Meeting

Mirant Presentation

March 20, 2008

2-Stack Permit Overview

following pollutants:

- CO, PM, PM-10, SO_2, NO_x, VOC, Hydrochloric acid (HCl) & Hydrogen fluoride (HF)

- **Does not set specific operating scenarios**

2-Stack Permit Overview

- **Requires use of dry sorbent injection**
- **Requires continuous emission monitoring system (CEMS) for SO_2, NO_x, & CO**
- **Future requirement for PM CEMS provided**
- **Requires continuous opacity monitoring**

2-Stack Permit Overview

- **3,813 tons per year (tpy)**

- Seasonal and Annual NO_x limits base on EPA Consent Decree
  - 3700 tpy (Annual)
  - 1600 tpy (Ozone Season - May 1 through September 30)

2-Stack Permit Overview

limits

- Maximum 3-hr SO_2 complying rate = 0.39 lbs/MMBtu
- Maximum 24-hr SO_2 complying rate = 0.35 lbs/MMBtu (thru 12/31/08)
- Maximum 24-hr SO_2 complying rate = 0.30 lbs/MMBtu (beginning 01/01/09)

2-Stack Permit Overview

- Separated over-fired air (Units 3, 4, and 5)
- **SO_2**
  - Use of dry sorbent injection
- **Acid gases – HCl & HF**
  - Use of dry sorbent injection

2-Stack Permit Overview

- Each boiler - Hot side and cold side electrostatic precipitators (ESP)
- Fly ash and Bottom ash silos –
  - Baghouse fabric filters,
  - exhaust to boiler, C1, hot side ESP
- Partial enclosure & wet suppression – Transfer from C

2-Stack Permit Overview

- Coal stack-out conveyor
  - Enclosed conveyor & telescopic chute or DEQ approved equivalent
- Coal railcar dumping
  - Partial enclosure, heavy-duty curtains & water fogging spray

2-Stack Permit Overview

- Install, certify and use CEMS for CO
- Design specifications/requirements according to 40 CFR Part 60 and 40 CFR Part 75
- New requirement - submit a plan for installation

2-Stack Permit Overview

- Fabric filter baghouse
- Electrostatic precipitator

2-Stack Permit Overview

- **Visible emissions evaluations**
  - Boilers – 20 % opacity
- **Annual compliance testing**

5-Stack Permit vs. 2-Stack Permit

- Multiple operating scenarios and emission limits
  - NAAQS complying
  - PM-2.5 emission limits (short-term limits set equal to PM-10)
- **2-stack permit contains**
  - [illegible] NAAQS complying technology-based limits

5-Stack Permit vs. 2-Stack Permit

- EPA promulgates applicable performance specifications and requirements
- DEQ notifies PRGS of an installation deadline

– 2-stack requires
- plan submittal for the installation, certification, operation, and quality assurance

5-Stack Permit vs. 2-Stack Permit

– Required by 2-stack

- **Stack Tests**
  – Initial testing for PM, PM-10, PM-2.5, HCl and HF

Public Comments

- **NSR Applicability Triggers**
  – Alternate Sorbent and Not Pre-Authorized
  – Stack Merge
  – Inadequate Baseline determination

Public Comments

– PM_{10} limit greater than actuals
– $PM_{2.5}$ not surrogate for PM_{10}
– Virginia should have $PM_{2.5}$ limits
– CAIR limits should be incorporated
– SO2 no greater than 0.3 lbs / MMBtu

Public Comments

- Adequate control technology required
- Request BACT
- $PM_{2.5}$ requires baghouse
- Trona no control for PM emissions
- Emission controls should always be safe

Public Comments

- $PM_{2.5}$ must be monitored
- CEMS requirements are lacking
- PM CEMS should be required now
- Installed CO monitors should be certified now

Public Comments

- General health problems "due to plant"
- Related to Trona
- Citizen health costs should be borne by plant
- Increase in $PM_{2.5}$ will cause increase in background PM

Public Participation 2-Stack Unique Comments

- Short term NO_x does not reflect control performance
- PM & PM_{10} higher than actual emissions
- CO emission increase due to future CEM requirement
- Opacity standard of 20% inadequate
- Trona usage increases Opacity

Public Participation 2-Stack Unique Comments

performance
- New control technology should provide improvement
- Trona usage demonstrates SO_2 reduction greater than 60%
- PM emissions decreased with Trona

Public Participation 2-Stack Unique Comments

- 5-stack should be acted on before 2-stack
- Modifications to ash handling system would de-bottle neck
- SAPCB determined that stack merge would increase emissions
- December 2006 stack invalid due to low collection

Public Participation 5-Stack Unique Comments

increased emissions
- Sulfur limit on oil must be 0.05%

- **Health Concerns**
  - Epidemiologic study should be conducted
- **Emission Monitoring**

Air Quality Analysis

- SO_2, NO_2, PM-10 and CO

- **Significant Ambient Air Concentrations (SAAC) - Toxic Pollutants**
  - HCl, HF and Hg

Air Quality Analysis

applicable NAAQS and SAAC

- Evidence suggests modeling results are conservative with respect to observed air quality

Air Quality Analysis

configurations

- 5-stack permit will effectively limit plant operations to 1 or 2 unit scenarios.

Air Quality Analysis
PM-2.5

One-year of Federal Reference Method PM-2.5 at Marina Towers

Averaging Period	Marina Towers	NAAQS
24-hour	32 µg/m3	35 µg/m3
Annual	13.4 µg/m3	15.0 µg/m3

Air Quality Analysis
PM-2.5

impact results from transported pollution

- PRGS contributes small fraction to air quality impacts in the vicinity of the plant
  - Estimated PRGS air quality impacts vary depending

Air Quality Analysis
PM-2.5

- Either permit option does not adversely affect the PM-2.5 regional air quality attainment demonstration for the Washington, D.C. Metropolitan Statistical Area (MSA)
- Proposed 2-stack permit contains a provision requiring additional PM-2.5 ambient air quality analysis
  - based on a schedule and protocol to be established by DEQ

Air Quality Analysis
PM-2.5 Implementation Workgroup

- Solicited workgroup participation on Regulatory Town Hall – 1/2/2008
- Closed advertisement – 2/4/2008
- Kickoff Meeting – 4/10/2008

PM CEMS Technology

- US EPA promulgated Performance Specification 11 (PS-11) in January 2004 to establish initial installation and performance procedures for evaluating the acceptability of PM CEMS

PM CEMS Limitations

- Reference Method (RM) 5,
- RM 5I,
- RM 17

All of which result in collecting total filterable particulates only (condensable particulates are not included).

PM CEMS Regulatory Requirement

- Currently no state or federal regulatory requirements for installation or operation.
- Subpart D of 40 CFR 60 at §60.45(a) requires COMS for measuring opacity emissions from fossil fuel fired steam generators subject to Subpart D..

PM CEMS Regulatory Requirement

voluntarily or through requirements of EPA Consent Decrees to evaluate existing PM CEMS technology.

- Some States have required the installation

Public Comment on 5-Stack Permit

STAFF RECOMMENDATION

Operating Permits and 9 VAC 5-20-180.I pertaining to the Board's authority to compel a source to reduce emissions in order to assure emissions from the source do not cause or significantly contribute to an exceedance of a primary National Ambient Air Quality Standard, staff recommends that the Board adopt the 2-Stack Permit as revised with the accompanying

PROPOSED CONDITION 2 FOR 2-STACK PERMIT

plant to undertake the stack merge project and clarifies the requirements the plant is subject to while the stack merge project is under construction.

Proposed Condition 2 for 2-Stack Permit (specific conditions)

accordance with the June 1, 2007 State Operating Permit.

- Upon completion of the merger of C3, C4 and C5 described above and the commencement of operation of units C3, C4, and C5 exhausting through MS4, the conditions of this permit shall apply to units C3, C4 and C5 and the June 1, 2007 State Operating Permit shall be superseded.

Proposed Condition 2 for 2-Stack Permit (specific conditions)

- The exhaust effluent from units C3, C4, and C5 shall not be exhausted through MS1 (i.e., it must be exhausted through MS4).
- The existing stacks from units C2, C3, and C5 shall be retired upon completion of the MS1 and MS4 stack merge projects. Any resumption of operation of the retired stacks shall be evaluated for permitting.