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Dominion

April 13, 2006

Ms. Tamera M. Thompson
Director, Office of Air Permit Programs
Virginia Department of Environmental Quality
529 East Main Street
P.O. Box 10089
Richmond, Virginia 23240

Subject: Exemption modeling protocol for units eligible under Best Available Retrofit Technology (BART) requirements

Dear Ms. Thompson:

In response to your letter of February 15, 2006, we are submitting this proposed protocol for conducting BART exemption modeling.

As you know, the procedures for conducting this type of modeling exercise have been established in considerable detail in the March 9, 2006 version of the "Protocol for the Application of the CALPUFF Model for Analyses of Best Available Retrofit Technology (BART)," issued by the Visibility Improvement State and Tribal Association of the Southeast (VISTAS), of which Virginia is a member.

We anticipate using the procedures in the VISTAS protocol to conduct our analyses. We understand that USEPA has provided guidance which states that requirements under the Clean Air Interstate Rule will satisfy BART requirements for SO_2 and NO_x for electric generating units and, for this reason, BART exemption modeling need only address PM_{10} impacts upon visibility. Based on this understanding, our intention is to perform BART exemption modeling for PM_{10} only. If the guidance on this issue should change, please advise as soon as possible.

We also anticipate using the finer grid modeling procedures as described in the VISTAS protocol in Section 4.4.2, which employ a 4-kilometer grid resolution. A table is attached in the requested format containing emissions data and stack parameters which we plan to use in the analysis. Note that we have based the emissions data on available test information. We do not have test data that speciates particulate matter to the level of detail indicated in the table. We understand that either AP-42 data or other default values, yet to be provided by VISTAS, will be used to estimate particle speciation.

The modeling approach that we propose is based on our best understanding of the guidance and technical considerations known at this time. If, during the course of the analysis, we identify additional issues that need clarification or if we believe that the procedure or input data should be adjusted, we will contact you for further guidance or request approval for adjustments to this procedure.

Please contact Jim Browder (804-273-3019, James_Browder@dom.com) or Lenny Dupuis (804-273-3022, Leonard_Dupuis@dom.com) if you have any questions or need additional information.

Very truly yours,

Pamela F. Faggert

Pamela F. Faggert

Attachment

cc: Ms. Jaime Bauer, VDEQ CO
Mr. Michael Kiss, VDEQ CO
Mr. Ken McBee, VDEQ CO
Ms. Jane Workman, TRO
Mr. Terry Darton, VDEQ NVRO
Mr. John McKie, VDEQ NVRO
Mr. James Kyle, VDEQ PRO
Ms. Alison Sinclair, VDEQ PRO

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BART-Eligible Units
Virginia

Stack ID #	Company/Source	Location			Location UTM				Stack Height	Base Elevation	Diameter	Gas Exit Velocity
		latitude	longitude	Datum	UTM East	UTM North	UTM Zone	Datum				
		deg.	deg.		km	km			ft	ft	ft	ft/s
S01	Chesterfield 5	See UTM coordinates			289.09	4139.69	18	NAD83	200	33	17.0	71
S02	Chesterfield 6				289.09	4139.69	18	NAD83	419	33	20.0	100
S03	Possum Point 5				301.19	4267.79	18	NAD83	358	36	23.0	87.69
S04	Yorktown 3				370.39	4119.5	18	NAD83	489	10	22.5	109.99

Notes:
(1) Stack parameters are nominal values, locations are approximate
(2) Primary particulate species only are included since it is anticipated that CAIR requirements will satisfy BART requirements for these pollutants and possibly for H2SO4.
(3) Speciation data for particulate emissions is not available. It is understood from conversations with DEQ Central Office staff that default values or calculations procedures will be either be provided or developed through further discussion.
(4) Chesterfield 5 & 6, Yorktown 3 emissions based on stack test data and maximum daily heat input for 2002 - 2004; Possum Point 5 based on AP-42 emission factors.
(5) H2SO4 calculations for Chesterfield 5 & 6 based on Southern Company method, "Estimating Total Sulfuric Acid Emissions from Coal-Fired Power Plants, Hardman, Stacy & Dismukes, Revised by Harrison and Monroe, 1998"
(6) H2SO4 calculations for Possum 5 and Yorktown 3 based on AP-42 factors (Table 1.3-1).

Basis of Calculations

Unit	Maximum Daily Heat Input from CEMS (mmBtu)	Stack Test (lb/mmBtu)	Fuel Heat Content (Btu/lb) or (Btu/gal)	PM10						PM2.5		
				PM10/PM Fraction	Source of Fraction	Emission Factor (lb/kgal)	Emission Factor Source	Control Efficiency	Maximum PM10 Emissions (lb/hr)	PM2.5/PM Fraction	Source of Fraction	Emission Factor (lb/kgal)
Chesterfield 5	78607	0.0135	12,724	0.675	AP-42 Table 1.1-6				29.8	0.3	AP-42 Table 1.1-6	
Chesterfield 6	152936	0.097	12,705	0.675	AP-42 Table 1.1-6				417.2	0.3	AP-42 Table 1.1-6	
Possum Point 5	212435	Not Available	140,000			6.8	1.3-4, 5th Ed 9/98 (lb/kgal)	32.5	290.6			5.0
Yorktown 3	200839	0.0773	150,701	0.71	AP-42 Table 1.1-6				459.3	0.52	AP-42 Table 1.1-6	

= user input value

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BART-Eligible Units
Virginia

Stack ID #	Stack Gas Exit Temp.	SO_2 Emissions	H_2SO_4 Emissions	NO_x Emissions	PM_{10} Emissions	$PM_{2.5}$ Emissions	NH_3 Emissions		particle speciation			condensable		
												organic condensable (OC)		inorganic c
									filterable PM_{10}	condensable PM_{10}		0.625-1.0 µm	0.5-0.625 µm	0.625-1.0 µm
	deg F	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		%	%		lbs/hr	lbs/hr	lbs/hr
S01	265		18		29.8	13.3			(3)	(3)		(3)	(3)	(3)
S02	264		35		417.2	185.4			(3)	(3)		(3)	(3)	(3)
S03	285		290		290.6	211.8			(3)	(3)		(3)	(3)	(3)
S04	289		501		459.3	336.4			(3)	(3)		(3)	(3)	(3)

Basis of Calculations

Unit	Emission Factor Source	Control Efficiency	Maximum PM2.5 Emissions (lb/hr)
Chesterfield 5			13.3
Chesterfield 6			185.4
Possum Point 5	AP-42, Table 1.3-4, 5th Ed 9/98 (lb/kgal)	32.5	211.8
Yorktown 3			336.4

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BART-Eligible Units
Virginia

Stack ID #	condensable	filterable									
		COARSE		SOIL				Elemental Carbon			(EC)
	0.5-0.625 µm	6-10 µm	2.5-6 µm	1.25-2.5 µm	1.0-1.25 µm	0.625-1.0 µm	0.5-0.625 µm	1.25-2.5 µm	1.0-1.25 µm	0.625-1.0 µm	0.5-0.625 µm
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr
S01	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
S02	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
S03	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
S04	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)

Basis of Calculations

Unit
Chesterfield 5
Chesterfield 6
Possum Point 5
Yorktown 3