions are prescribed specific to the pollutant and the averaging period for that pollutant. These limits are derived from the estimated overall emission contribution from the operating limits. Emission limitations for SO_2 have been established based on the most up to date atmospheric dispersion modeling utilizing AERMOD (Model Version 07026) EBD (Equivalent Building Dimensions). This version of AERMOD utilizes building cavity algorithms derived from a wind tunnel study which was specific to the building configuration at PRGS.

25. Establishes the emission limits for boiler C3. Emissions are prescribed specific to the pollutant and the averaging period for that pollutant. These limits are derived from the estimated overall emission contribution from the operating limits. Emission limitations for SO_2 have been established based on the most up to date atmospheric dispersion modeling utilizing AERMOD (Model Version 07026) EBD (Equivalent Building Dimensions). This version of AERMOD utilizes building cavity algorithms derived from a wind tunnel study which was specific to the building configuration at PRGS.

26. Establishes the emission limits for boiler C4. Emissions are prescribed specific to the pollutant and the averaging period for that pollutant. These limits are derived from the estimated overall emission contribution from the operating limits. Emission limitations for SO_2 have been established based on the most up to date atmospheric dispersion modeling utilizing AERMOD (Model Version 07026) EBD (Equivalent Building Dimensions). This version of AERMOD utilizes building cavity algorithms derived from a wind tunnel study which was specific to the building configuration at PRGS.

27. Establishes the emission limits for boiler C5. Emissions are prescribed specific to the pollutant and the averaging period for that pollutant. These limits are derived from the estimated overall emission contribution from the operating limits. Emission limitations for SO_2 have been established based on the most up to date atmospheric dispersion modeling utilizing AERMOD (Model Version 07026) EBD

(Equivalent Building Dimensions). This version of AERMOD utilizes building cavity algorithms derived from a wind tunnel study which was specific to the building configuration at PRGS.

28. Establishes the emission limits while the facility is operating under a multiple boiler operating scenario. This condition would establish the emission limits for the facility in most situations since the facility rarely operates only one boiler. SO_2 emission limitations have been established for a variety of boiler operating scenarios in this condition of the State Operating Permit. These limits are derived from the estimated overall emission contribution from the operating limits. The emission limitations established in this permit have been demonstrated to be protective of the SO_2 3-hour, 24-hour, and annual National Ambient Air Quality Standards through the use of the most up to date version of AERMOD.

Emissions limitations for NO_X, PM, PM10, PM2.5, volatile organic compounds (VOC), carbon monoxide (CO), hydrochloric acid (HCl), and hydrogen fluoride (HF) were developed using the worst-case scenario of operating combination of boilers which would exhibit the highest ambient impact and are described in this condition and in Condition 30 of this State Operating Permit. A more detailed discussion of the development of the modeling for this condition will be discussed in Attachment A.

29. Requires the permittee to calculate the annual emissions from the boilers C1 through C5, in tons per year, to demonstrate compliance with the limits in Condition 30.

30. Establishes the annual emissions allowed for the facility. These limits are derived from the estimated overall emission contribution from the operating limits. Annual emissions are capped at 3,813 tons of SO_2 from the facility as established in the June 1, 2007 State Operating Permit and set out in Condition 30 of this State Operating Permit. Additionally, annual emissions of NO_X are capped at 3,700 tons per year from the facility and are set out in Condition 30 of this State Operating Permit. Furthermore, the facility is limited to 1,600 tons of NO_X during the ozone seasons (effective until December 31, 2008). These conditions are set in Condition 30 of this State Operating Permit.

31. Establishes the visible emission limit for the bottom ash silo based on the fabric filter venting directly to the atmosphere. This is not the case for the two fly ash silos since the exhaust from these fabric filters are directed to the boiler C1 ESP and therefore do not exhaust directly into the atmosphere.

32. Establishes visible emission limits for boilers C1 through C5 and the methods to be used in this determination. With the adoption of the Virginia law effective July 2007, the use of COMS as a direct compliance tool is specified in this condition.

33. Defines performance testing, notification, and reporting requirements of boilers C1 through C5 for pollutants which are not being monitored on a continuous basis using CEMS. Additionally, there are specific requirements for data collection during the performance test which will be used as future surrogate to determine control device operation. Also, should the permittee elect to use a lower fuel sulfur content in the coal, there are specific requirements defined for the approval of this fuel switch.

34. Defines initial visible emission evaluation procedures for boilers C1 through C5. The optional methods, as stated earlier, are allowed in this condition and the notification and reporting requirements are established.

35. Establishes the requirements for annual performance testing along with reporting requirements.

36. Defines and establishes the requirement for record keeping. A proposed listing of records to be maintained by the facility and the authority to use off-site electronically stored data is included, as long as the data is accessible from the facility.

37. Defines the prerequisites of the CEMS performance evaluations along with reporting and logistical requirements for completing this testing program.

38. Establishes quality control requirements for the CEMS.

39. Defines the minimum quarterly reporting requirements.

40. Defines the minimum semi-annual reporting requirements.

41. Authorizes local, state, and federal representatives the right to enter the facility to assess the status of compliance.

42. Requires the facility to operate and maintain the boilers and emission control equipment in a manner consistent with good air pollution control practices for minimizing emissions as defined in this permit. Within this condition the permittee is required to maintain records and parts to meet the intent of the condition.

43. Requires maintenance of records of occurrences and duration of specific conditions which would result in an emission exceedance of a specific duration and any action resulting from this activity.

44. Requires the permittee to notify VDEQ of any equipment or control equipment malfunctions and sets the time requirements and information to be included for these notifications.

45. Requires the permittee to reduce the level of operation or shut down the boilers if the Board determines this is necessary to prevent the violation of any NAAQS.

46. Requires that the permittee notifies any new owner of the facility about this permit and sends a copy of the notice to VDEQ. The VDEQ would then make the

necessary administrative amendments to the permit to show that it is transferred to the new owner.

46. States that a copy of the permit must remain on the premises. Besides being a regulatory requirement, it serves as a reminder to the facility staff of other obligations as well as assuring the availability of inspection of the permit by DEQ personnel and others.

IV. Best Available Control Technology Review (BACT) Applicability (9 VAC 5-50-260)

A BACT applicability evaluation is not required for State Operating Permits.

V. New Source Performance Standards (NSPS)-9 VAC 5 Chapter 50, Part II, Article 5

The PRGS is not subject to 40 CFR 60 Subpart D – Fossil Fuel Steam Generators or to Subpart Da – Electric Utility Steam Generating Units. Both NSPS apply to fossil fuel-fired steam generators that are greater than 250 MMBtu/hr and that commenced construction or modification after August 17, 1971, for Subpart D and September 18, 1978, for Subpart Da. Additionally, the PRGS is not subject to 40 CFR Subpart Db because all of the boilers began construction prior to June 19, 1984. All five boilers at the PRGS were constructed between 1949 and 1957 and have not previously been subject to either NSPS. Modification is defined in the NSPS regulations as physical or operational changes that result in an increase in hourly rates of emissions.

VI. National Emission Standards for Hazardous Air Pollutants (NESHAPS) - 9 VAC 5 Chapter 60, Part II, Article 1 –

There is no applicable NESHAP for steam generating units.

VII. Maximum Achievable Control Technology (MACT) - 9 VAC 5 Chapter 60, Part II, Article 2

There are no applicable MACT requirements for steam generating units.

Future Applicable Requirements

The PRGS will be subject to the NOx requirements of the Clean Air Interstate Rule (CAIR) on January 1, 2009. The Clean Air Mercury Rule (CAMR) and the SO_2 requirements of CAIR are effective on January 1, 2010. Under Phase I of CAIR, the facility will be allocated 711 tons of NO_x emissions during the ozone season, 1,734 tons of NO_x annually, and 6,025 tons of SO_2 annually. The facility will be allocated 72.37 lbs of mercury under Phase I of CAMR.

The facility will not be subject to the requirements of Best Available Retrofit Technology (BART) in EPA's Regional Haze Rule because all boilers were constructed between 1949

and 1957 and the BART applies to units constructed after August 7, 1962 but prior to August 7, 1977.

VIII. Toxic Pollutants

The facility is not subject to the state toxics rule. Regulation 9 VAC 5-60-300 C.5 exempts stationary sources that EPA has made a formal determination will not be regulated under §112 of the Clean Air Act. The facility will be subject to CAMR which is established under §129.

IX. Title V Review - 9 VAC 5 Chapter 80, Article 1

The facility is a Title V major source of sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM10), and carbon monoxide (CO). The VDEQ-Northern Virginia Regional Office is currently drafting the Title V permit and Statement of Basis for the facility. All applicable requirements resulting from this State Operating Permit will be incorporated into the Title V permit.

X. Public Participation

Following a 30 day comment period, a public hearing will be held. The public comment period will begin on October 19, 2007, and conclude at the end of the public hearing on November 19, 2007.

APPENDIX A
MODLEING MEMORANDUM

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Air Data Analysis and Planning

629 East Main Street, Richmond, VA 23219
8th Floor **804/698-4000**

To: Terry Darton, Air Permit Manager (NRO)

From: Mike Kiss, Coordinator - Air Quality Assessments Group (AQAG)

Date: October 18, 2007

Subject: Virginia Department of Environmental Quality (DEQ) Technical Review of the Air Quality Analyses in Support of the "Existing 5-Stack" Comprehensive State Operating Permit for the Mirant – Potomac River Generating Station (PRGS)

Copies: Tamera Thompson

1. Project Background

Mirant Potomac River, LLC (Mirant) submitted a modeling analysis (conducted by its consultant ENSR) of the PRGS on September 25, 2007 pursuant to a request from the Department of Environmental Quality (DEQ). The modeling assessment was performed to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) for criteria pollutants (SO_2, NO_2, PM_{10} and CO) and to evaluate impacts from toxic pollutants (HCl, HF and Hg). Amendments to the modeling analysis were received by DEQ on September 26 and 28, 2007 and October 2 and 3, 2007. The results of these analyses will be used to support permit development.

This memo documents the procedures and results of the modeling analysis conducted for the existing 5-stack plant configuration.

2. Modeling Methodology and Results

All air quality modeling analyses conducted conform to 40 CFR Part 51, Appendix W - Guidelines on Air Quality Models. The modeling analysis generally conforms to the framework established in a protocol dated *Revised Protocol for Modeling Ambient Pollutant Concentrations from the Existing Stacks and from the Proposed Stack Merge Project at the Potomac River Power Plant (July 2007).*

Dispersion modeling was conducted for the existing 5-stack configuration. Continuous emissions monitor (CEM) data and Relative Accuracy Test Audit (RATA) data were reviewed for 2004-2006, and the most representative data were selected for stack parameters to use in the modeling. Specifically, the annual CEM data was reviewed to find the year in which the worst-case flow occurred and was consistent (either all high or low) for the three load ranges tested. Once the year was determined, RATA results were reviewed to find the years in which the flows were consistent in their relative accuracies. By this, staff reviewed the monitor accuracy relative to the EPA reference method and determined which years the monitors were consistently in the same direction (i.e., the bias adjustment factor affected each load range in the same direction, all flow data was either corrected up or down) and in those years in which all three load ranges were tested. Once all this information was matched it was determined that for units C1 and C2 the most representative year of data was 2004 and for units C3, C4, and C5, the most representative year was 2005. This grouping had nothing to do with cycling vs. base load units and was strictly a coincidence. Additional technical information on stack parameters and CEM data are provided in Attachment A.

Each pollutant modeled for the existing 5-stack plant configuration is discussed in detail below. Several load scenarios were modeled, including minimum, mid-range and maximum load conditions.

2.1.1. Sulfur Dioxide (SO_2)

The following six-step process was used to evaluate compliance with the SO_2 NAAQS and to identify the associated complying emission rates:

1. Twenty-five separate scenarios varying the units operating were developed to model PRGS. Within those twenty-five scenarios, additional cases varying the hours of operation for each unit were developed, for a total of 120 modeled cases.

2. The 120 cases were modeled to develop a complying lb SO_2/MMBtu emission rate for each case. Complying emission rates were based on the following short-term concentration thresholds:

   3-Hour: 1300 $\mu g/m^3$ (NAAQS) – 175 $\mu g/m^3$ (Monitored Background) = 1124 $\mu g/m^3$
   24-Hour: 365 $\mu g/m^3$ (NAAQS) – 55 $\mu g/m^3$ (Monitored Background) = 310 $\mu g/m^3$

3. It was necessary to include nearby sources that could cause a significant concentration gradient in the vicinity of PRGS in addition to adding the aforementioned background air

quality values. To reduce model run time, the following cases, which produced the most restrictive 3-hour and 24-hour complying rates, were selected for cumulative SO_2 modeling:

Ground Level Receptors	3-hour: Case 7d, 0.35 lb/MMBtu 24-hour/Annual: Case 7d, 0.36 lb/MMBtu
Marina Towers Receptors	3-hour: Case 7a, 0.27 lb/MMBtu 24-hour/Annual: Case 7f, 0.23 lb/MMBtu

It is important to note that previous modeling indicated that 24-hour complying emission rates were more restrictive than annual emission rates; therefore, modeling for the annual averaging period assumed 24-hour complying rates.

4. PRGS was modeled along with the SO_2 cumulative emissions inventory at receptors within 50 kilometers (km) where PRGS had a significant concentration to determine any potential NAAQS violations.

5. The most restrictive PRGS emission rates produced some modeled NAAQS violations where PRGS significantly contributed; therefore, new complying PRGS emission rates were determined to eliminate predicted violations or reduce PRGS impacts to less than the SO_2 Significant Impact Level (SIL). The following new complying rates were found:

Ground Level Receptors	3-hour: Case 7d, reduced by 29% to 0.25 lb/MMBtu 24-hour: Case 7d, reduced by 8% to 0.33 lb/MMBtu Annual: Case 7d, reduced to 0.29 lb/MMBtu
Marina Towers Receptors	3-hour: Case 7a, 0.27 lb/MMBtu (no change, no violations) 24-hour: Case 7f, reduced by 9% to 0.21 lb/MMBtu Annual: Case 7f, 0.23 lb/MMBtu (no change, no violations)

Cumulative modeling results can be found in Attachment B (SO2_Cumulative_Inventory_Results_DEQ.xls).

6. Emission rates for the remainder of the 120 modeling cases were reduced by the percentages listed above. Final complying lb/MMBtu emission rates (including the reductions) and associated lb/hr and tpy rates are shown in Attachment B (SO2_ExistingStacks_DEQ.xls).

2.1.2. Particulate Matter (PM_{10})

The following three-step process was used to evaluate compliance with the PM_{10} NAAQS and to identify the associated complying emission rates:

1. To reduce the total number of PM_{10} modeling runs (and expedite model run time), PRGS was modeled assuming the most restrictive 24-hour SO_2 modeling cases shown below:

Ground Level Receptors	Case 7d, stacks at 0.055 lb/MMBtu, fugitive emissions at 3/5 total (only 3 units operate for this case)
Marina Towers Receptors	Case 7f, stacks at 0.055 lb/MMBtu, fugitive emissions at 3/5 total (only 3 units operate for this case)

   NAAQS compliance was demonstrated based on the following concentration threshold:
   150 $\mu g/m^3$ (NAAQS) – 40 $\mu g/m^3$ (Monitored Background) = 110 $\mu g/m^3$

   Modeling results for PRGS sources alone can be found in Attachment B (PM10_ExistingStacks_DEQ.xls).
2. PRGS was modeled with the PM_{10} "mini" cumulative inventory at receptors within the Significant Impact Area (SIA) and with increased receptor spacing at the ground level to determine the maximum impact location. The "mini" inventory was defined as all background sources with emissions greater than 1 gram per second. The number of receptors and cumulative inventory sources were reduced in this step to expedite model run time.

3. PRGS was modeled with the full PM_{10} cumulative inventory at receptors around the maximum impact locations found above to ensure maximum impacts were resolved to 100 meters. NAAQS compliance was demonstrated.

   Cumulative modeling results can be found in Attachment B (PM10_Cumulative_Inventory_Results_DEQ.xls).

2.1.3. Nitrogen Dioxide (NO_2)

The following process was used to evaluate compliance with the NO_2 NAAQS and to identify the associated complying emission rates:

1. To reduce the total number of model runs, NO_2 modeling of the **merged stack** cases listed below is assumed to demonstrate NAAQS compliance for the "existing stack" scenario. Merged cases 1c-1e are more conservative than any of the existing stack cases because all five units are assumed to be operating, whereas the maximum number of units operating for any given existing stack case is three. Furthermore, because dispersion credit for the stack merge project cannot be given to NO_2,each of the five units was modeled assuming existing stack parameters at the merged stack locations. This is more conservative than modeling a total of three units operating assuming existing stack parameters and existing stack locations.

Ground Level Receptors &	Merged Case 1c, 0.32 lb/MMBtu
Marina Towers Receptors	Merged Case 1d, 0.32 lb/MMBtu
	Merged Case 1e, 0.32 lb/MMBtu

   Modeling results for PRGS sources alone can be found in Attachment B (NOx_Results_DEQ.xls).

2. To reduce model run time, the worst of the above merged stack cases was chosen for cumulative NO_2 modeling:

Ground Level Receptors	Merged Case 1d, 0.32 lb/MMBtu
Marina Towers Receptors	Merged Case 1e, 0.32 lb/MMBtu

   PRGS was modeled along with the NO_2 cumulative emissions inventory at receptors within 50 km where PRGS had a significant concentration. NAAQS compliance was demonstrated.

   Cumulative modeling results can be found in Attachment B (NOx_Cumulative_Inventory_Results_DEQ.xls).

2.1.4. Carbon Monoxide

Due to concerns raised about CO emission factors, an evaluation of available CO test data was conducted. The table below shows all the CO data recorded during particulate matter tests conducted in November and December 2006. Tests were conducted on Unit C2 and Unit C3. The highest test-average CO for each unit is highlighted in the table: 539 ppmv for Unit C2 and 1,040 ppmv for Unit C3.

CO Data from PRGS Particulate Matter Testing (December 2006)

	Unit C2		Unit C3	
Test #	1-Min Max ppm	Test Avg ppm	1-Min Max ppm	Test Avg ppm
1	212	9	1490	1019
2	20	-4	681	359
3	39	0	690	481
4	614	476	615	429
5	306	100	649	485
6	291	111	1484	258
7	237	61	1490	1040
8	109	53	681	366
9	212	10	689	472
10	39	-2	615	435
11	614	427	649	484
12	306	99	1484	262
13	291	107	1324	946
14	66	54	681	401
15	109	53	689	527
16	212	21.9	615	422
17	39	-1	649	483
18	614	539	320	240
19	306	104		
20	291	104		
21	60	55		
22	109	55		

The maximum test-average CO value recorded for Unit C2 (539 ppmv) is lower than the value used in the original 2005 "downwash study". As a result, it was decided to continue to use the 2005 values for modeling Units C1 and C2 (680.9 and 688.6 respectively). The test-average CO values recorded for Unit C3 are higher than the values used in the August 2005 study, therefore the highest 2006 test-average CO (1,040 ppmv) has been selected for modeling Units C3, C4 and C5. It is also important to note that it is not appropriate to use the single-minute data points in modeling NAAQS standards that are at least one-hour averages or longer.

As with NO_2, dispersion credit for the stack merge project cannot be given for CO. Thus, PRGS was modeled assuming **merged stack** cases 1c-1e, with existing stack parameters and merged stack locations, which is more conservative than any existing stack modeling case. NAAQS compliance was demonstrated.

Modeling results can be found in Attachment B (CO_Results_DEQ.xls).

2.1.5. Toxics (Mercury (Hg), Hydrochloric Acid (HCl) and Hydrogen Fluoride (HF))

Hg, HF and HCl were modeled using maximum 1-hour average emissions. Hg was also modeled using annual average emissions. Impacts were compared to DEQ's Significant Ambient Air Concentrations (SAAC).

Maximum 1-hour emissions for HCl and HF were calculated using the maximum heat input and lb/MMBtu emissions factors developed from stack testing conducted in December 2006. The emission rates used from the stack test data are as follows:

- HCl = 0.00112 lb/MMBtu (Trona on) – 0.09 lb/MMBtu (Trona off)
- HF = 0.000776 lb/MMBtu

Modeling indicates that compliance with the SAAC can be achieved with the following emission rates:

- HCl = 0.021 lb/MMBtu
- HF = 0.0076 lb/MMBtu

It is understood that Trona preferentially controls HCl over SO_2. In order to achieve the aforementioned toxic pollutant complying emission rates, HCl would have to be controlled by at least 77% ((0.09 lb/MMBtu – 0.021 lb/MMBtu / 0.09 lb/MMBtu) x 100). Testing performed at PRGS on Unit C3 December 14, 2006 indicated that Trona injection controlled HCl by 98.7%. During this testing, SO_2 emissions were at 0.29 lb/MMBtu which corresponds to an approximate SO_2 control of 75%. Under all anticipated operating scenarios there is significant excess Trona, on the order of a factor of 10, as would be required to completely react with HCl. Therefore, at least 95 - 99% HCl control is anticipated under all operating scenarios. For example, even assuming 50% SO_2 control, 95 – 99% HCl control is anticipated.

Hg modeled impacts were well below the hourly or annual SAAC for Hg. All toxic pollutant modeling results can be found in Attachment B (AcidGases_ExistingStacks_DEQ.xls and Hg_Results_DEQ.xls).

3. Conclusions

Based on DEQ's review of the modeling analyses, the proposed permit limits would not cause or significantly contribute to a predicted violation of any applicable NAAQS. Attachment B summarizes the proposed complying emission rates for individual units as well as approved combinations of units.

ATTACHMENT B
PRGS PERMIT LIMITS

23. **Process Emission Limits** - Emissions from the operation of the boiler C1 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu (unless noted otherwise)	lbs/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	57.92	1,389.96
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	57.92	1,389.96
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	57.92	1389.96
Sulfur Dioxides (SO_2)	0.99 3 hr block avg	0.99	1,042.47 3 hr block avg	25,019.28
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		336.96 30 day rolling avg	
Carbon Monoxide (CO)	680.90 ppmv 3 hr avg		714.93 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.21	
Hydrogen Chloride	0.021		22.11	
Hydrogen Fluoride	0.0076		8.00	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

24. **Process Emission Limits** - Emissions from the operation of the boiler C2 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lb/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	56.60	1,358.28
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	56.60	1,358.28
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	56.60	1,358.28
Sulfur Dioxides (SO_2)	1.02 3 hr block avg	0.90	1,049.58 3 hr block avg	22,226.40
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		329.28 30 day rolling avg	
Carbon Monoxide (CO)	688.60 ppmv 3 hr avg		732.99 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.12	
Hydrogen Chloride	0.021		21.61	
Hydrogen Fluoride	0.0076		7.82	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

25. **Process Emission Limits** - Emissions from the operation of the boiler C3 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lb/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	55.99	1,343.76
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	55.99	1,343.76
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	55.99	1,343.76
Sulfur Dioxides (SO_2)	0.80 3 hr block avg	0.66	814.40 3 hr block avg	16,125.12
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		325.76 30 day rolling avg	
Carbon Monoxide (CO)	1,040.00 ppmv 3 hr avg		1,033.67 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.07	
Hydrogen Chloride	0.021		21.38	
Hydrogen Fluoride	0.0076		7.74	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

26. **Process Emission Limits** - Emissions from the operation of the boiler C4 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lbs/MMBtu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	59.79	1,434.84
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	59.79	1,434.84
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	59.79	1,434.84
Sulfur Dioxides (SO_2)	0.77 3 hr block avg	0.60	836.99 3 hr block avg	15,652.80
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		347.84 30 day rolling avg	
Carbon Monoxide (CO)	1040.00 ppmv 3 hr avg		994.79 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.35	
Hydrogen Chloride	0.021		22.83	
Hydrogen Fluoride	0.0076		8.26	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

27. **Process Emission Limits** - Emissions from the operation of the boiler C5 shall not exceed the limits specified below:

Pollutant	lbs/MMBtu	lbs/MM Btu 24 hr block avg	lbs/Hour	lbs/Day 24 hr block avg
Particulate Matter (PM) including condensable PM	0.055 3 hr block avg	0.055	60.89	1,461.24
PM-10 including condensable PM-10	0.055 3 hr block avg	0.055	60.89	1,461.24
PM-2.5 including condensable PM-2.5	0.055 3 hr block avg	0.055	60.89	1,461.24
Sulfur Dioxides (SO_2)	0.70 3 hr block avg	0.53	774.90 3 hr block avg	14,081.04
Oxides of Nitrogen (as NO_2)	0.32 30 day rolling avg		354.24 30 day rolling avg	
Carbon Monoxide (CO)	1040.00 ppmv 3 hr avg		968.75 30 day rolling avg	
Volatile Organic Compounds (VOC)			4.43	
Hydrogen Chloride	0.021		23.25	
Hydrogen Fluoride	0.0076		8.41	

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16. This Condition does not relieve the requirement to comply with the operating scenario limits in Condition 28.
(9 VAC 5-80-850)

28. **Process Emission Limits – Multiple Operating Scenarios** - Emissions for the operation of combination unit operations shall not exceed the limits specified below.

The operating scenarios listed below may be expanded as Mirant has suggested that there are additional scenarios that they would like to propose that will be NAAQS complaint and will provide the facility with additional flexability.

Operating Scenario	**SO_2 3 hr block avg lbs/MMBtu per unit**	**SO_2 3 hr block avg lbs/Hr**	**SO_2 24 hr block avg lbs/MMBtu**	**SO_2 24 hr block average lbs/Day**
2 cycling	0.50	1,041.00	0.48	23,984.64
2 base	0.37	811.78	0.28	14,743.68
1 cycling/1 base	0.42	907.20	0.36	18,662.40
2 cycling/ 1 base	0.29	924.81	0.27	20,664.72
1 cycling/ 2 base	0.27	876.69	0.23	17,923.44
3 base	0.25	803.00	0.21	16,188.48

Operating Scenario	PM 1 hr avg Lb/MM Btu	PM 1 hr avg Lb/Hr	PM 24 hr block avg Lb/MM Btu	PM 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	PM_{10} 1 hr avg Lb/MM Btu	PM_{10} 1 hr average Lb/Hr	PM_{10} 24 hr block avg Lb/MM Btu	PM_{10} 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	$PM_{2.5}$ 1 hr average Lb/MM Btu	$PM_{2.5}$1 hr avg Lb/Hr	$PM_{2.5}$ 24 hr block avg Lb/MM Btu	$PM_{2.5}$ 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	NOx 1 hr avg Lb/MM Btu (30-day rolling avg.)	NOx 1 hr avg Lb/Hr (30 day rolling avg)	NOx 24 hr average Lb/MM Btu	NOx 24 hr average Lb/Day
Max value for any case	0.32	1,039.04		

Operating Scenario	CO 1 hr avg Lb/MM Btu	CO1 hr avg Lb/Hr	CO 24 hr block avg Lb/MM Btu	CO 24 hr block avg Lb/Day
Max value for any case		2,997.20		

Operating Scenario	HCl 1 hr avg Lb/MM Btu	HCl 1 hr avg Lb/Hr	HCl 24 hr average Lb/MM Btu	HCl 24 hr avg Lb/Day
Max value for any case	0.021	68.19		

Operating Scenario	HF 1 hr avg Lb/MM Btu	HF1 hr avg Lb/Hr	HF 24 hr avg Lb/MM Btu	HF 24 hr avg Lb/Day
Max value for any case	0.0076	24.68		

These tables were developed using the worst case scenario of operating combination of units which would exhibit the worse case emissions.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 14 and 16.
(9 VAC 5-80-850)

PUBLIC NOTICE
FOR COMMENT ON A DRAFT STATE OPERATING PERMIT FOR THE MIRANT POTOMAC RIVER LLC's POTOMAC RIVER GENERATING STATION RECOMMENDED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Public Notice Date: October 19, 2007

The Northern Regional Office of the Department of Environmental Quality requests public comment on a draft State Operating Permit for the Mirant Potomac River LLC's, Potomac River Generating Station as recommended to the State Air Pollution Control Board on October 10, 2007.

Source Name:	Potomac River Generating Station
Registration No.:	70228
Mailing Address and Location:	1400 N. Royal Street Alexandria, Virginia

The draft State Operating permit will impose requirements upon the operation of the facility. Included in the operating requirements are:

1. the use of low NO_x burners on units C1, C2, C3, C4 and C5 and Selective Over Fire Air (SOFA) on units C3, C4 and C5 for the control of Oxides of Nitrogen;
2. the use of a sodium sesquicarbonate or a Department of Environmental Quality approved alternative and low sulfur coal to control emission of sulfur dioxide, hydrogen chloride (HCl) and hydrogen fluoride (HF);
3. the use of a fabric filter baghouse on the outlets of the two bottom ash and the one fly ash silos. Additionally, the fabric filter baghouse for the two bottom ash silos are to be vented to the inlet side of unit C1's hot side electrostatic precipitator.
4. particulate emissions from units C1, C2, C3, C4 and C5 are to be controlled by the use of both hot side and cold side electrostatic precipitators.

The facility will be required to install and operate Continuous Emission Monitors (CEM) for NO_x, SO_2, and Carbon Monoxide in accordance with the Environmental Protection Agency's requirements contained in 40 Code of Federal Regulations', Part 60, Appendix B. In addition to the requirements for CEM's, the facility will be required to test the stack effluent for CO, PM, PM_{10}, $PM_{2.5}$, HCl and HF. The proposed permit places the following short term emission limits on the facility:

Operating Scenario	SO_2 3 hr block avg lbs/MMBtu per unit	SO_2 3 hr block avg lbs/Hr	SO_2 24 hr block avg lbs/MMBtu	SO_2 24 hr block avg lbs/Day
2 cycling	0.50	1,041.00	0.48	23,984.64
2 base	0.37	811.78	0.28	14,743.68
1 cycling/1 base	0.42	907.20	0.36	18,662.40
2 cycling/ 1 base	0.29	924.81	0.27	20,664.72
1 cycling/ 2 base	0.27	876.69	0.23	17,923.44
3 base	0.25	803.00	0.21	16,188.48

Operating Scenario	PM 1 hr avg Lb/MM Btu	PM 1 hr avg Lb/Hr	PM 24 hr block avg Lb/MM Btu	PM 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	PM_{10} 1 hr avg Lb/MM Btu	PM_{10} 1 hr average Lb/Hr	PM_{10} 24 hr block avg Lb/MM Btu	PM_{10} 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	$PM_{2.5}$ 1 hr average Lb/MM Btu	$PM_{2.5}$ 1 hr avg Lb/Hr	$PM_{2.5}$ 24 hr block avg Lb/MM Btu	$PM_{2.5}$ 24 hr block avg Lb/Day
Max value for any case	0.055	178.59	0.055	4,286.04

Operating Scenario	NOx 1 hr avg Lb/MM Btu (30-day rolling avg.)	NOx 1 hr avg Lb/Hr (30 day rolling avg)	NOx 24 hr average Lb/MM Btu	NOx 24 hr average Lb/Day
Max value for any case	0.32	1,039.04		

Operating Scenario	CO 1 hr avg Lb/MM Btu	CO1 hr avg Lb/Hr	CO 24 hr block avg Lb/MM Btu	CO 24 hr block avg Lb/Day
Max value for any case		2,997.20		

Operating Scenario	HCl 1 hr avg Lb/MM Btu	HCl 1 hr avg Lb/Hr	HCl 24 hr average Lb/MM Btu	HCl 24 hr avg Lb/Day
Max value for any case	0.021	68.19		

Operating Scenario	HF 1 hr avg Lb/MM Btu	HF1 hr avg Lb/Hr	HF 24 hr avg Lb/MM Btu	HF 24 hr avg Lb/Day
Max value for any case	0.0076	24.68		

As well as the following annual emission limits:

	Tons/Year
Particulate Matter (PM) including condensable PM	562
PM-10 including condensable PM-10	377
PM-2.5 including condensable PM-2.5	163
Sulfur Dioxides (SO_2)	3813
Oxides of Nitrogen (as NO_2)	3700
Oxides of Nitrogen (as NO_2) (Ozone Season until 12/31/08)	1600
Carbon Monoxide (CO)	215
Volatile Organic Compounds (VOC)	26
Hydrogen Chloride (HCl)	100
Hydrogen Fluoride (HF)	36.22

Included in the permit are requirements for the facility to perform annual testing for PM_{10}, $PM_{2.5}$, HCl and HF and Hg and quarterly reports for the continuous monitoring systems and semi-annual reporting of emissions and monitoring systems utilization and availability.

The State Air Pollution Control Board is also requesting comments on the following issues:

1. Should Continuous Emission Monitoring Systems be required for all Particulate Matter regulated by the Regulations for the Control and Abatement of Air Pollution and (1) does the Environmental Protection Agency (EPA) have an approved methodology for these systems, and (2) has the EPA certified an in-stack instrument for this purpose?
2. Should the operating performance of the control equipment for sulfur dioxide (SO_2) be the basis for permit limitations rather than the array of operating scenarios?
3. Are the varying SO_2 control rates considered intermittent controls?
4. Should permit emission rates for SO_2 be established to ensure the use of Trona (or other sorbent materials), and should the proposed minimum sulfur content requirement be eliminated?
5. Should the Clean Air Interstate Rule and Clean Air Mercury Rule requirements be included in the permit?
6. What changes should be made to the architecture of the permit and the emission limits in the proposed permit?
7. What changes or additions should be made to the proposed parametric monitoring and (1) does such monitoring obviate the need for Particulate Matter Continuous Emissions Monitoring Systems and (2) what is the commercial availability of these instruments?

Both the draft State Operating Permit and the Statement of Basis may be accessed under the "What's New" section of the DEQ web page https://www.deq.virginia.gov

The Northern Regional Office of the Department of Environmental Quality will accept written comments on the state operating permit for 30 days following the appearance of this notice in the newspaper. The written comment period for the State Operating Permit will end at the close of the public hearing on November 19, 2007. Only those comments received within the time period will be considered. The Northern Regional Office of the Department of Environmental Quality will hold a public briefing at 6:30 PM to briefly review the contents of the proposed State Operating Permit and answer questions. The public briefing will be followed by a public hearing beginning at 7:00 PM on November 19, 2007. The public briefing and public hearing will be at the NANNIE J. LEE RECREATION CENTER located at 1108 Jefferson Street Alexandria, VA 22314. Please direct all inquires concerning the draft State Operating Permit recommended by the Northern Regional Office of the Department of Environmental Quality to Mr. Terry Darton at (703) 583-3845. All comments and requests for information on the draft State Operating Permit and the stated above issues should be sent to Mr. Terry Darton, Air Permit Manager, 13901 Crown Court, Woodbridge VA, 22193 or they may be emailed to thdarton@deq.virginia.gov on any business day between the hours of 8:30 a.m. and 5:00 PM.

Regional Director