Virginia Air Pollution Control Board

March 26, 2007

By

City of Alexandria

City of Alexandria

Major Issues & Concerns

- Need for comprehensive operating permit (option "1+")
- VDEQ proposed consent order (options 2 & 3)
- Mirant's proposed stack merge project
- Need for $PM_{2.5}$ modeling and compliance
- Use of operating periods for establishing baseline emissions that exceeded NAAQS
- Establishment of local air pollution control district

City of Alexandria

Comprehensive Operating Permit
(Option "1+")

- Comprehensive permit must address or include:
  - NAAQS compliance including $PM_{2.5}$ (including CEMS)
  - Discrete emission limits both short and long-term for each pollutant
  - Evaluate NSR issues
    - Stack merger (using NAAQS compliant baseline)
    - Trona
    - Use of LNB and SOFA for increased CO emissions
    - Other physical changes at the plant
  - Emissions during start-up and shut-down periods included in annual limits
  - Fugitive emissions
  - Evaluate emissions against VA Toxics Regulations

City of Alexandria

$PM_{2.5}$ Modeling and Compliance

- There is no dispute that $PM_{2.5}$ affects human health
  - Linked to cardiovascular disease and premature death
  - PRGS is a major source of $PM_{2.5}$ in Northern Virginia
- Northern Virginia is a non-attainment area for $PM_{2.5}$
- Local population exposed to higher levels of $PM_{2.5}$ as a result of downwash from PRGS

City of Alexandria

Attachment C

44

$PM_{2.5}$ Modeling and Compliance

- There is neither a regulatory nor a technical reason to delay modeling of PRGS $PM_{2.5}$ emission
- Use of trona is conducive to increased $PM_{2.5}$ emission
  - At full production (482 MW) and 60% SO_2 removal, trona usage is in excess of 200 tons per day
  - Trona T200 used at PRGS contains 10% by weight (or 20 tons per day) less than 6 microns
  - Expected increase in fugitive emissions. Trona use is estimated to increase the amount of ash handling by approx. 50%

City of Alexandria

Other Trona Related Concerns

- Under EPA's present ACO, plant relies heavily on varying usage of trona for SO_2 compliance
  - Health impacts of trona have not been evaluated
  - Unprecedented use of trona (at this scale) without adequate study and safeguards
  - Boiler ash produced at PRGS during trona use was found to be much more corrosive and have higher pH and alkalinity (see DOE's SEA)

City of Alexandria

City's Opposition to VDEQ Proposed Consent Order (Options 2 & 3)

- VDEQ proposed Consent Order that adopts daily predictive modeling is
  - Illegal
  - Technically flawed, and
  - Unnecessary

City of Alexandria

City's Opposition to VDEQ Proposed Consent Order (Options 2 & 3)

- In the interim, pending the issuance of a comprehensive permit:
  - VDEQ's 2004 Downwash Study Consent Order and the Director's August 19, 2005 letter on behalf of the SAPCB (Board) to Mirant are still in effect
  - Mirant proposal of "three boiler operating scenarios" (Table 1 of EPA's ACO) to both VDEQ and EPA should become basis of operation in the interim

City of Alexandria

45

City's Opposition to VDEQ Proposed Consent Order (Options 2 & 3)

- Mirant has requested a new VDEQ Consent Order similar to EPA's current ACO pending a stack merge permit or SOP
- Alexandria agrees that permitting process should not be compromised by time pressure
- However, the City strongly **opposes** provisions of current ACO or issuance of any order that allows Mirant to continue to operate under daily predictive modeling scenario
  - Such an action would be both **illegal** and **lacking serious technical merit**

City of Alexandria

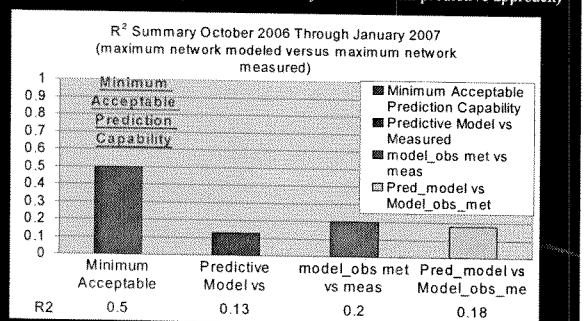
City's Opposition to VDEQ Proposed Consent Order (Options 2 & 3)

- Establishing operating limits based on dispersion technique such as daily predictive modeling:
  - Is in violation of CAA, and EPA and Virginia regulations (See 42 U.S.C. 7423(a); 40 C.F.R. 51.100(hh)(1)(ii); 9 VAC 5-10-20; 9 VAC 5-50-20.H.1.)
    - Section 123 of CAA states that "Emissions limitations cannot be affected in any manner by any dispersion technique including ..... varying with atmospheric conditions."
  - Is demonstrated to be **technically flawed** and meaningless in terms of predictive skill as per EPA guidelines
  - Provides only the **illusion of environmental management** without scientific substance

City of Alexandria

EPA-ACO's Predictive Modeling has no Scientific Basis

(As expected, statistical analysis shows no analytical skill with predictive approach)



City of Alexandria

Mirant's Proposed Stack Merge Project

- Under 9 VAC 5-10-20, merging of exhaust gases into one stack is defined as a dispersion technique
- Taking credit of dispersion technique without pollution controls is prohibited by 9 VAC 5-50-20-H and Section 123 of CAA
  - Regulations and EPA guidance state that a facility must install pollution controls and reduce emissions of each pollutant for which such credit is sought with stack merging

City of Alexandria

Mirant's Proposed Stack Merge Project

Existing Five Stack Configuration	Post Stack-Merge Configuration
Max. Impact = NAAQS	Max. Impact = NAAQS
Point of Maximum Impact on Marina Towers	Point of Maximum Impact on Marina Towers
SO_2 Limit = app. 3,000 tons	SO_2 Limit = app. 15,000 tons

City of Alexandria

Use of Operating Periods for Establishing Baseline Emissions That Exceeded NAAQS

- Mirant takes position that emissions during 2002-2003 are most representative of PRGS operations
- However, ENSR and AERO analyses confirmed that emissions at the rate the plant emitted during those years caused and contributed to widespread and severe violations of NAAQS
- Also, regulations limit 24-month baseline period to within 5 years before construction, i.e., no earlier than Fall 2002 (construction presumably proposed to start Fall 2007)

City of Alexandria

Use of Operating Periods for Establishing Baseline Emissions That Exceeded NAAQS

- Mirant's operations after VDEQ's order of August 20, 2005 would represent the most appropriate period to calculate baseline emissions
- Mirant should not benefit from past operating levels that took place because of **inadequate** regulatory oversight and in violation of NAAQS
- Use of appropriate baseline may result in Major NSR, and potentially require LAER and BACT pollution controls, air increment limits and offsets for NOx and PM2.5
- Major NSR applicability must use comprehensive analysis of all changes, including LNB, SOFA, trona, stack merger, etc.

City of Alexandria

Local Air Pollution Control District

- Alexandria requested Board to establish a local air pollution control district at September '06 Board meeting
  - Site specific operating regime
  - Committee to monitor and report to Board
  - Focus on public health
  - Assist VDEQ in its air monitoring program
  - Local air pollution control agencies are well placed to ensure the plant's environmental compliance

City of Alexandria

Summary and Recommendations

- VDEQ must not perpetuate PRGS operations under unlawful and unscientific predictive modeling scheme
- Alexandria strongly supports a comprehensive operating permit for PRGS (option "1+")
- In the interim after July 1, 2007, PRGS must operate strictly on a three-boiler scenario and without a MES
  - Mirant's proposed new MES is just a means to maximize power generation and thus, emissions

City of Alexandria

Summary and Recommendations

- Mirant's proposed stack merge project is a **prohibited** dispersion technique for the purpose of setting higher emission limits
- DEQ should include $PM_{2.5}$ modeling and compliance
  - This issue is of utmost concern to Alexandria and its residents
- Plant modifications requiring NSR review include LNB, SOFA, trona and stack merger

City of Alexandria

Summary and Recommendations

- VDEQ should not use 2002-2003 operating periods to establish baseline emissions for PRGS. Mirant's operations after VDEQ's order of August 20, 2005 would represent the most appropriate period to calculate baseline emissions
- The Board should establish a local air pollution control district to further ensure health protection of Alexandria residents
  - The Board has the authority to make significant impacts to the lives of thousands of people affected by this plant's emissions

City of Alexandria

Thank you

Questions?

City of Alexandria

Virginia Air Pollution Control Board

April 10, 2007

By

City of Alexandria

City Followed Board's Explicit Direction

- City engaged in the process with:
  - Good faith and open mind
  - Focused on bridge period
  - Consulted with VDEQ staff (Mike Dowd/Mike Kiss)
  - VDEQ agreed that City acted in good faith and was reasonable

The Process

- Three parties were directed to achieve consensus for the bridge period
- Three days of negotiations
- Mirant's positions were contingent on City's acceptance of credits for stack merger
- Mirant insisted on including issues beyond the bridging period
- VDEQ and Mirant acted bilaterally to develop new consent order without City's knowledge or participation

VDEQ New Proposed Consent Order

- Fails to follow Board's explicit directions
- Disguised "Option 3"
- Prolongs the bridging period from 3 months to 2+ years
- Does not protect public health (such as short term exposure (ATSDR))
- Implicitly approves baseline year 2002-2003
- Approves credits for stack merger
- Requires MES
- Fails to address $PM_{2.5}$ concerns arising from increased use of trona
- Does not incorporate City's input
- Remains technically flawed

VDEQ New Proposed Consent Order

- Prolongs the bridging period from 3 months to 2+ years
  - Stack merger completed January 2008
  - One year of MES through January 2009
  - Evaluation of models (3-6 months)
  - Issuance of permit approx. July 2009

This is contrary to Board's specific directions on the bridging document

City of Alexandria

Mirant's Proposed Stack Merge Project

Existing Five Stack Configuration	Post Stack-Merge Configuration
SO_2 emissions = 3,178 tons (Based on 2006)	SO_2 Limit = app. 8,350 tons (Based on new proposed CO)

How can VDEQ consider this as net emissions reduction?

City of Alexandria

Annual Emission Increases from Stack Merge Project

Emission Increases Resulting from Mirant's Requested Stack Merge Project (tons per year) and Potential Emission Reductions with New Source Review Control Technologies

	Heat Input (MMBtu per Year)	CO[d]	SO_2	NO_x	PM_{10} (direct)[f]	$PM_{2.5}$ (direct)[f]
	Local and regional impact:	Asphyxiant at elevated levels.	Fine PM precursor	Fine PM and ozone precursor	Fine PM direct contributor	Fine PM direct contributor
No stack merge:	13,572,942.[a]	228. tons (app., as reported)	3,178.[a]	1,869.[a]	136.	122.
Post-stack merge:	27,864,294.[a]	6,000 to 30,000.	6,531.[b]	3,831.[b]	279.	251.
	Increase	*Requested data for full determination withheld.*	***3,353.***	***1,962.***	***143.***	***129.***
	NSR Threshold, tons[f]	***100.***	***40.***	***40.***	***15.***	***10.***
	Possible Technology Triggered w. NSR	***Best Management Practices***	***Lime spray drier.***	***Urea-based SNCR.***	***Polishing baghouses (as described in Amended Consent Decree)***	
	Potential Missed Emission Reduction if NSR Circumvented[g]	***>50% of all CO***	***>85 to 90% of all SO_2***	***> 50% of all NOx***	***Significant additional control beyond ESPs.***	***Significant additional control beyond ESPs.***

City of Alexandria

CITY'S BASIS FOR PROPOSED EMISSION RATES

- 0.4 lb/MMBtu SO_2 emission rate, approx. 60-65% control
- Mike Dowd indicated that the range 0.35-0.4 lb/MMBtu was appropriate and reasonable
- It was based on methodology that reflected City's concessions
  - In consultation with VDEQ's staff (Mike Kiss)
  - NAAQS compliance for summer only will require < 0.3 lb/MMBtu

City of Alexandria

BASIS FOR CITY'S PROPOSED ORDER

- Limits the bridging period to Sep. 30, 2007
- Protects community from short term SO_2 exposure (Alarms for 800 ug/m^3 SO_2 level on hourly basis)
- Characterize post-trona ash to better assess reported impacts on the community
- Access to CO and opacity data to evaluate inconsistencies in submittals by Mirant

City of Alexandria

Recommendation

- ALTERNATIVE 1

Order Mirant to operate in a NAAQS compliant manner such as in Appendix A (On the basis of 2004 consent order, allowing use of EBDs)

City of Alexandria

Recommendation

- ALTERNATIVE 2

Issue interim order consistent with the draft order proposed by the City

City of Alexandria

Thank you

Questions?

City of Alexandria