



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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COMMONWEALTH OF VIRGINIA Department of Environmental Quality Piedmont Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Doswell Energy Center
Hanover County, Virginia
Permit No. PRO51018

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have Federal Air Pollution Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Doswell Limited Partnership has applied for a renewal to a Federal Operating Permit for its Hanover County, Virginia facility. The Department has reviewed the application and has prepared a draft renewal Federal Operating Permit.

Engineer/Permit Contact: _____

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Date: _____

Air Permit Manager: _____

James E. Kyle, P.E.

Date: _____

Regional Deputy Director: _____

Kyle Ivar Winter, P.E.

Date: _____

FACILITY INFORMATION

Permittee/Facility

Doswell Limited Partnership/Doswell Energy Center
10098 Old Ridge Road
Ashland VA 23005

Responsible Official

Anthony Hammond
Asset Manager

Acid Rain Designated Representative, and CAIR/NO_x Budget Trading Authorized Account Representative (AAR)

Anthony Hammond
Asset Manager
USEPA ATS-AAR ID number - 607206

Facility Contact Person

Anita Seigworth
Senior Environmental Specialist
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County-Plant Identification Number: 51-085-0061

ORIS Code ID: 52019

NATS Facility Identification Number: 052019

Facility Description: SIC Code Number – 4911 and NAICS ID Code 221112.

The facility is an independent power production facility. Natural gas is received via gas pipelines and backup No. 2 Fuel Oil is available to fire up to four Kraftwerk Union V84.2 (120 MW) – combined cycle combustion turbines and associated John Zinc duct burners and one GE 7FA simple cycle combustion turbine (190 MW at an ambient temperature of approximately 20° F). Other auxiliary equipment includes a natural gas-fired (No. 2 Fuel Oil backup) Zurn boiler rated at 40.0 mmBtu/hr, one Cummins-West emergency generator fueled by No. 2 Fuel Oil, one Caterpillar 3208DITA Fire Pump fueled by No. 2 Fuel Oil and two (2) 7.6 million gallon fuel oil storage tanks. Fugitive VOC emissions due to fuel storage and handling are estimated to be less than 0.5 tons/year.

The Kraftwerk turbines were originally installed in June 1991 and the GE turbine was added in January 2001. All five turbines are subject to the requirements of 40 CFR 60, Subpart GG. The duct burners are subject to 40 CFR 60 Subpart Da and the auxiliary boiler is subject to 40 CFR 60, Subpart Dc. The facility is a major source of PM10, PM2.5, SO2, NOx, CO, VOC and GHGs pollutants under the Title V Federal Operating Permit Program. This source is located in an attainment area for all pollutants, and is a PSD major source. The facility currently has two separate amended PSD permits for the independent power

production operation. The combined cycle turbine facility's original PSD Permit was issued on May 4, 1990, and last amended on August 3, 2005. The addition of the simple cycle turbine facility was considered a major modification under the PSD regulations. A separate PSD permit for the addition of the simple cycle turbine facility was issued April 7, 2000 and last amended on September 30, 2013. This Federal Operating Permit incorporates the permit conditions for both the combined cycle turbine facility and the simple cycle turbine facility. The simple cycle turbine facility is subject to the Acid Rain Program; whereas, the combined cycle turbine facility is not. The source submitted a timely and complete application. The application and permit shield is in effect.

COMPLIANCE STATUS

The facility is inspected every other year and has been in compliance. The last Full Compliance Evaluation (FCE) was conducted on February 12, 2012 and was found to be in compliance.

Equipment Units:

The Emission Units and equipment to be operated consists of:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity**	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Equipment							
11	1	ID No. 501, Kraftwerk Union Combined Cycle Combustion Turbine (Model: V84.2) (Constructed: 5-1995) Firing no. 2 fuel oil with a maximum sulfur content of 0.05% - backup	1,237.2 mmBTU/hr. – input (*) 122 MW – output	Kraftwerk Union (steam injection) and Mitsubishi (SCR) 64% efficiency	501-11	NOx	8/3/05
12		Firing natural gas – primary	1,261.2 mmBTU/hr. – input (*) 122 MW – output	Kraftwerk Union (burner design) and Mitsubishi (SCR) 54% efficiency	501-12	NOx	8/3/05
13		ID No.501, Nooter-Erickson Heat Recovery Steam Generator (HRSG) with a John Zinc duct burner (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05% - backup	266 mmBTU/hr. – input (*) 500x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 64% efficiency Note: the duct burners are before the SCR. The SCR controls NOx for both the CT and DB.	501-13	NO _x	8/3/05

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity**	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
14	1	Firing natural gas -primary	241 mmBTU/hr.-input (*) 455 x 10 ³ Lb/hr. steam output	Mitsubishi (SCR) 54% efficiency	501-14	NO _x	8/3/05
21	2	ID No. 502, Kraftwerk Union Combined Cycle Combustion Turbine (Model: V84.2) (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05% - backup	1,237.2 mmBTU/hr. input (*) 122 MW – output	Kraftwerk Union (steam injection) and Mitsubishi (SCR) 64% efficiency	502-21	NO _x	8/3/05
22		Firing natural gas – primary	1,261.2 mmBTU/hr. – input (*) 122 MW – output	Kraftwerk Union (burner design) and Mitsubishi (SCR) 54% efficiency	502-22	NO _x	8/3/05
23		ID. No. 502, Nooter-Erickson Heat Recovery Steam Generator (HRSG) with a John Zinc duct burner (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05%-standby	266 mmBTU/hr – input (*) 500x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 64% efficiency	502-23	NO _x	8/3/05

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity**	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
24	2	Firing natural gas – primary	241 mmBTU/hr – input (*) 455x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 54% efficiency	502-24	NO _x	8/3/05
31	3	ID, No. 601, Kraftwerk Union Combined Cycle Combustion Turbine (Model: V84.2) (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05%-standby	1,237.2 mmBTU/hr. – input (*) 122 MW- output	SCR, steam injection and burner design Kraftwerk Union (steam injection and burner design) Mitsubishi (SCR) 64% efficiency	601-31	NO _x	8/3/05
32		Firing natural gas-primary	1,261.2 mmBTU/hr – input (*) 122 MW – output	SCR, steam injection or burner design Kraftwerk Union (steam injection and burner design) Mitsubishi (SCR) 54% efficiency	601-32	NO _x	8/3/05
33		ID. No. 601, Nooter-Erickson Heat Recovery Steam Generator (HRSG) with a John Zinc duct burner, (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05% - standby	266 mmBTU/hr. – input (*) 500x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 64% efficiency	601-33	NO _x	8/3/05

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity**	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
34	3	Firing natural gas – primary	241 mmBTU/hr input (*) 455x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 54% efficiency	601-34	NO _x	8/3/05
41	4	ID. No. 602, Kraftwerk Union Combined Cycle Combustion Turbine (Model: V84.2) (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05% - standby	1,237.2 mmBTU/hr (*) 122 MW – output	SCR, steam injection and burner design Kraftwerk Union (steam injection and burner design) Mitsubishi (SCR) 64% efficiency	602-41	NO _x	8/3/05
42		Firing natural gas – primary	1,261.2 mmBTU/hr. – input (*) 122 MW – output	SCR, steam injection or burner design Kraftwerk Union (steam injection and burner design) Mitsubishi (SCR) 54% efficiency	602-42	NO _x	8/3/05
43		ID. No. 602, Nooter-Erickson Heat Recovery Steam Generator (HRSG) with a John Zinc duct burner (Constructed: 6-1990) Firing no.2 fuel with a maximum sulfur content of 0.05% - standby	266 mmBTU/hr – input (*) 500x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 64% efficiency	602-43	NO _x	8/3/05

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity**	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
44	4	Firing natural gas – primary	241 mmBTU/hr. – input (*) 455x10 ³ Lb/hr. steam output	Mitsubishi (SCR) 54% efficiency	602-44	NO _x	8/3/05
51	5	Zurn Auxiliary boiler (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05% - standby	40 mmBTU/hr. – input (°) 34,000 Lb/hr. steam output	-	-	-	8/3/05
52		Firing natural gas – primary	40 mmBTU/hr – input (°) 31,000 Lb/hr. steam output				
61	6	Caterpillar Fire Pump (Model: 3208 DITA) (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05%	1.44 mmBTU/hr. input (°) 145 BHP – output	-	-	-	8/3/05
71	7	Cummins-West Emergency Generator (Model: KTTA19-G2) (Constructed: 6-1990) Firing no. 2 fuel oil with a maximum sulfur content of 0.05%	4.26 mmBTU/hr. – input (°) 500 kW – output 670 BHP	-	-	-	8/3/05

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity**	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
81	8	ID. No. CT1, G.E. Frame 7 Simple Cycle Combustion Turbine (Model: GE7FA) (Constructed: 2-2001) Firing No. 2 distillate oil with a maximum sulfur content of 0.05% - backup	2037 mmBTU/hr – input 190.5 MW – output	Burner design and water injection GE 61% efficiency	CT1-81	NO _x	9/30/13
82		Firing natural gas – primary	1944.72 mmBTU/hr – input 185 MW – output	Burner design GE 92% efficiency	CT1-82	NO _x	9/30/13
83		Firing natural gas during peak firing - backup	1707.18 mmBTU/hr 166 MW – output	Burner design GE 87% efficiency	CT-83	NO _x	9/30/13
111	NA	Cone Shaped Fixed Roof Fuel Oil Storage Tank A (Constructed: 6-1990)	7.6 million gallons	-	-	-	8/3/05
112	NA	Cone Shaped Fixed Roof Fuel Oil Storage Tank B (Constructed: 6-1990)	7.6 million gallons	-	-	-	8/3/05

(*) Capacity rating based on lower heat rating of fuel. (°) Capacity rating based on higher heat rating of fuel.

**The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

The 2013 annual emissions (as reported in Virginia’s Comprehensive Environmental Data System (CEDs)) are summarized in the following table:

2013 Actual Emissions

Emission Unit	2013 Criteria Pollutant Emission in Tons/Year					
	VOC	CO	SO ₂	PM _{2.5}	PM ₁₀	NO _x
11/12 & 13/14 (501)	13.692	84.605	2.178	6.786	92.995	131.334
21/22 & 23/24 (502)	12.343	76.902	1.995	6.143	82.888	116.066
31/32 & 33/34 (601)	12.090	75.636	1.905	5.991	80.842	105.765
41/42 & 43/44 (602)	12.611	78.696	1.984	6.266	84.597	117.861
51/52 (Aux. Boiler – Zurn)	1.200	2.881	0.031	0.019	0.209	1.257
61 (Fire Pump)	0.003	0.006	0.002	0.006	0.006	0.044
71 (Emergency Generator)	0.007	0.022	0.004	0.013	0.013	0.184
81/82 (CT1)	1.221	7.594	0.365	0.897	7.457	16.340
Total	53.165	326.342	8.464	26.212	349.007	488.851

2013 Facility Hazardous Air Pollutant Emissions (from Title V permit application)

Pollutant	2013 Hazardous Air Pollutant Emission in Tons/Yr
Beryllium	0.000
Formaldehyde	2.923
Nickel	0.002
Lead	0.000

EMISSION UNIT APPLICABLE REQUIREMENTS - [Combined Cycle Combustion Turbines/HRSGs and Auxiliaries]

Limitations:

BACT Limitations:

- I. **Specific Conditions 3, 4, 25 and 5** of the August 3, 2005 NSR permit (Title V permit conditions 1, 2, 32, and 4) are all BACT conditions *requiring controls* for the specific pollutant based on the specific fuels being combusted. Other controls would be minimizing the SO₂ emissions by capping the maximum sulfur content on the particular fuel. For the no. 2 fuel storage tanks, VOC control was the type of structure of requiring a fixed roof and that it had a pressure vacuum valve.
- II. **Specific Conditions 13, 14, 15¹, 16, 17, 18, 19¹, 20¹, 21¹, 23, 24² and 25²** of the August 3, 2005 NSR permit (Title V permit conditions 13, 14, 15, 16, 18, 19, 20, 21, 23, 12, 3, and 36) are all BACT conditions *limiting the criteria pollutant emissions* based on controls and operating limitations resulting from combustion. The listed operating limitations conditions included limiting the short term and annual¹ emissions based on the type of fuel combusted, visible emissions, and list of approved fuels² if other fuels used it may need a permit to modify and operate.

¹: NO_x (specific conditions 15 (turbine/duct burner) (Title V permit condition 15) and 20 (facility wide) (Title V permit condition 21), SO₂ (specific condition 21 (Title V permit condition 23), and VOC (specific condition 19 (Title V permit condition 20)) emissions limitations included a calculation for determining the limitations. The SO₂ calculations included sulfur analysis.

²: The list of approved fuels is for the approved fuels conditions.

Operating Limitations:

Specific Conditions 6¹, 7², 8, 9, 10, 11, and 12 of the August 3, 2005 NSR permit (Title V permit conditions 5, 6, 7, 8, 9, 10, and 11) are all operating conditions which *limit the throughputs of each of the fuels and/or operating hours or restrictions on minimum load (only applies to specific condition 12) on a unit by unit basis.* These requirements are to ensure the emission limits are practically enforceable and are not exceeded.

- ¹: Specific condition 6 (Title V permit condition 5) for the combined cycle turbines (operating limitation condition), the 2,160 hours per year equates to the throughput limitation of 20.6×10^6 gallons per year of No. 2 fuel oil.
- ²: Specific condition 7 (Title V permit condition 6) for the duct burners (operating limitation condition), the 2,160 hours per year equates to the throughput limitation of 4.43×10^6 gallons per year of No. 2 fuel oil.

Periodic Monitoring/Recordkeeping:

Specific Conditions 19, 24, 26, 27, 28, 29, 30, 33, and 34 (recordkeeping) and General Condition 3 (recordkeeping) of the August 3, 2005 NSR permit (Title V permit conditions 20, 3, 22, 24, 25, 26, 27, 29, and 30) are all periodic monitoring (which includes recordkeeping requirements) conditions. Periodic monitoring includes some type of direct monitoring systems such as continuous emissions monitoring systems (CEMS) or indirect monitoring such as through parametric monitoring systems. Parametric monitoring monitors a parameter that indirectly monitors what needs to be evaluated to help ensure the emission limits are being met. An example of this is monitoring the sulfur content of a fuel as one of the means to ensure SO₂ emission limits are being met.

Specific Condition **19***: Specific condition 19 will be used for periodic monitoring of *specific condition 8* (Title V permit condition 7) which limits the amount of no. 2 fuel oil. Under specific condition 19 records for fuel oil are not specifically designated; however, it is implied in order to be able to insert the fuel consumption rate of fuel oil and natural gas respectively. However, general condition 3 should complete this recordkeeping requirement.

*: Title V condition 20

Specific Condition **24***: Parametric monitoring by defining the approved fuels of what is considered low sulfur fuels. This monitoring condition applies to all conditions that address SO₂ emissions for the combined cycle turbine facility.

*: Title V condition 3

Specific Condition **26***: Parametric monitoring by a calculation method for determining the allowable SO₂ emissions on a unit by unit basis which includes the *EPA approved alternative sulfur analysis sampling schedule****. The additional periodic monitoring in this condition was by keeping records of the fuel and the sulfur to ensure the SO₂ emissions are not exceeded.

*: Title V condition 22

The latter half of specific condition 26 (Title V permit condition 22) regarding no. 2 fuel oil of monitoring and recordkeeping will be applied for periodic monitoring to *specific condition 8 (Title V permit condition 7) and specific condition 26 (Title V permit condition 22)*.

***: From the EPA approved alternative monitoring plan (October 20, 1994), fuel sampling shall be according to the following:

“Fuel gas heating values are measured by the gas supplier at the facility’s supply station. Samples are analyzed using gas chromatography meeting AGA standards. An automatic daily calibration is conducted with certified gases. As-fired fuel oil samples from the oil storage tank in service are sent to an independent laboratory. Samples are analyzed using the ASTM D-240* method.”

*: measures heat content

Specific Condition 27*: Direct monitoring by CEMS** on each of the heat recovery steam generator exhaust stacks of the NO_x emissions emitted from the combined combustion turbine and duct burner exhaust. The additional periodic monitoring in this condition was by keeping records of the fuel and the sulfur to ensure the SO₂ emissions are not exceeded. Note: The CEMS will be calibrated and maintained according to appendix B of the acid rain requirements instead of according to appendix B of the new source performance standards (NSPS) found under 40 CFR 60. However, this method has been implemented in the underlying permit for some time now of which has been in the Title V permit.

*: Title V condition 24

**: The data is continuously recorded by the data acquisition handling system (DAHS) and has alarming to warn the operators if the monitored concentration is approaching/exceeding the calculated allowable. The NO_x data is also sent and alarmed by the plant DCS.

In addition, records are kept of the maintenance and calibration of the continuous monitoring system used to determine the concentration of nitrogen oxides and oxygen emitted from the combined combustion turbine and duct burner exhaust. In addition, the procedures are outlined in the facility’s preventive maintenance program.

Specific Condition 27 (Title V permit condition 24) applies to specific conditions 15 (Title V permit condition 15) and 21 (Title V permit condition 23).

Specific Condition 28*: Indirect monitoring (parametric monitoring) by continuously monitoring the fuel use. Monitoring the parameter of the fuel used indirectly ensures the regulated pollutants resulting from fuel combustion are not exceeding their emission limits.

*: Title V condition 25

Specific Condition 28 (Title V permit condition 25) applies to specific conditions 6, 7, 13, 14, 19, 20, and 21 (Title V permit conditions 5, 6, 13, 14, 20, 21, and 23).

Specific Condition 28 (Title V permit condition 25) states the following:

Continuous monitoring systems* shall be installed to monitor and record the fuel oil and natural gas consumption as required in the alternative monitoring plan approved by US EPA. The

monitoring systems shall be in operation at all times when the turbines or turbine/duct burner combination are in operation. They shall be maintained and calibrated in accordance with the manufacturer's specifications.

*: The continuous monitoring systems record continuously and the information is available on the control panel.

The continuous monitoring systems are further detailed below:

As stated in the EPA approved alternative monitoring plan for Combined Cycle Emissions Subject to Subparts GG and Da of 40 CFR Part 60 (October 20, 1994):

“Pre-existing source monitoring equipment and procedures are used to determine fuel flow rates and heat input. Fuel flow rates are determined by using ASME, ISO and AGA* standards. Fuel gas flow to the combustion turbine is calculated using a flowmeter, a gas density meter and pressure meter and temperature transmitters. The fuel oil flow is determined using a turbine-proximity flowmeter. Duct burner fuel flow rates are measured with an ASME/ISO flow venturi, and a differential pressure transmitter is used for measuring gas flow. An ASME orifice with a differential pressure transmitter is installed for measuring oil flow. The venturis and orifices inspections are, at a minimum, scheduled every five years. Flowmeters and gas density meters are inspected annually and calibrated every three years and transmitters are calibrated and/or inspected annually. These procedures are outlined in the facility’s preventive maintenance program.”

*: AGA: American Gas Association

Regarding monitoring under specific condition 28 (Title V permit condition 25) to determine the heat input from the various fuels for specific condition 20 (Title V permit condition 21):

From the fuel meter for the auxiliary boiler the fuel consumption per year will be used to multiply by the heat content per unit of fuel. The **fuel heat contents** are determined as indicated in the EPA approved alternative monitoring plan (October 20, 1994) listed below:

“Fuel gas heating values are measured by the gas supplier at the facility’s supply station. Samples are analyzed using gas chromatography meeting AGA standards. An automatic daily calibration is conducted with certified gases. As-fired fuel oil samples from the oil storage tank in service are sent to an independent laboratory. Samples are analyzed using the ASTM D-240* method.”

*: Measures heat content

Specific Condition 29*: Indirect monitoring (parametric monitoring) by testing the sulfur content of the fuel used for the SO₂ resulting from fuel combustion. The monitoring/testing is according to the USEPA custom fuel monitoring schedule again this ensures the emission limits are not exceeded. This method has been implemented in the underlying permit for some time now of which has been in the Title V permit.

Specific condition 29 (Title V permit condition 26) addresses periodic monitoring for the approved fuels condition and specific condition 13 (Title V permit condition 13).

Specific Condition 30*: This condition not only addresses reporting it indicates the NO_x monitors availability along with calculation of the percent of time that the emissions are less than or equal to the allowable limits.

*: Title V condition 27

Per the EPA approved alternative monitoring plan (October 20, 1994):

“Hourly NO_x stack emissions are measured by a CEM system which performs daily calibrations for the NO_x and O₂ analyzers, records raw data, and generates reports. Raw data validated with daily calibration drift checks are then used to determine an hourly averaged concentration expressed as ppm @ 15% O₂. The CEM system calculates an hourly stack emission limit based upon the calculations above (from the alternative monitoring plan) and alarms an excess emission if the hourly concentration is greater than the calculated limit. Excess emissions are reported in the facility’s quarterly data assessment report to the state and federal agencies. Quality control procedures defined in 40 CFR Part 75, Appendix B are used to validate the collected CEM data.”

Specific Condition 30 (Title V permit condition 27) monitors specific condition 15 (Title V permit condition 15) which limits the criteria emissions for each of the combined cycle turbines.

Specific Condition 33*: This condition includes EPA approved alternative opacity monitoring for the duct burners for NSPS Da – March 1998. This monitoring evaluates the visible emissions limit in specific condition 23 (Title V permit condition 12). Additional monitoring was added under condition 31 of the Title V permit to meet the monitoring requirements of Part 70.

*: Title V permit condition 29

Specific Condition 34*: This condition monitors the distillate oil annual capacity factor for the duct burners to ensure it does not exceed 10 percent and if so the opacity monitoring alternative will have to recertify the continuous opacity monitor (COM) for the affected duct burner.

General Condition 3*: This condition addressed several specific periodic monitoring conditions as follows and addresses all other required recordkeeping not specifically stated:

*: Title V permit condition 37

General Condition 3 (Title V permit condition 37) states the following:

The permittee shall retain records of all emission data and operating parameters required to be monitored by the terms of this permit. These records shall be maintained by the source for the most current **five*** year period.

*: Refer to “streamlined requirements”.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 3 (Title V condition 1) which requires NO_x control for the combined cycle combustion turbine/duct burner of combustor design or steam injection followed by SCR based on the respective fuels.

The facility monitors the “combustor design” by the control panel denoting which burner mode it is in and whether it is in a premixed combustion mode or whether it is in a diffusion flame mode. In addition, the steam injection and SCR are monitored in the same manner by the control panel giving a readout (respectively) of the steam injection rate and the ammonia injection rate.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 5 (Title V permit condition 4) which requires a control of VOC by fixed roof design with a pressure vacuum valve for fuel oil storage tanks. The added periodic monitoring was as follows to meet the Part 70 requirements:

Condition 32 of Title V permit:

Records shall be kept demonstrating the pressure vacuum valves are in good operating order and the fixed roofs are in acceptable condition.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 9 (Title V permit condition 8) which limits the fuel consumption:

The emergency generator has its own designated fuel tank. The fuel consumption is calculated using the operating hours times the rated fuel flow. The operating hours are recorded in the plant data system (PI)*.

*: Process Instrumentation

General Condition 3 (Title V permit condition 37) as it applies to specific condition 10 (Title V permit condition 9) which limits the number of hours the emergency generators could operate concurrently with the combined cycle combustion turbines and the auxiliary boiler in a 24 hour period.

The Data Acquisition Handling System (DAHS) records the operating hours on a continuous basis.

From an inspection report:

“The emergency generator is not operated concurrently with the turbines or auxiliary boiler. Records would be maintained if the operation had to occur due to an emergency situation.”

In addition, an interlock prevents the auxiliary boiler and duct burners from being fired together.

The combined cycle combustion turbines’ operating hours are tracked by the CEMS. Along with the hours, the DAHS records which fuel is being burned.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 11 (Title V permit condition 10) which limits the amount of fuel.

The emergency fire water diesel pump has its own designated fuel tank. Calculation of the fuel consumption is based on operating hours and rated fuel flow. The operating hours are recorded by the Process Instrumentation (PI).

General Condition 3 (Title V permit condition 37) as it applies to specific condition 12 (Title V permit condition 11) which limits the minimum load to 65%¹:

The facility monitors the “% of the maximum load of the combustion turbine” by the control panel denoting the “% of the maximum load of the combustion turbine”.

¹: Please note the maximum load of the combustion turbine is corrected to ambient conditions.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 15 (Title V permit condition 15) which limits the NO_x emissions on the combined cycle combustion turbine and duct burner combination.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 19 (Title V permit condition 20) which limits the VOC emissions on the entire combined cycle facility. This condition also includes VOCs from the storage and handling of fuel and not just from combustion.

Note: The auxiliary boiler’s fuel consumption is monitored by fuel flow meters and monthly tank inventory of no. 2 fuel oil along with performing the API tanks program to determine the amount VOCs being emitted from the fuel tanks.

In addition, the diesel generator’s fuel consumption is calculated using operating hours and rated fuel flows.

General Condition 3 (Title V permit condition 37) as it applies to specific condition 21 (Title V permit condition 23) which limits the entire combined cycle facility’s emissions.

Monitoring, Recordkeeping and Reporting regarding the auxiliary boiler, emergency generator and the emergency diesel pump (Specific conditions 16, 17 and 18 (Title V permit conditions 16, 18, and 19)): No monitoring, recordkeeping, and reporting should be required as the hourly emission limits were established based on the hourly capacities of the auxiliary boiler, emergency generator, and emergency diesel pump. Therefore, if the auxiliary boiler, emergency generator, and emergency diesel pump are operated at capacity, or below, there should not be a violation of their hourly emission rates. In addition, there is a flow meter on the auxiliary boiler.

The latter section of specific condition 26 (Title V permit condition 22) also performs the same function for the auxiliary boiler:

“Doswell Limited Partnership shall keep monthly records of natural gas consumption for each of the above units and *total sulfur analysis for the purpose of computing the allowable emission rates. The sulfur analysis shall be performed in accordance with the alternative sampling schedule* that has been approved by the Environmental Protection Agency.*”

*: EPA’s approved alternative monitoring frequency for natural gas sulfur content (January 9, 1998)

Reporting

Specific Conditions 30 and 31 (Title V permit conditions 27 and 35) of the August 3, 2005 NSR permit are reporting conditions for excess emissions of NO_x and opacity excess emissions (respectively). *Specific condition 31 (Title V permit condition 35)* includes EPA approved alternative opacity monitoring method under NSPS Da for the duct burners.

NSPS Requirements for 40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines, 40 CFR Subpart 60 Subpart Da – Standards of Performance for Electric Utility Steam Generating Units, and 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Added Title V permit condition 17 to address applicable requirements from 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

Specific Condition 32 (Title V permit condition 28) (NSPS requirements) of the August 3, 2005 NSR permit:

Doswell Limited Partnership shall meet all applicable requirements of 40 CFR Part 60 Subpart GG - Standards of Performance for Stationary Gas Turbines and 40 CFR Part 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units, except as provided in the federally approved alternative monitoring method for opacity and NO_x emissions from the combined cycle combustion turbine/HRSG duct burner firing; and 40 CFR Part 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. **Monitoring and Recordkeeping:** Monitoring and recordkeeping will be according to the monitoring and recordkeeping, as discussed under the NSPS section or per each condition regarding the respective NSPS by the USEPA approved alternate monitoring which is included in each condition.

NSPSs specified in specific condition 32 (Title V permit condition 28):

***NSPS Da – Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978
(NSPS Da is only applicable to the Combined Cycle Turbine Facility and not to the Simple Cycle Turbine Facility per 40 CFR 60.40Da(b)):***

40 CFR 60.42Da Standard for particulate matter:

40 CFR 60.42Da(a)(1):

The duct burners meet the particulate standard of (0.03 lb/million Btu) heat input derived from the combustion of solid, liquid, or gaseous fuel;

Based on the following:

The PM (TSP) and PM10 emission limits for the duct burners when burning natural gas is 0.0192 lbs/million BTU and when burning No. 2 Fuel Oil is 0.030 lbs/million BTU.

40 CFR 60.42Da(3):

“And the 30 percent of potential combustion concentration (70 percent reduction) when combusting liquid fuel.” is currently being met based on the following definition of potential combustion concentration (40 CFR 60.41Da):

means the theoretical emissions (ng/J, lb/million Btu heat input) that would result from combustion of a fuel in an uncleaned state without emission control systems and:

(a) For particulate matter is:

- (1) 3,000 ng/J (7.0 lb/million Btu) heat input for solid fuel; and
- (2) 73 ng/J (0.17 lb/million Btu) heat input for liquid fuels.

The permit limit for particulate for oil as fired is 0.03 lb/mmBTU. 30% of 0.017 lb/mmBTU would allow up to 0.051 lb/mmBTU.

In addition, it meets the opacity standard for particulate matter as follows:

40 CFR 60.42Da(b)

Opacity Standard:

No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.

By *specific condition 23* (Title V permit condition 12) of the August 3, 2005 NSR Permit:

Specific Condition 23 (Title V permit condition 12) states the following of which meets the above opacity standard:

Visible emissions from each exhaust point at the combined cycle turbine facility shall not exceed ten (10) percent opacity.

40 CFR 60.43Da Standard for sulfur dioxide

60.43Da(b)(2)

100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 86 ng/J (0.20 lb/million Btu) heat input.

Based on the following:

The SO₂ emission limits in the NSR permit for the duct burners when burning natural gas is 0.00310 lbs/million BTU and when burning No. 2 Fuel Oil is 0.0650 lbs/million BTU of which more than meets the standard. In addition, this is based on a more stringent hourly basis rather than averaged over a 24 hour period as described in the definition for “boiler operating day”.

40 CFR 60.44Da Standard for nitrogen oxides

60.44Da(a)

The NSPS emission limits and monitoring requirements for nitrogen oxides for both the turbines and the duct burners have been replaced with the combined emission limit (*Specific Condition 15 (Title V permit condition 15)*) per the EPA approved alternative method (October 20, 1994).

60.44Da(c)

The facility's combined cycle combustion turbines can burn natural gas and fuel oil simultaneously and is exempt from the standard, which is determined by a proration formula for when burning two or more fuels simultaneously. However, the alternative method includes a proration of emission limits by fuels. In addition, please note the duct burners cannot burn natural gas and fuel oil simultaneously.

40 CFR 60.45Da Standard for mercury (Hg) - NA

40 CFR 60.46Da [Reserved] – NA

40 CFR 60.47Da Commercial Demonstration Permit - NA

40 CFR 60.48Da Compliance Provisions

60.48Da(c)

60.48Da(c) applies to particulate matter emission standards but does not apply to the nitrogen oxides emissions standards due to the EPA approved alternative monitoring method for nitrogen oxides (October 20, 1994).

In addition, this should apply to sulfur dioxide whenever 30 successive operating boiler days is reached. (Please see discussion in the following paragraph.)

60.48Da(e), (f), (g), and (h)

60.48Da(e), (f), (g), and (h) are regarding nitrogen oxides and sulfur dioxide when the boilers operate for 30 successive days. These provisions should not apply to the sulfur dioxide as the limits on the sulfur dioxide for the duct burners are based on the more stringent hourly emission limits rather than averaged over a 24 hour period as described for a "boiler operating day". In addition, the facility operates less than 12 hours/day so therefore they have not yet met the 30 successive boiler operating days. They most likely will not ever meet the 30 successive boiler operating days. These compliance provisions will not apply regarding the nitrogen oxides as the facility has an EPA approved alternative monitoring method for nitrogen oxides (October 20, 1994).

60.48Da(j) and (k):

The duct burners for the combined cycle turbines do use a continuous emission monitoring system (CEMS) for nitrogen oxides; however, the CEMS is per the EPA approved alternative

monitoring plan (October 20, 1994) as this section of the regulations was not in effect when this facility was constructed.

40 CFR 60.49Da Emission Monitoring

60.49Da(a)

The requirement to have a continuous monitoring system for measuring opacity does not apply as EPA approved an alternative opacity monitoring method for the duct burners in March of 1998. **Specific Condition nos. 31, 33 and 34 (Title V permit conditions 35, 29, and 30 of the August 3, 2005 NSR permit.)** include requirements from the alternative method. The associated records for the opacity is as discussed under **specific condition nos. 33 and 34 (Title V permit condition nos. 29 and 30)** of this document along with adding periodic monitoring of the manufacturer's recommendations for maintaining the duct burners according to the alternative opacity monitoring method.

60.49Da(b)

The requirement to have a sulfur dioxide continuous monitoring system along with recording the output is not required yet of this facility as the boilers have not operated for thirty successive days. (Please see discussion under "60.48Da(e), (f), (g), and (h)") Fuel consumption is monitored continuously according to the NOx alternative monitoring plan along with having fuel certification records.

60.49Da(c)(1) or (2) and (d)

These requirements shall be according to the alternative monitoring plan (October 20, 1994) instead. The sulfur dioxide requirement does not apply as of yet due to thirty successive boiler operating days has not occurred. (Please see discussion under 60.49Da(b))

60.49Da(e), (f), (g) and (h)

These requirements do not apply due to the alternative monitoring plan (October 20, 1994) and/or as of yet thirty successive boiler operating days has not occurred. (Please see discussion under 60.49Da(b))

40 CFR 60.50Da Compliance Determination Procedures and Methods

60.50Da(b)(1)

All applicable initial performance tests have already been performed.

40 CFR 60.51Da Reporting Requirements

The facility submits a quarterly data assessment report as discussed in the October 20, 1994 alternative monitoring plan, which includes any excess emissions. This is what is used to satisfy the reporting requirements under 40 Part 60.51Da. (Note: The data assessment report is submitted more frequently than what is required under 40 CFR 60.51Da of semi-annually for each six-month period.)

Auxiliary Boiler:

NSPS Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

40 CFR 60.42c Standard for sulfur dioxide.

60.42c (d) and (e) 2:

The 40 mmbtu/hr auxiliary boiler more than meets the sulfur dioxide standard of 0.50 lb/million Btu) heat input as the auxiliary boiler is limited to 0.003 lb/million Btu heat input for when burning natural gas. In addition, when the auxiliary boiler is combusting no. 2 fuel oil, it is limited to 0.054 lb/million Btu heat input.

Also, the no. 2 fuel oil is less than 0.5 weight percent sulfur as the no. 2 fuel oil is limited to 0.05% by weight.

Compliance with both the emission limit or the fuel oil limit may be demonstrated by a certification from the fuel supplier as listed under 60.42c (h) which is required in the NSR permit as listed below (Please note, the section in *italics* was per 60.48c (f) (1), the section in **bold** was added per 60.48c (11)) and the section that is underlined is per 60.48c(j):

Specific Condition 25 (Title V permit condition 36) of the August 3, 2005 NSR permit:

After September 30, 1993 the maximum allowable sulfur content of the No. 2 fuel oil purchased shall not exceed 0.05% by weight. Doswell Limited Partnership shall maintain records of all oil shipments purchased, indicating sulfur content per shipment. These records shall be available on site for inspection by department personnel. They shall be kept on file for the most current five (5) year period.

For the auxiliary boiler, the records shall also include the *name of the oil supplier; and a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41c.* Along with these records, **a certified statement signed by the owner or operator of the affected facility shall be reported each six-month period indicating that the records of fuel supplier certifications, submitted represent all of the fuel combusted during the reporting period. All reports shall be submitted to the Piedmont Region and Chief, Air Enforcement Branch (3AP13), U.S. EPA, Region III** and all records shall be available on site for inspection by department personnel. They shall be kept on file for the most current five (5) year period.

40 CFR 60.43c Standard for particulate matter

60.43c(c) & (d):

The 40 mmbtu/hr natural gas/distillate oil boiler has more than met and shall continue to meet the opacity standard of no greater than 20 percent (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. In addition, the opacity standard applies at all times, except during periods of startup, shutdown, or malfunction.

The combined cycle turbine facility has to meet a more stringent opacity of 10 percent according to the NSR permit.

A continuing periodic monitoring condition is already in place in the NSR permit to ensure maintenance of this standard as follows:

Specific Condition 31 (Title V permit condition 35) of the August 3, 2005 NSR permit (which includes the EPA approved alternative monitoring method for opacity for the duct burners (March 1998)):

Thirty days after the end of each calendar quarter in which there are opacity excess emissions during oil combustion, Doswell will submit an excess emission report (EER) to the Department (Director, Piedmont Regional Office) and the US EPA-Region III. If there are no opacity excess emissions during a calendar quarter, EERs will be submitted on a semiannual basis. For reporting purposes, excess emissions are defined as any six minute period during which the average opacity exceeds 10 percent, except during startup, shutdown or malfunction, and EERs will indicate the total time of the visible emission observations during a calendar quarter and identify the duration of any excess emissions.

40 CFR 60.44c Compliance and performance test methods and procedures for sulfur dioxide

60.44c(h)

This requirement is already being met and is continued to be met as the NSR permit requires fuel supplier certifications to demonstrate compliance with the sulfur dioxide requirements (*specific condition 25 (Title V permit condition 36) of the August 3, 2005 NSR permit*).

40 CFR 60.45c Compliance and performance test methods and procedures for particulate matter

60.45c(a)(8)

The requirement of performing an initial performance test with Method 9 for determining opacity has been performed. In addition, visual emissions evaluations will be required on a monthly basis and if the opacity is above normal an EPA Method 9 will have to be performed.

40 CFR 60.48c Reporting and recordkeeping requirements

60.48c(d), (e)(11), (g):

Along with the requirements of keeping fuel supplier certifications records, the NSR permit requires the NSPS requirement of a certification statement signed by the owner or operator of the facility that the records represent all of the fuel combusted during the reporting period. In addition, the Title V permit included the requirement of keeping daily records of the amounts of each fuel combusted during each day in the auxiliary boiler.

60.48c(i) and (j):

The facility is already required to keep records for a five year period and in addition, the NSPS Dc requirement to report each six month period by the 30th day following the end of the reporting period was included in the **periodic monitoring** section of the Title V permit.

Turbines

NSPS GG – Standards of Performance for Stationary Gas Turbines

40 CFR 60.332 Standard for Nitrogen Oxides

60.332(a)(1), (3) and (b)

These requirements do not apply to the combined cycle turbines instead the turbines are subject to the NO_x alternative monitoring plan regarding 40 CFR 60 Subparts GG and Da dated October 20, 1994.

The simple cycle turbine is subject to these requirements and is being met as required.

40 CFR 60.333 Standard for Sulfur Dioxide

60.333 (a) and (b)

The combined cycle turbines and the simple cycle turbine are meeting both of these requirements as required in ***specific conditions 26 (Title V permit condition 22) (nat. gas), and 25 (Title V permit condition 36) (oil)*** in the August 3, 2005 NSR permit **for the combined cycle turbine and**

Conditions 7 (nat. gas), and 8 (oil) in the September 30, 2013 NSR permit (Title V Permit conditions 43 and 44) for the simple cycle turbine.

40 CFR 60.334 Monitoring of operations

40 CFR 60.334(a), (b), and (c)(1)

The requirements do not apply to the combined cycle turbines regarding the nitrogen oxides but instead the NO_x alternative monitoring plan for the combined cycle dated October 20, 1994 is applied. The NO_x requirement (b) does apply to the simple cycle turbine for when water injection is used for control of NO_x when firing no. 2 distillate fuel oil. It is monitored by a direct monitoring method of a NO_x CEM of which meets the more stringent 40 CFR 75 requirements rather than an indirect method of monitoring the fuel to water ratio. This requirement is being met by ***specific conditions 30 and 32 (Title V conditions 27 and 28) of the August 3, 2005 NSR permit***. Also for (b), the nitrogen content is being met by ***condition 10 (Title V permit condition 56) of the September 30, 2013 NSR permit***.

40 CFR 60.334(b), (c) is applicable to the combined cycle turbines regarding the sulfur dioxide for when water injection is used when burning natural gas or no. 2 distillate fuel oil. (b) is met per

specific condition 29 (Title V permit condition 26) of the August 3, 2005 NSR permit for fuel oil and for natural gas, it is according to the alternative monitoring plan for natural gas sulfur content. (c) is met according to *specific condition 30 (Title V permit condition 27) of the August 3, 2005 NSR permit* for both fuel oil and natural gas.

40 CFR 60.335 Test methods and procedures – Have been implemented.

Fuel Oil Tanks

NSPS Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984

Applicability

The two fuel oil storage tanks (emission unit ID Nos. 111 and 112) are no longer applicable to the recordkeeping as required in Subpart Kb of 40 CFR part 60. This is according to the following section of NSPS Kb which was revised in the Federal Register on October 15, 2003:

60.110b Applicability and designation of affected facility.

(a)....

(b) This subpart **does not apply** to storage vessels with a **capacity greater than or equal to 151 cubic meters storing a liquid with a maximum true vapor pressure than less than 3.5 kilopascals** (kPa) or with a capacity greater than or equal to 75 cubic meters but less than 151 cubic meters storing a liquid with a maximum true vapor pressure less than 15.0 kPa. (151 cubic meters equates to approximately 39,863 gals of which the facility's tanks are each 7.6 million gals of distillate fuel oil and their maximum true vapor pressure is below the 3.5 kilopascals.)

Emergency Generator and Fire Pump

MACT ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The reciprocating internal combustion engines (RICE) have non-resettable hour meters in place and are meeting the requirements listed under condition 17.

.....

EMISSION UNIT APPLICABLE REQUIREMENTS - [Simple Cycle Combustion Turbine]

Limitations:

- I. **Conditions 2, 3, 4 and 5** of the September 30, 2013 NSR permit (Title V permit Conditions 38, 39, 40, and 41) are all BACT conditions *requiring controls* for the specific pollutant, specific fuels being combusted and methods of operating.
- II. **Conditions 13, 14, 15, 17, 18, and 23** of the September 30, 2013 NSR permit (Title V permit Conditions 48, 49, 50, 52, and 60) are all BACT conditions (except condition 14 (Title V permit condition 49)) *limiting the criteria pollutant emissions* based on controls and operating limitations resulting from combustion. The listed limitations conditions included limiting the short term and annual emissions based on the type of fuel combusted and visible emissions.

Operating Limitations:

Conditions 6, 7 (BACT), 8 (BACT), and 11 of the September 30, 2013 NSR permit (Title V permit Conditions 42, 43, 44, and 45) are all operating conditions which indicate the specifications for the approved fuel, maximum % of sulfur content and a heat input consumption limit based on the type of fuel to ensure the emission limits are practically enforceable and are not exceeded.

Periodic Monitoring for the one (1) simple cycle combustion turbine – GE Model PG7241 (FA) (emission unit ID #: 81/82).

Periodic Monitoring/recorkeeping:

Conditions 9, 10, 11, 12, 18, 19, 21, 22, 23, and 24 of the September 30, 2013 NSR permit (Title V permit conditions 55, 56, 45, 46, 53, 57, 58, 59, 60, and 61) are all periodic monitoring (which includes recordkeeping requirements) conditions and some type of direct monitoring systems such as continuous emissions monitoring systems (CEMS). There is also indirect monitoring such as through parametric monitoring systems which monitor a particular parameter. The selected parameter indirectly monitors what needs to be monitored to help ensure the emission limits are being met. An example would be monitoring the heat input quantity on a daily basis for 365 days, which ensures the annual emissions are not exceeded, as the annual emissions limit is based on annual heat input limits in the permit.

Condition 9 (Title V permit condition 55) monitors the sulfur content in the *natural gas* based on the EPA approved custom-monitoring schedule for the site. The fuel is analyzed for the sulfur content in the 1st & 3rd quarter along with keeping the associated records.

Condition 10 (Title V permit condition 56) monitors the sulfur content in the *no. 2 distillate oil* upon transfer of fuel to the storage tank along with the associated records.

Both of these conditions ensure the sulfur content is not exceeded in the respective fuels combusted along with not exceeding the associated sulfur dioxide emission limits.

Conditions 9 and 10 (Title V permit conditions 55 and 56) monitors *conditions 3 and 17 (Title V permit conditions 39 and 52)*. Condition 9 (Title V permit condition 55) monitors *conditions 13*

and 14 (Title V permit conditions 48 and 49). Condition 10 (Title V permit condition 56) monitors condition 15 (Title V permit condition 50).

Condition 11 (Title V permit condition 45) monitors on a daily basis and limits the heat input content of the various operating scenarios based on the type of fuel burned in a year. Condition 11 (Title V permit condition 45) monitors condition 17 (Title V permit condition 52) of ensuring the annual emissions are not exceeded.

Condition 12 (Title V permit condition 46) is a combination of standards, monitoring and recordkeeping and reporting for NSPS GG.

Conditions 18 – 23 (Title V permit conditions 53, 57, 54, 58, 59, and 60) are all monitoring conditions which ensure NO_x emission limits are not exceeded. These periodic monitoring conditions would apply to the emissions limitations conditions 13, 14, 15 and 17 (Title V conditions 48, 49, 50, and 52).

Condition 24 (Title V permit condition 61) states the following:

The permittee shall maintain records of all emission data, fuel throughputs (heat input consumption based on fuel) and operating parameters* required to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office (PRO) of the DEQ.

*: Regarding operating parameters, the facility monitors the use of a dry low NO_x combustor by the control panel denoting when it is in use and what type of fuel is being combusted. In addition, both forms of NO_x control are directly monitored by the NO_x CEMS. (Note: The simple cycle received a variance from EPA for the indirect monitoring method of water to fuel ratio as required in NSPS GG but instead allowed for a direct monitoring method.)

Condition 24 (Title V permit condition 61) applies facility wide regarding the simple cycle combustion turbine (CT).

Condition 24 (Title V permit condition 61) as it applies to condition 2 (Title V permit condition 38) which requires NO_x control for the simple cycle combustion turbine of dry low NO_x combustor for natural gas and water injection for no. 2 distillate fuel oil.

According to the alternative monitoring plan (October 20, 1994), the following will be performed:

“Fuel gas heating values are measured by the gas supplier at the facility’s supply station. Samples are analyzed using gas chromatography meeting AGA standards. An automatic daily calibration is conducted with certified gases. As-fired fuel oil samples from the oil storage tank in service are sent to an independent laboratory. Samples are analyzed using the ASTM D-240 method.”

Compliance with Hourly Emission Limitations:

The hourly emission limits in the NSR permits were established based on the worst case scenario of the emission units and/or operating at their maximum rated capacity on an hourly basis.

Therefore, if each of the emission units is operated at their maximum rated capacity and/or worst case scenario (and not beyond each of the emission units's maximum rated capacities), there should not be a violation of the hourly emission rates.

Also, the NO_x emissions are monitored based on CEMs.

In addition, the opacity standards/limitations will help to ensure the hourly emission limitations are being met. The source will be required to log the appearance of the vented emissions from the various operations and institute corrective action when visible emissions exist. Depending on whether the corrective action is successful the source will be required to perform a method 9 to demonstrate compliance or to log the corrective action taken and return to the weekly monitoring of emissions opacity.

Testing

The permit does not require the source to test as NO_x is monitored continuously and SO₂ is minimized by the use of very low sulfur No. 2 and Natural Gas fuels. This results in reduced overall emissions as the control system corrects in real time to minimize NO_x. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with any applicable emission limit or standard.

Streamlined Requirements –

Title V Condition 3 (specific condition no. 36 of 8/3/05 permit) has streamlined the *three years* in the underlying PSD condition to the more stringent *five years* recordkeeping for Title V purposes.

Title V Condition 12 (specific condition no. 23 of 8/3/05 permit) has streamlined the particulate matter and the SO₂ standard for 40 CFR subpart Da as the emission limits for these pollutants are more stringent.

Title V Condition 14 (specific condition no. 14 of 8/3/05 permit) has streamlined the opacity standards for 40 CFR subparts Da and Dc as the opacity limits are more stringent.

TITLE V PERMIT GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-490 apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

Permit Expiration Conditions (Title V Permit General Conditions 68 - 73)

These conditions refer to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the

Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement NO. 3-2001”.

This general condition cite(s) the Article(s) that follow(s):

Article 1 (9 VAC 5-80-360 et seq.), Part II of 9 VAC 5 Chapter 80, Article 3. Acid Rain Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-430. Application

9 VAC 5-80-500. Permit Shield

9 VAC 5-80-510. Action on Permit Applications]

Failure/Malfunction Reporting Conditions (Title V Permit General Conditions 79 – 82)

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-650 of the Acid Rain Operating Permit regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-650 is from the Acid Rain Operating Permit regulations. Acid Rain Operating facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-650. The report must be made within four daytime business hours of discovery of the malfunction.

In order for emission units to be relieved from the requirement to make a written report in 14 days the emission units must have continuous monitors meeting the requirements of 9 VAC 5-50-410 or 9 VAC 5-40-41.

This Title V permit general condition cites the sections that follow:

9 VAC 5-40-41. Emissions Monitoring Procedures for Existing Sources

9 VAC 5-40-50. Notification, Records and Reporting

9 VAC 5-50-50. Notification, Records and Reporting

This Title V permit general condition contains a citation from the Code of Federal Regulations as follows: 40 CFR 60.13 (h). Monitoring Requirements.

Permit Modification Condition (Title V Permit General Condition 86)

This general condition cites the sections that follow:

9 VAC 5-80-360. Applicability, Acid Rain Operating Permits

9 VAC 5-80-550. Changes to Permits.

9 VAC 5-80-660. Enforcement.

9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources

9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

Malfunction as an Affirmative Defense Conditions (Title V Permit General Conditions 100 – 103)

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-650 and 9 VAC 5-20-180. The malfunction requirements are listed in Title V Permit General Conditions 100-103 and Title V Permit General Condition 79. For further explanation see the comments on general condition 79.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

9 VAC 5-80-490. Permit Content

STATE ONLY APPLICABLE REQUIREMENTS

The following condition has been identified as State Enforceable only per the September 30, 2013 NSR permit regarding the State Citation of 9 VAC 5-60-320:

From the September 30, 2013 NSR Permit Condition Number 35:

Toxics pollutant emissions from each combustion turbine/duct burner exhaust shall not exceed the limitations specified below:

Beryllium	0.00064 lbs/hr/stack	0.01536 lbs/day/stack
Formaldehyde	0.13000 lbs/hr/stack	3.12000 lbs/day/stack
Nickel	0.00120 lbs/hr/stack	0.02880 lbs/day/stack

The following condition has been identified as State Enforceable only per the August 3, 2005 NSR permit regarding the State Citation of 9 VAC 5-60-320:

From the August 3, 2005 NSR Permit Condition Number 22:

Toxics pollutant emissions from each combustion turbine/duct burner exhaust shall not exceed the limitations specified below:

Beryllium	0.004 lbs/hr/stack	0.09 lbs/day/stack
Formaldehyde	0.609 lbs/hr/stack	14.60 lbs/day/stack
Nickel	0.255 lbs/hr/stack	6.13 lbs/day/stack

The TSP limits were changed to PM (TSP) so as to reflect the Virginia PSD regulation definition of Particulate Matter as PM (TSP) for the significance levels used in PSD determinations and in other parts of the state regulations. PM (TSP) is equal to PM10 in all the limitations in the NSR permit and Draft Title V permit.

FUTURE APPLICABLE REQUIREMENTS – NA

INAPPLICABLE REQUIREMENTS -The acid rain program does not apply to the combined cycle turbine facility. The reason being is the combined cycle turbine facility was exempt from the program because it had a contract with VA Power dated before the Acid Rain Program was finalized.

COMPLIANCE PLAN - NA

RISK MANAGEMENT PLAN

The facility Risk Management Plan was submitted on June 17, 1999.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-720.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation (9 VAC_)	Pollutant Emitted (9 VAC 5-80-720 B.)	Rated Capacity (9 VAC 5-80-720 C.)
5	132 MW Steam Turbine	9 VAC 5-80-720 B.	None	_____
6	132 MW Steam Turbine	9 VAC 5-80-720 B.	None	_____
1	Ammonia Storage	9 VAC 5-80-720 B.	Ammonia	10,000 gal. Each
2	Ammonia Storage	9 VAC 5-80-720 B.	Ammonia	10,000 gal. Each
N/A	Water Treatment Facility	9 VAC 5-80-720 A. 43	N/A	N/A

Combustion air heats water in the Heat recovery steam generator (HRSG), which turns the two steam turbines. Grey and potable water from Hanover County are treated on-site for use as boiler water and steam for emission control. Additionally, anhydrous ammonia is stored on-site for use in the SCR unit.

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION - NA

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in the Herald Progress from July 24, 2014 to August 25, 2014. No comments were received during the public comment period or from EPA during the EPA review period.