

## ATTACHMENT D1

### VDEQ PACKAGE ON THREE PERMITTING OPTIONS BEING CONSIDERED BY SAPCB

1. The information presented in Attachment D1 can be found on Virginia Department of Environmental Quality's website:

<http://www.deq.virginia.gov/air/permitting/Mirant.html>

2. The State Air Pollution Control Board (SAPCB) requested public comments on the VDEQ/Mirant Draft Consent Order and the City of Alexandria's Draft Order. These comments were due on May 4, 2007.
3. SAPCB is requesting public comments on 3 draft State Operating Permits for the control of SO<sub>2</sub> from Mirant PRGS. These permit options are shown in this attachment. SAPCB is also requesting public comments on the following issues:
  - a. Are intermittent controls allowed as part of the permit and if not, are they allowed during a phase-in period or in a consent order?
  - b. Is the proposed stack merge project prohibited under federal or state law as a prohibited dispersion technique?

Comments on the three draft permits and the above two issues should be received by VDEQ by May 21, 2007. They should be e-mailed to Ms. Monica Harvey at [maharvey@deq.virginia.gov](mailto:maharvey@deq.virginia.gov).

4. SAPCB will hold a public hearing on Tuesday, May 22, 2007 from 4:00 – 9:00 pm at the Holiday Inn Alexandria – Telegraph Road, 2460 Eisenhower Avenue, Alexandria, VA.
5. A SAPCB meeting (open to the public) will be held on Wednesday, May 23, 2007 starting from 9:30 am at the Holiday Inn Alexandria – Telegraph Road, 2460 Eisenhower Avenue, Alexandria, VA.



Tamera Thompson

General permits | Water permits | Waste permits | Permit review | Active Air Applications

## Mirant Potomac River Generating Station Updates

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The State Air Pollution Control Board is requesting comment on the following documents:

- Draft Consent Order Between the Virginia Department of Environmental Quality and the Mirant Potomac River Generating Station
  - Appendix 1
  - Appendix 2
  - Appendix 3
  
- Draft Order from the City of Alexandria:
  - Appendix 1
  - Appendix 2
  - Appendix 3

Requests for information or questions on the draft orders should be directed to Mr. Michael Dowd, Director of Enforcement at (804) 698-4284. Comments on the draft orders should be received by May 4, 2007. Comments should be e-mailed to Ms. Monica Harvey or sent to 629 East Main Street, P.O. Box 1105, Richmond, VA 23218.

The State Air Pollution Control Board is also requesting comments on 3 draft State Operating Permits for the control of SO<sub>2</sub> from the Mirant Potomac River Generating Station.

Option 1 - Incorporating an updated version of Table 1 from the Administrative Consent Order between EPA and Mirant.

A NEW OPTION 1 DOCUMENT HAS BEEN UPLOADED (04/24/07). IT DIFFERS FROM THE PREVIOUS DOCUMENT AS FOLLOWS:

- (1) page 3-condition 4 is revised;
  - (2) pages 5 through 8-condition 9 - a column establishing an SO<sub>2</sub> rate in lb/day has been added;
  - (3) page 8-condition 10 – the facility wide annual emission limit is revised;
  - (4) page 9-condition 11 is now condition 12, a new condition 11 concerning operating scenarios has been added and the remaining conditions have been renumbered; and
  - (5) page 9-condition 13e is now 13f and a new 13e concerning daily records has been added.
- Mirant Modeling Report
  - Appendix 1 - [Appendix 1 has been updated (04/24/07) to only include the portion of the Modeling Protocol necessary to support the Option 1 permit conditions reducing the size of the document to 153 pages.]
  - Appendix 2

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Option 2 - As requested by the State Air Pollution Control Board

Option 3 - As requested by the State Air Pollution Control Board

Attachment - for Option 2 and Option 3

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

- Are intermittent controls allowed as part of the permit and if not, are they allowed during a phase-in period or in a consent order;
- Is the proposed stack-merge project prohibited under federal or state law as a prohibited dispersion technique.

Requests for information or questions on the draft permits should be directed to Mr. Troy Breathwaite at (804) 698-4366. Comments on the draft permits should be received by May 21, 2007. Comments should be e-mailed to Ms. Monica Harvey or sent to 629 East Main Street, P.O. Box 1105, Richmond, VA 23218.

A public hearing will be held on Tuesday, May 22, 2007 from 4:00 – 9:00 p.m. at the Holiday Inn Alexandria – Telegraph Road, 2460 Eisenhower Avenue, Alexandria, VA.

All comments on the draft orders and draft state operating permits should be e-mailed to Ms. Monica Harvey or sent to 629 East Main Street, P.O. Box 1105 Richmond, VA 23218.

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Last Updated: May 8, 2007

DRAFT BOARD OPTION 1 (REVISED 4/16/07)

**STATIONARY SOURCE PERMIT TO OPERATE**

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

Mirant Corporation  
8711 Westphalia Road  
Upper Marlboro, MD 20774  
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 12 pages.

Permit Conditions 1 to 21.

**INTRODUCTION**

This permit approval is based on the permit application dated April 9, 2007. Any changes in the permit application specifications or any existing facilities 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 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 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. 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 Regulations. 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:

<b>Equipment to be modified</b>			
<b>Reference No.</b>	<b>Equipment Description</b>	<b>Maximum Rated Capacity</b>	<b>Manufactured Date</b>
C1	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NO <sub>x</sub> burners.	970.1 mmBtu/hr	1949
C2	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NO <sub>x</sub> burners.	970.1 mmBtu/hr	1950
C3	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NO <sub>x</sub> burners and over fired air.	960.7 mmBtu/hr	1954
C4	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NO <sub>x</sub> burners and over fired air.	960.7 mmBtu/hr	1956
C5	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NO <sub>x</sub> burners and over fired air.	960.7 mmBtu/hr	1957
Trona Handling	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 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

2. **SO<sub>2</sub> Emission Controls** – SO<sub>2</sub> emissions from boilers C1, C2, C3, C4, and C5 shall be controlled by the use of low sulfur coal and trona injection. The permittee shall maintain and operate a trona injection system on all five units at the facility. The permittee shall inject trona into the exhaust stream of each unit while the unit is operating.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
3. **Monitoring** – A Continuous Opacity Monitoring System (COMS) shall be installed to measure and record the opacity of emissions from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be maintained and calibrated in accordance with 9 VAC 5-40-41 of State Regulations.  
(9 VAC 5-80-850, 9 VAC 5-40-40, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
4. **Monitoring** – A Continuous Emission Monitoring System (CEMS) and a flow monitoring system, each with an automated data acquisition and handling system, shall be installed to measure and record the emissions of SO<sub>2</sub> from boilers C1, C2, C3, C4, and C5. The automated data acquisition and handling systems shall measure and record SO<sub>2</sub> concentration (in ppm), volumetric gas flow (in scfh), and SO<sub>2</sub> mass emissions (in lbs/hr) discharged to the atmosphere. The CEMS shall be installed, certified, operated, and maintained according to approved procedures in accordance with the provisions of 40 CFR Part 75. The permittee shall utilize measured and recorded CEMS data to calculate short-term SO<sub>2</sub> emissions in pounds per million Btu, pounds per hour, and pounds per day; and annual SO<sub>2</sub> emissions in tons per year. Hourly SO<sub>2</sub> emissions in pounds per hour shall be calculated hourly as the average of each consecutive 3-hour period. Hourly SO<sub>2</sub> emissions in pounds per million Btu shall be calculated as the average of each block 3-hour period and as the average of each block 24-hour period beginning at 12:01 AM each calendar day. Daily SO<sub>2</sub> emissions in pounds per day shall be calculated daily as the sum of hourly emissions for each block 24-hour period beginning at 12:01 AM each calendar day. Annual SO<sub>2</sub> emissions shall be calculated 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 9 and 10.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
5. **Ambient Air Monitoring** – The permittee shall continue operate the six (6) existing SO<sub>2</sub> monitors to measure and record the concentration of SO<sub>2</sub> from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be operated, maintained, and subject to the appropriate QA/QC provisions as set forth in Appendix A of 40 CFR Part 58.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

**OPERATING LIMITATIONS**

6. **Fuel** - The approved fuels for boilers C1, C2, C3, C4 and C5 are coal and distillate oil. A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

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

**COAL:**

Maximum heat content: 12,800 Btu/lb HHV  
as determined by ASTM D2015, D3286, or a DEQ-approved equivalent method.

Maximum sulfur content per shipment: 0.9 %  
as determined by STM 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: 0.8%

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

8. **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;
- b. The date on which the coal 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 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, 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 6. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.  
 (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

**EMISSION LIMITS**

9. **Boiler Emission Limits** – SO<sub>2</sub> emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

Scenario	Units On	Operating Hours	Averaging Period	SO <sub>2</sub> Rate (lb/MMBtu) <sup>▲</sup>	SO <sub>2</sub> Rate (lb/hour)*	SO <sub>2</sub> Rate (lb/day)**
1a	3 & 4	Both Units @ 16 hrs max/ 8 hrs min	3-hour	0.38	800	15,150
			24-hour	0.46		
1b	3 & 4	Both Units @ 12 hrs max/ 12 hrs min	3-Hour	0.38	800	13,126
			24-Hour	0.50		
2a	3 & 5	Both Units @ 16 hrs max/ 8 hrs min	3-Hour	0.43	914	17,281
			24-Hour	0.63		
2b	3 & 5	Both units @ 12 hrs max/ 12 hrs min	3-Hour	0.43	914	14,956
			24-Hour	0.54		
3a	4 & 5	Both Units @ 16 hrs max/ 8 hrs min	3-Hour	0.42	921	17,401
			24-Hour	0.64		
3b	4 & 5	Both units @ 12 hrs max/ 12 hrs min	3-Hour	0.42	921	15,044
			24-Hour	0.55		
4a	1,2,3	Units 1,2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 3 @ 16 hrs max/ 8 hrs min	3-Hour	0.35	1,085	15,274
			24-Hour	0.44		
4b	1,2,3	Units 1,2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 3 @ 12 hrs max/ 12 hrs min	3-Hour	0.35	1,085	15,035
			24-Hour	0.49		
5a	1,2,4	Units 1,2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 4 @ 16 hrs max/ 8 hrs min	3-Hour	0.36	1,141	16,158
			24-Hour	0.45		
5b	1,2,4	Units 1,2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 4 @ 12 hrs max/ 12 hrs min	3-Hour	0.36	1,141	15,838
			24-Hour	0.49		
6a	1,2,5	Units 1,2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 5 @ 16 hrs max/ 8 hrs min	3-Hour	0.40	1,240	17,456
			24-Hour	0.59		

6b	1,2,5	Units 1,2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 5 @ 12 hrs max/ 12 hrs min	3-Hour	0.40	1,240	17,182
			24-Hour	0.49		
7a	3,4,5	All units @ 16 hrs max/ 8 hrs min	3-Hour	0.28	899	17,008
			24-Hour	0.39		
7b	3,4,5	All units @ 12 hrs max/ 12 hrs min	3-Hour	0.28	899	14,720
			24-Hour	0.35		
7c	3,4,5	All units @ 8 hrs max/ 16 hrs min	3-Hour	0.28	899	12,432
			24-Hour	0.32		
8a	1	8 hrs max/ 8 hrs min/ 8 hrs off	3-Hour	1.25	1,316	15,430
			24-Hour	1.71		
8b	1	16 hrs max/ 8 hrs off	3-Hour	1.24	1,306	20,892
			24-Hour	1.66		
9a	2	8 hrs max/ 8 hrs min/ 8 hrs off	3-Hour	1.01	1,039	12,104
			24-Hour	1.47		
9b	2	16 hrs max/ 8 hrs off	3-Hour	0.96	988	15,805
			24-Hour	1.46		
10a	3	12 hrs max/ 12 hrs min	3-Hour	0.75	764	12,564
			24-Hour	0.98		
10b	3	16 hrs max/ 8 hrs min	3-Hour	0.75	764	14,484
			24-Hour	0.91		
11a	4	12 hrs max/ 12 hrs min	3-Hour	0.79	859	14,054
			24-Hour	1.02		
11b	4	16 hrs max/ 8 hrs min	3-Hour	0.79	859	16,239
			24-Hour	0.96		
12a	5	12 hrs max/ 12 hrs min	3-Hour	0.80	886	14,424
			24-Hour	1.06		
12b	5	16 hrs max/ 8 hrs min	3-Hour	0.80	886	16,701
			24-Hour	1.37		
13a	1,2	Both units 8 hrs max/ 8 hrs min/ 8 hrs off	3-Hour	0.55	1,145	13,380
			24-Hour	0.79		
13b	1,2	Both units 16 hrs max/ 8 hrs off	3-Hour	0.54	1,124	17,988
			24-Hour	0.77		

14a	1,3	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Unit 3 @ 12 hrs max /12 hrs min	3-Hour	0.49	1,015	14,257
			24-Hour	0.72		
14b	1,3	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 3 @ 16 hrs max/ 8 hrs min	3-Hour	0.49	1,015	15,511
			24-Hour	0.61		
15a	1,4	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Unit 4 @ 12 hrs max /12 hrs min	3-Hour	0.51	1,091	15,368
			24-Hour	0.71		
15b	1,4	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 4 @ 16 hrs max/ 8 hrs min	3-Hour	0.51	1,091	16,779
			24-Hour	0.63		
16a	1,5	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Unit 5 @ 12 hrs max /12 hrs min	3-Hour	0.60	1,296	18,224
			24-Hour	0.74		
16b	1,5	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 5 @ 16 hrs max/ 8 hrs min	3-Hour	0.60	1,296	19,932
			24-Hour	0.93		
17a	2,3	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Unit 3 @ 12 hrs max /12 hrs min	3-Hour	0.45	921	12,931
			24-Hour	0.65		
17b	2,3	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 3 @ 16 hrs max/ 8 hrs min	3-Hour	0.45	921	14,083
			24-Hour	0.58		
18a	2,4	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Unit 4 @ 12 hrs max /12 hrs min	3-Hour	0.48	1,016	14,292
			24-Hour	0.65		
18b	2,4	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 4 @ 16 hrs max/ 8 hrs min	3-Hour	0.48	1,016	15,619
			24-Hour	0.60		
19a	2,5	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Unit 5 @ 12 hrs max /12 hrs min	3-Hour	0.56	1,196	16,808
			24-Hour	0.65		
19b	2,5	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off; Unit 5 @ 16 hrs max/ 8 hrs min	3-Hour	0.56	1,196	18,402
			24-Hour	0.85		
20	1,3,4	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Units 3,4 @ 12 hrs max /12 hrs min	3-Hour	0.30	947	14,066
			24-Hour	0.42		
21	1,3,5	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Units 3,5 @ 12 hrs max /12 hrs min	3-Hour	0.33	1,049	15,552
			24-Hour	0.44		

22	1,4,5	Unit 1 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Units 4,5 @ 12 hrs max /12 hrs min	3-Hour	0.34	1,104	16,376
			24-Hour	0.43		
23	2,3,4	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Units 3,4 @ 12 hrs max /12 hrs min	3-Hour	0.29	909	13,493
			24-Hour	0.41		
24	2,3,5	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Units 3,5 @ 12 hrs max /12 hrs min	3-Hour	0.32	1,009	14,965
			24-Hour	0.41		
25	2,4,5	Unit 2 @ 8 hrs max/ 8 hrs min/ 8 hrs off, Units 4,5 @ 12 hrs max /12 hrs min	3-Hour	0.33	1,064	15,775
			24-Hour	0.39		

\*Calculated hourly as the average of each consecutive 3-hour period.

\*\* Daily SO<sub>2</sub> emissions in pounds per day shall be calculated as the sum of hourly emissions for each block 24-hour period beginning at 12:01 AM each calendar day.

^3-hour SO<sub>2</sub> emissions in pounds per million Btu shall be calculated as the average of hourly emissions for each block 3-hour period beginning at 12:01 AM each calendar day; 24-hour SO<sub>2</sub> emissions in pounds per million Btu shall be calculated as the average of hourly emissions for each block 24-hour period beginning at 12:01 AM each calendar day.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

10. **Facility wide Emission Limits** - Total annual emissions of SO<sub>2</sub> from boilers C1, C2, C3, C4, and C5 (combined) shall not exceed the limits specified below:

	<b>Annual (tons per year)**</b>
Boilers C1, C2, C3, C4, and C5 (combined)	3,813

\*\*Calculated monthly as the sum of each consecutive 12-month period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2, 9 VAC 5-80-820.D, and 9 VAC 5-50-260)

11. **Operating Scenarios** – Upon issuance of this permit, each calendar day the permittee shall identify and record the next calendar day’s projected operating scenario(s) and shall record in a logbook the previous calendar day’s actual operating scenario(s) in accordance with the scenarios outlined in Condition 9 of this permit. The logbook shall be maintained on-site for the most recent five (5) year period and shall be made available for inspection.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
12. **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). This condition applies at all times except during startup, shutdown, and malfunction.  
(9 VAC 5-80-850, 9 VAC 5-50-80, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

## **RECORDS**

13. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Northern Virginia Region Office. These records shall include, but are not limited to:
  - a. All fuel supplier certifications.
  - b. Emissions calculations and CEMS data for SO<sub>2</sub> from the boilers using calculation methods approved by the Northern Virginia Regional Office to verify compliance with the lbs/mmBtu, lbs/hour, and tons/year emission limitations in Conditions 9 and 10.
  - c. CEMS, COMS, and SO<sub>2</sub> ambient air monitor maintenance and calibration records.
  - d. All recorded COMS and SO<sub>2</sub> ambient air monitoring data.
  - e. Daily records of operating scenarios under which the facility operated for each calendar day.
  - f. Scheduled and unscheduled boiler maintenance and operator training.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-80-850, 9 VAC 5-50-50, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

**NOTIFICATIONS**

14. **Notifications** - The permittee shall furnish written notification to the Northern Virginia Regional Office of:
- a. The anticipated dates of any continuous monitoring system performance evaluations performed in accordance with 40 CFR Part 75 postmarked not less than 30 days prior to such date.
- (9 VAC 5-50-50, 9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

**GENERAL CONDITIONS**

15. **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 and 9 VAC 5-80-850)

16. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Northern Virginia Regional Office 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. 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 Northern Virginia Regional Office in writing.  
(9 VAC 5-20-180 C and 9 VAC 5-80-850)

**17. Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9 VAC 5-20-180 I and 9 VAC 5-80-850)

**18. 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.

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an 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 5-80-850)

**19. Permit Suspension/Revocation** - This permit may be revoked if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the terms or conditions of this permit;
- c. Fails to comply with any emission standards applicable to a permitted emissions unit;
- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;

- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time that an application for this permit is submitted;
  - f. Fails to comply with the applicable provisions of Articles 6, 8 and 9 of 9 VAC 5 Chapter 80. (9 VAC 5-80-1010)
20. **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 Northern Virginia Regional Office of the change of ownership within 30 days of the transfer. (9 VAC 5-80-940)
21. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies. (9 VAC 5-80-860 D)

DRAFT BOARD OPTION 2 (REVISED 4/16/07)

**STATIONARY SOURCE PERMIT TO OPERATE**

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

Mirant Corporation  
8711 Westphalia Road  
Upper Marlboro, MD 20774  
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 10 pages.

Permit Conditions 1 to 26.

**INTRODUCTION**

This permit approval is based on the permit application dated April 9, 2007. Any changes in the permit application specifications or any existing facilities 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 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 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. 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 Regulations. 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:

<b>Equipment to be modified</b>			
<b>Reference No.</b>	<b>Equipment Description</b>	<b>Maximum Rated Capacity</b>	<b>Manufactured Date</b>
C1	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	970.1 mmbtu/hr	1949
C2	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	970.1 mmbtu/hr	1950
C3	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1954
C4	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1956
C5	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1957
Trona Handling	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 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

2. **SO<sub>2</sub> Emission Controls** – SO<sub>2</sub> emissions from boilers C1, C2, C3, C4, and C5 shall be controlled by the use of low sulfur coal and trona injection. The permittee shall maintain and operate a trona injection system on all five units at the facility. The permittee shall inject trona into the exhaust stream of each unit while the unit is operating.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
3. **Monitoring** – A Continuous Opacity Monitoring System (COMS) shall be installed to measure and record the opacity of emissions from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be maintained and calibrated in accordance with 9 VAC 5-40-41 of State Regulations.  
(9 VAC 5-80-850, 9 VAC 5-40-40, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
4. **Monitoring** – A Continuous Emission Monitoring System (CEMS) and a flow monitoring system with an automated data acquisition and handling system shall be installed to measure and record the emissions of SO<sub>2</sub> from boilers C1, C2, C3, C4, and C5. The automated data acquisition and handling system shall measure and record SO<sub>2</sub> concentration (in ppm), volumetric gas flow (in scfh), and SO<sub>2</sub> mass emissions (in lbs/hr) discharged to the atmosphere. The CEMS shall be installed, certified, operated, and maintained according to approved procedures in accordance with the provisions of 40 CFR Part 75. The permittee shall utilize measured and recorded CEMS data to calculate hourly SO<sub>2</sub> emissions in pounds per million Btu and pounds per hour, and annual SO<sub>2</sub> emissions in tons per year. Hourly SO<sub>2</sub> emissions shall be calculated hourly as the average of each consecutive 3-hour period. Annual SO<sub>2</sub> emissions shall be calculated 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 13 through 16.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
5. **Ambient Air Monitoring** – The permittee shall continue operate the six (6) existing SO<sub>2</sub> monitors to measure and record the concentration of SO<sub>2</sub> from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be operated, maintained, and subject to the appropriate QA/QC provisions as set forth in Appendix A of 40 CFR Part 58.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
6. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO<sub>2</sub> monitor alert system in the facility's control room that shall register an audible alarm if in any one hour the average measured ambient concentration of SO<sub>2</sub> at any of the six (6) monitors is equal to or greater than 70% of the 3-hour SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), measured as 350 parts per billion (910 µg/m<sup>3</sup>). The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

7. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO<sub>2</sub> monitor alert system in the facility's control room that shall register an audible alarm if in any 12-hour period the average measured ambient concentration of SO<sub>2</sub> at any of the six (6) monitors is equal to or greater than 70% of the 24-hour SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), measured as 98 parts per billion (255.5 µg/m<sup>3</sup>). The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
8. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO<sub>2</sub> monitor alert system in the facility's control room that shall register an audible alarm if an average ambient concentration of SO<sub>2</sub> is measured at any of the six (6) monitors that is equal to or greater than 70% of the annual SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), measured as 56 µg/m<sup>3</sup>. The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
9. **Predictive Modeling** – The permittee shall operate the facility in a manner that does not cause or significantly contribute to modeled SO<sub>2</sub> NAAQS exceedances by using predictive modeling described as follows:
  - By 10 AM each morning, the permittee shall collect actual weather predictions from the National Weather Service for Reagan National Airport and use the weather data along with planned operating parameters as inputs to conduct a computer modeling run for the following day using AERMOD EBD.
  - If the predictive modeling predicts that the facility's planned operations for the following day will not result in a modeled NAAQS exceedance for SO<sub>2</sub>, the facility may operate on the day modeled in accordance with the modeled operating parameters and subject to other limitations as contained in this permit.
  - If the predictive modeling indicates that the planned operating parameters will result in one or more modeled NAAQS exceedances for SO<sub>2</sub>, the facility shall not run under those operating parameters but shall continue to adjust its planned operations and conduct additional modeling runs using the adjusted operating parameters to confirm that the adjusted operations will not cause or significantly contribute to a modeled exceedance of the SO<sub>2</sub> NAAQS subject to other limitations as contained in this permit.
  - In performing the predictive modeling, the permittee shall use the following background concentrations for SO<sub>2</sub>: 55 µg/m<sup>3</sup> on a 24-hour basis and 176 µg/m<sup>3</sup> on a 3-hour basis.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

### **OPERATING LIMITATIONS**

10. **Fuel** - The approved fuels for boilers C1, C2, C3, C4 and C5 are coal and distillate oil. A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

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

COAL:

Maximum heat content: 12,800 Btu/lb HHV  
as determined by ASTM D2015, D3286, or a DEQ-approved equivalent method.

Maximum sulfur content per shipment: 0.9 %  
as determined by STM 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: 0.8%

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

12. **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;
- b. The date on which the coal 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 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, 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 6. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

### **EMISSION LIMITS**

13. **Boiler SO<sub>2</sub> Emission Limits** – For the period beginning June 1, 2007, and ending on September 30, 2007, SO<sub>2</sub> emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 1,320 tons inclusive expressed as a mass emission rate for the period (boilers C1, C2, C3, C4, and C5 combined)
- 0.50 lbs/mmBtu\* (boilers C1, C2, C3, C4, and C5 combined)
- 338.0 lbs/hour\* (each boiler)
- If monitored SO<sub>2</sub> concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr\*.

\*Calculated hourly as the average of each consecutive 3-hour period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

14. **Boiler SO<sub>2</sub> Emission Limits** – For the period beginning October 1, 2007, and ending on March 31, 2008, SO<sub>2</sub> emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 2,000 tons inclusive expressed as a mass emission rate for the period (boilers C1, C2, C3, C4, and C5 combined)
- 0.40 lbs/mmBtu\* (boilers C1, C2, C3, C4, and C5 combined)
- 270.0 lbs/hour\* (each boiler)
- If monitored SO<sub>2</sub> concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr\*.

\*Calculated hourly as the average of each consecutive 3-hour period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

15. **Boiler SO<sub>2</sub> Emission Limits** – Beginning April 1, 2008, SO<sub>2</sub> emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 3,500 tons/year\*\* inclusive (boilers C1, C2, C3, C4, and C5 combined)

- 0.28 lbs/mmBtu\* (boilers C1, C2, C3, C4, and C5 combined)
- 270.0 lbs/hour\* (each boiler)
- If monitored SO<sub>2</sub> concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr\*.

\*Calculated hourly as the average of each consecutive 3-hour period.

\*\*Calculated monthly as the sum of each consecutive 12-month period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

16. **Facility wide Emission Limits** – Beginning April 1, 2008, total annual emissions of SO<sub>2</sub> from the facility shall not exceed the limits specified below:

	<u>Annual (tons per year)**</u>
Boilers C1, C2, C3, C4, and C5 (combined)	3,500 tons

\*\*Calculated monthly as the sum of each consecutive 12-month period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2, 9 VAC 5-80-820.D, and 9 VAC 5-50-260)

17. **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). This condition applies at all times except during startup, shutdown, and malfunction.

(9 VAC 5-80-850, 9 VAC 5-50-80, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

**RECORDS**

18. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Northern Virginia Region Office. These records shall include, but are not limited to:

- a. All fuel supplier certifications.

- b. Emissions calculations and CEMS data for SO<sub>2</sub> from the boilers using calculation methods approved by the Northern Virginia Regional Office to verify compliance with the lbs/hour and tons/year emission limitations in Conditions 13 through 16.
- c. CEMS, COMS, and SO<sub>2</sub> ambient air monitor maintenance and calibration records.
- d. All recorded COMS and SO<sub>2</sub> ambient air monitoring data including records of monitor alarm instances.
- e. Scheduled and unscheduled boiler maintenance and operator training.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

### **NOTIFICATIONS**

19. **Notifications** - The permittee shall furnish written notification to the Northern Virginia Regional Office of:
- a. The anticipated dates of any continuous monitoring system performance evaluations performed in accordance with 40 CFR Part 75 postmarked not less than 30 days prior to such date.
- (9 VAC 5-50-50, 9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

### **GENERAL CONDITIONS**

20. **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 and 9 VAC 5-80-850)

21. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Northern Virginia Regional Office 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. 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 Northern Virginia Regional Office in writing.  
(9 VAC 5-20-180 C and 9 VAC 5-80-850)
22. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9 VAC 5-20-180 I and 9 VAC 5-80-850)
23. **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.

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an 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 5-80-850)

24. **Permit Suspension/Revocation** - This permit may be revoked if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the terms or conditions of this permit;
- c. Fails to comply with any emission standards applicable to a permitted emissions unit;
- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time that an application for this permit is submitted;
- f. Fails to comply with the applicable provisions of Articles 6, 8 and 9 of 9 VAC 5 Chapter 80.  
(9 VAC 5-80-1010)

25. **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 Northern Virginia Regional Office of the change of ownership within 30 days of the transfer.  
(9 VAC 5-80-940)

26. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
(9 VAC 5-80-860 D)

DRAFT BOARD OPTION 3 (REVISED 4/16/07)

**STATIONARY SOURCE PERMIT TO OPERATE**

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

Mirant Corporation  
8711 Westphalia Road  
Upper Marlboro, MD 20774  
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 10 pages.

Permit Conditions 1 to 25.

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This permit approval is based on the permit application dated April 9, 2007. Any changes in the permit application specifications or any existing facilities 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 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 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. 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 Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

**PROCESS REQUIREMENTS**

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<b>Equipment to be modified</b>			
<b>Reference No.</b>	<b>Equipment Description</b>	<b>Maximum Rated Capacity</b>	<b>Manufactured Date</b>
C1	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	970.1 mmbtu/hr	1949
C2	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	970.1 mmbtu/hr	1950
C3	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1954
C4	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1956
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Trona Handling	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 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

2. **SO<sub>2</sub> Emission Controls** – SO<sub>2</sub> emissions from boilers C1, C2, C3, C4, and C5 shall be controlled by the use of low sulfur coal and trona injection. The permittee shall maintain and operate a trona injection system on all five units at the facility. The permittee shall inject trona into the exhaust stream of each unit while the unit is operating.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
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(9 VAC 5-80-850, 9 VAC 5-40-40, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
4. **Monitoring** – A Continuous Emission Monitoring System (CEMS) and a flow monitoring system with an automated data acquisition and handling system shall be installed to measure and record the emissions of SO<sub>2</sub> from boilers C1, C2, C3, C4, and C5. The automated data acquisition and handling system shall measure and record SO<sub>2</sub> concentration (in ppm), volumetric gas flow (in scfh), and SO<sub>2</sub> mass emissions (in lbs/hr) discharged to the atmosphere. The CEMS shall be installed, certified, operated, and maintained according to approved procedures in accordance with the provisions of 40 CFR Part 75. The permittee shall utilize measured and recorded CEMS data to calculate hourly SO<sub>2</sub> emissions in pounds per million Btu and pounds per hour, and annual SO<sub>2</sub> emissions in tons per year. Hourly SO<sub>2</sub> emissions shall be calculated hourly as the average of each consecutive 3-hour period. Annual SO<sub>2</sub> emissions shall be calculated 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 13 through 15.  
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5. **Ambient Air Monitoring** – The permittee shall continue operate the six (6) existing SO<sub>2</sub> monitors to measure and record the concentration of SO<sub>2</sub> from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be operated, maintained, and subject to the appropriate QA/QC provisions as set forth in Appendix A of 40 CFR Part 58.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
6. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO<sub>2</sub> monitor alert system in the facility's control room that shall register an audible alarm if in any one hour the average measured ambient concentration of SO<sub>2</sub> at any of the six (6) monitors is equal to or greater than 70% of the 3-hour SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), measured as 350 parts per billion (910 µg/m<sup>3</sup>). The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

7. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO<sub>2</sub> monitor alert system in the facility’s control room that shall register an audible alarm if in any 12-hour period the average measured ambient concentration of SO<sub>2</sub> at any of the six (6) monitors is equal to or greater than 70% of the 24-hour SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), measured as 98 parts per billion (255.5 µg/m<sup>3</sup>). The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
8. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO<sub>2</sub> monitor alert system in the facility’s control room that shall register an audible alarm if an average ambient concentration of SO<sub>2</sub> is measured at any of the six (6) monitors that is equal to or greater than 70% of the annual SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), measured as 56 µg/m<sup>3</sup>. The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
9. **Predictive Modeling** – The permittee shall operate the facility in a manner that does not cause or significantly contribute to modeled SO<sub>2</sub> NAAQS exceedances by using predictive modeling described as follows:
- By 10 AM each morning, the permittee shall collect actual weather predictions from the National Weather Service for Reagan National Airport and use the weather data along with planned operating parameters as inputs to conduct a computer modeling run for the following day using AERMOD EBD.
  - If the predictive modeling predicts that the facility’s planned operations for the following day will not result in a modeled NAAQS exceedance for SO<sub>2</sub>, the facility may operate on the day modeled in accordance with the modeled operating parameters and subject to other limitations as contained in this permit.
  - If the predictive modeling indicates that the planned operating parameters will result in one or more modeled NAAQS exceedances for SO<sub>2</sub>, the facility shall not run under those operating parameters but shall continue to adjust its planned operations and conduct additional modeling runs using the adjusted operating parameters to confirm that the adjusted operations will not cause or significantly contribute to a modeled exceedance of the SO<sub>2</sub> NAAQS subject to other limitations as contained in this permit.
  - In performing the predictive modeling, the permittee shall use the following background concentrations for SO<sub>2</sub>: 55 µg/m<sup>3</sup> on a 24-hour basis and 176 µg/m<sup>3</sup> on a 3-hour basis.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

### **OPERATING LIMITATIONS**

10. **Fuel** - The approved fuels for boilers C1, C2, C3, C4 and C5 are coal and distillate oil. A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

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

**COAL:**

Maximum heat content: 12,800 Btu/lb HHV  
as determined by ASTM D2015, D3286, or a DEQ-approved equivalent method.

Maximum sulfur content per shipment: 0.9 %  
as determined by STM 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: 0.8%

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

12. **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;
- b. The date on which the coal 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 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, 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 6. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

**EMISSION LIMITS**

13. **Boiler SO<sub>2</sub> Emission Limits** – For the period beginning June 1, 2007, and ending on March 31, 2008, SO<sub>2</sub> emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 3,300 tons inclusive expressed as a mass emission rate for the period (boilers C1, C2, C3, C4, and C5 combined)
- 1,000.0 lbs/hour\* (boilers C1, C2, C3, C4, and C5 combined)
- If monitored SO<sub>2</sub> concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr\*.

\*Calculated hourly as the average of each consecutive 3-hour period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

14. **Boiler SO<sub>2</sub> Emission Limits** – Beginning April 1, 2008, SO<sub>2</sub> emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 3,500 tons/year\*\* inclusive (boilers C1, C2, C3, C4, and C5 combined)
- 800.0 lbs/hour\* (boilers C1, C2, C3, C4, and C5 combined)
- If monitored SO<sub>2</sub> concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr\*.

\*Calculated hourly as the average of each consecutive 3-hour period.

\*\*Calculated monthly as the sum of each consecutive 12-month period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

15. **Facility wide Emission Limits** – Beginning April 1, 2008, total annual emissions of SO<sub>2</sub> from the facility shall not exceed the limits specified below:

	<b><u>Annual (tons per year)**</u></b>
Boilers C1, C2, C3, C4, and C5 (combined)	3,500 tons

\*\*Calculated monthly as the sum of each consecutive 12-month period.

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 Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2, 9 VAC 5-80-820.D, and 9 VAC 5-50-260)

16. **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). This condition applies at all times except during startup, shutdown, and malfunction.  
(9 VAC 5-80-850, 9 VAC 5-50-80, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

### **RECORDS**

17. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Northern Virginia Region Office. These records shall include, but are not limited to:
- a. All fuel supplier certifications.
  - b. Emissions calculations and CEMS data for SO<sub>2</sub> from the boilers using calculation methods approved by the Northern Virginia Regional Office to verify compliance with the lbs/hour and tons/year emission limitations in Conditions 13 through 15.
  - c. CEMS, COMS, and SO<sub>2</sub> ambient air monitor maintenance and calibration records.
  - d. All recorded COMS and SO<sub>2</sub> ambient air monitoring data including records of monitor alarm instances.
  - e. Scheduled and unscheduled boiler maintenance and operator training.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.  
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

## **NOTIFICATIONS**

18. **Notifications** - The permittee shall furnish written notification to the Northern Virginia Regional Office of:
- a. The anticipated dates of any continuous monitoring system performance evaluations performed in accordance with 40 CFR Part 75 postmarked not less than 30 days prior to such date.
- (9 VAC 5-50-50, 9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

## **GENERAL CONDITIONS**

19. **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 and 9 VAC 5-80-850)

20. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Northern Virginia Regional Office 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. 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 Northern Virginia Regional Office in writing.  
(9 VAC 5-20-180 C and 9 VAC 5-80-850)

21. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9 VAC 5-20-180 I and 9 VAC 5-80-850)

22. **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.

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an 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 5-80-850)

23. **Permit Suspension/Revocation** - This permit may be revoked if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the terms or conditions of this permit;
- c. Fails to comply with any emission standards applicable to a permitted emissions unit;
- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;

- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time that an application for this permit is submitted;
  - f. Fails to comply with the applicable provisions of Articles 6, 8 and 9 of 9 VAC 5 Chapter 80. (9 VAC 5-80-1010)
24. **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 Northern Virginia Regional Office of the change of ownership within 30 days of the transfer. (9 VAC 5-80-940)
25. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies. (9 VAC 5-80-860 D)

## I. Purpose

The Virginia Department of Environmental Quality (VDEQ) – Division of Air Quality has been requested by the Air Pollution Control Board (the Board) to prepare State Operating Permits (SOPs) for the operation of five coal-fired boilers at the Mirant Potomac River Generating Station (PRGS) facility. This document sets forth the background information used to create a record for the proposed permits.

## II. Facility Background

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 Potomac River Station from the Potomac Electric Power Company (PEPCO) in December 2000. It consists of five tangentially-fired boilers (Units C1, C2, C3, C4, and C5), each supplying steam to a steam turbine electrical generating unit. Each unit burns coal which is delivered by rail car to the facility. Electricity generated at the facility is transmitted to Washington D.C. for use by variety of customers including federal agencies, businesses, and the D.C. Water and Sewer Authority's Blue Plains Wastewater Treatment Plant. Number 2 fuel oil, stored in two aboveground storage tanks, is fired in the boilers for ignition, warm-up, and flame stabilization. Each unit's gas stream is discharged into the atmosphere through a dedicated stack for that unit. The five stacks are identical and are 161 feet above ground level.

**Table 1: Summary of PRGS Combustion Units**

Unit 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	970.1	93	1949
C2	Combustion Engineering, Inc.	Natural circulation, tangentially coal-fired with superheater and economizer	970.1	93	1950
C3	Combustion Engineering, Inc.	Controlled circulation, tangentially coal-fired with superheater, single reheater and economizer	960.7	108	1954
C4	Combustion Engineering, Inc.	Controlled circulation, tangentially coal-fired with superheater, single reheater and economizer	960.7	108	1956
C5	Combustion Engineering, Inc.	Controlled circulation, tangentially coal-fired with superheater, single reheater and economizer	960.7	108	1957

Units 1 and 2 are cycling units that offer more flexibility in how they are dispatched. Cycling units can be brought online quickly to

respond to increases in demand. Units 3, 4 and 5 are considered baseload units and are called into service more often than Units 1 and 2. The baseload units typically run 24 hours a day

The facility is a Title V major source of sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub>), and carbon monoxide (CO). This facility is located in a nonattainment area for ozone (“moderate” designation) and nonattainment area for PM<sub>2.5</sub> (no designation assigned by EPA at this time). The area is in attainment of the standards for all other pollutants. The VDEQ-Northern Virginia Region Office is currently drafting the Title V permit and Statement of Basis for the facility.

Because the units are grandfathered, there are no NSR permits applicable to this source. The facility entered in to a consent order with VDEQ on July 10, 1998 to establish Reasonable Available Control Technology (RACT) for NO<sub>x</sub> 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<sub>x</sub> during the ozone control season, May 1<sup>st</sup> through September 30<sup>th</sup>.

### III. 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<sub>x</sub> Burners (LNB) on all units (C1, C2, C3, C4, and C5) and Separated Over Fire Air (SOFA) technology on units C3, C4, and C5 as a result of a 2004 judicial consent decree settlement.

LNB limit the formation of NO<sub>x</sub> 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<sub>x</sub> formation), reduce flame temperature (limits thermal NO<sub>x</sub> formation), and/or reduce residence time at peak temperature (limits thermal NO<sub>x</sub> formation).

The SOFA is a technique that involves removing a percentage of combustion air and adding excess air above the burners. This limits thermal NO<sub>x</sub> by partially delaying and extending the combustion process resulting in less intense combustion, and lower flame temperatures. It also suppresses the fuel NO<sub>x</sub> formation by reducing the concentration of air in the combustion zone where volatile fuel nitrogen is evolved. The SOFA can reduce NO<sub>x</sub> 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<sub>2</sub> emissions that demonstrated modeled NAAQS exceedences. Trona is a naturally occurring mineral, sodium sesquicarbonate, which is non-hazardous and non-flammable and similar to baking soda. It is used in dry sorbent injection systems where it reacts with acid gases

to form a safe non-corrosive product that will not damage the equipment. When injected into the exhaust gas stream the dry powder forms bonds with SO<sub>2</sub>. The compounded 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<sub>2</sub> from exhaust gas while reducing particulate emissions. Particulate matter can form in the atmosphere when emitted gases, such as sulfur dioxide, condense; so when the amount of sulfur dioxide decreases, the amount of particulate matter is reduced accordingly.

#### **IV. Permit Description**

The Board has requested DEQ to develop State Operating Permits for three scenarios which require the establishment of emission limitations for SO<sub>2</sub> on both a short-term and a long term basis. This document describes permit Options 2 and 3 (Option 1 is discussed in another analysis). The emission limitations in Options 2 and 3 have been established to step down SO<sub>2</sub> emissions from the facility over a period of time beginning with an initial SO<sub>2</sub> limitation of 0.50 lbs/mmBtu and ending at a controlled rate of 0.28 lbs/mmBtu over a period of 9 months to 1 year. At the end of the period, annual emissions are capped at 3,500 tons of SO<sub>2</sub> from the facility.

The emission limitations established in permit Options 2 and 3 have not been modeled under all expected operating scenarios. The limitations reflect what is believed to be a reasonably expected level of SO<sub>2</sub> control for similar-sized pulverized coal combustion electric generating units. At this time it is not known whether these limitations are protective of the SO<sub>2</sub> NAAQS under all operating scenarios.

Both permit options continue the use of predictive modeling and SO<sub>2</sub> ambient air monitoring with associated action thresholds when monitored SO<sub>2</sub> concentrations at any ambient air monitor reach 70% of the National Ambient Air Quality Standards (NAAQS). Both permit options also require the continued operation of an SO<sub>2</sub> Continuous Emission Monitoring System (CEMS) to determine compliance with all SO<sub>2</sub> emission limitations.

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

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

#### **VI. 9 VAC 5 Chapter 50, Part II, Article 5 – NSPS**

The PRGS is not subject to 40 CFR 60 Subpart D – Fossil Fuel Steam Generators or Da – Electric Utility Steam Generating Units. Both NSPS apply to fossil fuel fired steam generators that are greater than 250 mmbtu/hr and commenced construction or modification after August 17, 1971 for Subpart D and September 18, 1978 for Subpart Da. 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.

The PRGS is not subject to 40 CFR Subpart Db because the all boilers are larger than the 100-250 mmBtu/hr heat input capacity for applicability.

#### **VII. 9 VAC 5 Chapter 60, Part II, Article 1 – NESHAPS**

There is no applicable NESHAP for steam generating units.

#### **VIII. 9 VAC 5 Chapter 60, Part II, Article 2 – Maximum Achievable Control Technology (MACT)**

There are no applicable MACT requirements for steam generating units. The Boiler MACT (40 CFR 63 Subpart DDDDD) exempts electric utility steam generating units in section 63.7491(c).

#### **IX. Future Applicable Requirements**

The PRGS will be subject to the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR) effective January 1, 2009, for NO<sub>x</sub> and January 1, 2010, for SO<sub>2</sub>. Under Phase I CAIR, the facility will be allocated 701 tons of NO<sub>x</sub> emissions during the ozone season and 1,162 tons of NO<sub>x</sub> and 6,025 tons of SO<sub>2</sub> annually.

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.

#### **X. Toxic Pollutants**

The facility is not subject to the state toxics rule. 9VAC 5-60-300 C.5. exempts stationary sources regulated by an emission standard in section 112 of the Clean Air Act. The facility will be subject to CAMR.

#### **XI. Title V Review - 9 VAC 5 Chapter 80, Article 1**

The facility is a Title V major source of sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub>), and carbon monoxide (CO). The VDEQ-Northern Virginia Region Office is currently drafting the Title V permit and Statement of Basis for the facility. All applicable requirements resulting from this permit action will be incorporated into the Title V permit.