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January 30, 2007

Transmitted via e-mail

Anthony J. Como
Office of Electricity Delivery and Energy Reliability
NEPA Document Manager
Department of Energy
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Re: Special Environmental Analysis, DOE/SEA-04
Potomac River Generating Station
Reply to Comments

Dear Mr. Como:

On behalf of Mirant Potomac River LLC ("Mirant"), we respectfully request the opportunity to respond to certain written comments received by the Department of Energy in connection with the Department's Special Environmental Analysis dated November 2006 (DOE/SEA-04, the "SEA")) regarding DOE Order 202-05-03 ("DOE Order"), as extended by DOE Order 202-06-2 and DOE Order 202-06-2A, concerning the operations of the Potomac River Generating Station (the "Plant").[1]

The purpose of this letter is not to respond to every item in the written comments, which were filed by, among others, the City of Alexandria[2], the Sierra Club[3], and the Riverkeepers.[4] Rather, we are addressing some of the points on which we believe the commenters have materially misstated the facts and drawn materially incorrect conclusions. We believe that the comments might leave the Department with an incorrect understanding on several significant points.

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[1] The legal entity that operates the Plant is Mirant Potomac River, LLC. The SEA, in some instances, refers incorrectly to other Mirant entities as owning or operating the Plant.

2 Comments of the City of Alexandria, Virginia, filed January 8, 2007 ("Alexandria Comments").

3 Letter from the Sierra Club dated January 7, 2007 ("Sierra Club Comments").

4 Letter dated January 8, 2006 [sic] from Institute for Public Representation on behalf of Potomac Riverkeeper, Inc., Patuxent Riverkeeper, and Anacostia Riverkeeper (collectively, the "Riverkeepers")("Riverkeepers Comments").

1. **Role of the Plant.** The comments incorrectly describe the role of the Plant and, in particular, the impact of PEPCO's unbundling of transmission lines. Contrary to the statement in the Riverkeepers Comments (p.2), DOE has not determined that the Plant will "not be needed when the two new 230kV transmission lines are operational," nor can the Department make an assessment about this issue, even if it were within the DOE's purview to make such an assessment. As reflected in the DOE Order itself, the Secretary based his order "not on any single factor, but on the combination of all relevant facts and circumstances," including the fact that, at that time, and still today, Central Washington, D.C., is served by only two 230kV transmission lines. While the unbundling of the existing lines should increase redundancy for reliability, no one has made an assessment about the relationship between such line upgrades and the continued operation of the Plant. Indeed, Mirant asserts that if transmission lines and or certain substations were damaged intentionally or by natural disaster, the Plant would be essential to providing power to downtown Washington, DC.

More important, DOE is not deciding whether a lawfully-operating generating station is needed in order to operate. Assuming that a generating plant is in compliance with all laws and regulations, the "need" for such plant is a function of the electricity markets. There is no dispute that the demand for electricity is growing, not shrinking, in this region. Mirant asserts that the Plant will continue to provide a cost-effective and efficient source for generating that electricity. The Plant's role in the future, after PEPCO's line upgrades, will remain significant.

Similarly, the City of Alexandria complains that the SEA "permits operation of the [Plant] at levels that ignore the actual demand in the District of Columbia load pocket and the total available capacity that can reliably supply it." (Alexandria Comments, p.11). The City's complaint is a mere disagreement with the careful analysis undertaken by DOE in connection with the issuance of the DOE Order and its extensions. The City's unsupported conclusion about loads and supply does not substitute for analysis of actual conditions.

DOE is only considering whether to extend the DOE Order -- with the June 1, 2006 Administrative Compliance Order remaining in place-- until the transmission upgrade has been made. On this issue, the District of Columbia Public Service Commission ("DCPSC") and PEPCO are in agreement with the conclusions set forth in the SEA that this combination of regulatory orders remains the best available balance between providing electricity reliability until the additional lines are installed and protecting the environment. Further, DSPSC has asked that DOE not prejudge the necessity of the Plant after the PEPCO line upgrades are completed. Indeed, any conclusion regarding the reliability situation will require a comprehensive review after the PEPCO upgrades. The Department should reject the request by the Riverkeepers that the DOE find that the Plant is not "needed." The Department should similarly reject the Sierra Club's call that the Plant "be required to cease operations permanently after the two 230 KV lines have been completed since it would no longer be required for electricity reliability and there are plenty other [sic] alternatives for electricity generation." (Sierra Club Comments, p. 2). These comments are contrary to the existing reliability studies and suggest that DOE would order the shutdown of a generating plant even if such plant were in full compliance with all laws and regulations.

2. Modeling Protocols and Results. Many of the comments from the City of Alexandria reflect opposition to what it calls the "unorthodox procedures" being employed to try to measure the actual impacts of the Plant. The City even states that the SEA "endorsed the ACO's jerririgged [sic] modeling procedure to maximize emissions." (Alexandria Comments pp. 2, 4).

The City erroneously equates the analysis done for the ACO and used in the SEA with a permitting process. The City writes that "[i]n terms of the permitting process, where emission limits are established, modeled exceedances are actual exceedances." (Comments, p. 4) But Mirant, EPA, and DOE have been engaged in a lengthy process to identify and assess actual impacts so that the actual reliability concerns of the area are considered alongside the actual environmental impacts of levels of operation. The protocols that were adopted by EPA reflect a considered judgment that an off-the-shelf model does not accurately reflect the unique impacts of this Plant at this location. The City cannot dismiss this work as mere jury-rigging nor can it easily dismiss the documented results.

The City has made clear its desire to close this Plant for reasons unrelated to the actual operations of the Plant. Long before it had performed any meaningful analysis of any data, it had adopted as City policy to close the Plant and dedicate the site of the Plant to more "preferred" uses. Consistent with that approach, the City unfairly discounts the results of actual measurement and actual operating scenarios in favor of a more academic and one-sided reliance on models, which demonstrably do not apply.

For example, the City complains that for "pre-shutdown operations, DOE assumes an SO_2 emission rate and annual output that are too low." (Comments, p 5). But DOE's model uses actual SO_2 emissions and MWh generation for the nine-month period prior to August 2005 for use in the modeling.

In sum, there is nothing inadequate or improper about the procedures embodied in the ACO and analyzed in the SEA. These are arrangements, designed to measure actual impacts under conditions approximating as closely as possible the actual conditions.

3. Wind Tunnel Study. The City of Alexandria attached to its Comments a review dated January 5, 2007, regarding the Wind Tunnel Modeling Evaluation, Final Report (August 29, 2006). *See* Alexandria Comments, at Attachment. The City's review of the Wind Tunnel Study was included as part of the City's critique of the procedures used in the ACO and the SEA. (Alexandria Comments, p. 5 n.4).

Mirant has attached to this letter the analysis of ENSR, the retained air quality expert, to the points made by the City in its January 5, 2007, review of the Wind Tunnel Study.[5] Furthermore, the City could have spared itself the expense of preparing its critique of the Wind Tunnel study had it agreed to meet with Mirant's, DEQ's and EPA's air modelers and discussed its concerns. Modeling is an extremely detailed exercise, and technical issues with the modeling would be best addressed in a meeting with modelers at EPA, DEQ, Mirant and the City.

[5] Letter to Mirant Potomac River, LLC from ENSR, dated January 30, 2007, *See* Attachment A.

4. Alleged $PM_{2.5}$ Impacts. Contrary to the comments made by the City of Alexandria, the SEA did take into account alleged $PM_{2.5}$ impacts of the Plant. The problem with the City's position is that it is divorced from the data cited by the SEA.

The City states that the SEA "confirms that PRGS emissions of $PM_{2.5}$ cause or contribute to violations of the NAAQS under all modeled scenarios, and at levels that contribute to impacts that are several times the standard." (Alexandria Comments, at 6). The City throws together concepts that are materially distinct. First, while the State and the region have obligations regarding NAAQS, the Plant does not have a NAAQS that it is required to meet. Its emissions levels are set by its permit, not by NAAQS.

Second, there is a world of difference between "causing" a NAAQS violation and "contributing to" a NAAQS violation. No one disputes that the region in which the Plant is located is deemed to be a nonattainment region for $PM_{2.5}$. But as the SEA makes clear, the operations of the Plant under the ACO are not estimated to be generating concentrations of $PM_{2.5}$ in excess of either the old or new $PM_{2.5}$ standards on an annual average basis or a 24-hour average. (SEA, p. 72). The data do not support the charge that the Plant is "causing" an exceedance of the NAAQS standard for $PM_{2.5}$, even if it were the Plant's regulatory duty to meet a NAAQS standard.

Finally, the $PM_{2.5}$ monitors that have been installed for the last few months show measured concentrations at Marina Towers below the 24-hour NAAQS for $PM_{2.5}$. As reflected in the attached graphs comparing monitored data from Marina Towers with data from other monitors located in the area, the $PM_{2.5}$ concentrations at Marina Towers are virtually indistinguishable from concentrations at other monitors distant from the Plant.[6] Thus, using modeled estimates or monitored data, the Plant's impacts on area $PM_{2.5}$ are low, and its impact on Marina Towers, in particular, negligible.

5. Raising the Stack. Riverkeepers assert that raising the stack heights "will not solve the plant's . . . NAAQS exceedances problems . . . ." (Riverkeepers Comments, at 5). From the outset, the data collected by Mirant show that the NAAQS are not exceeded. Further, the models that have predicted NAAQS exceedances in certain instances would no longer predict such exceedances if the stack were raised sufficiently.

6. Trona. Some of the commenters express the perception that trona injection is untested. As EPA noted in its letter to Representative James Moran dated July 19, 2005, "Trona has been used at various power plants, glass furnaces, battery reclamation facilities, municipal waste incinerators, chemical plants, secondary metal smelters, cement and mining operations as far back as 1989."[7]

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[6] *See* Mirant Potomac River, LLC Generating Station Presentation to Virginia Air Pollution Control Board, January 16, 2007, (Attachment B) at pp. 14-16.

[7] *See* Letter from EPA to Honorable James P. Moran, July 19, 2006, (Attachment C) at p. 2.

Conclusion. While we do not concur with every aspect of the SEA, overall the SEA reflects a careful and considered analysis of the conditions regarding the Plant. The focused issue before DOE is whether to extend the DOE Order for an additional period of time. On that issue, the SEA demonstrates why such an extension would not create any environmental hazards to the City of Alexandria and the surrounding area.

Respectfully,

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Attachments

ATTACHMENT A

ENSR
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January 30, 2007

Mirant Potomac River, LLC
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Alexandria, VA 22314

You have asked ENSR to review the letter dated January 5, 2007, sent by Richard J. Baier, to Donald S. Welch and David K. Paylor (the "Letter"). The Letter purports to be a review and critique of the Wind Tunnel Modeling Evaluation for the Mirant Potomac River Generating Station, Final Report (the 'Study"), dated August 29, 2006, and prepared by CPP, Inc.

As detailed below, in our judgment the Letter does not represent a fair or scientific critique of the Study. The letter does not provide a basis for criticizing the Study. It does not reflect a parallel model or similar evaluative tool for analyzing the Study. The Letter appears to ignore the whole reason for designing the Wind Tunnel Study -- namely, using equivalent building dimensions to simulate real-world impacts. Rather, the Letter takes the results of the Study and compares them with standards developed for other purposes. As a result, the Letter incorrect concludes that the Study underestimates the Plant's impacts.

In each section below, we quote the relevant comments used in the Letter for each of the points raised and provide our response to the statement.

1. *"The Wind Tunnel Study mischaracterizes real-world wind flow and underestimates PRGS's impacts."*

Response: CPP created a state-of-the-art physical model of PRGS and nearby structures to simulate flow of plant's flue gases towards Marina Tower and other directions. A set of equivalent building dimensions (EBDs) was developed to use in AERMOD to improve the AERMOD default model performance. AERMOD modeling results with EBDs predict lower concentrations than AERMOD default and correlate better with measured data. Nevertheless, AERMOD with EBDs still significantly overpredicts measured concentrations. Therefore, use of EDBs in AERMOD does not underestimate PRGS's impacts.

In addition, conservative assumptions were made in the Study to ensure that building wake effects would strongly influence the plume dispersion. A high wind speed was simulated to ensure the plume rise was low. In addition, the model scaling assumptions were designed such that full-scale plume buoyancy was underestimated (i.e., lower plume rise than in reality).

2. *"The Wind Tunnel Study did not simulate a range of loads and potential worst-case operational scenarios."*

Response: The Study simulated mid-range load (approximately 65 MW from each unit) stack parameters to develop EBDs. To model plume trajectories for the EBD determinations, the velocity ratio and the density ratio of the exiting gases at 65 MW were matched in model and full scale. Matching the velocity and density ratios is an EPA accepted procedure used by CPP in past studies designed to derive equivalent building dimensions. While matching velocity and density ratios, this procedure underestimates the actual real world plume buoyancy and underestimates the actual plume rise.

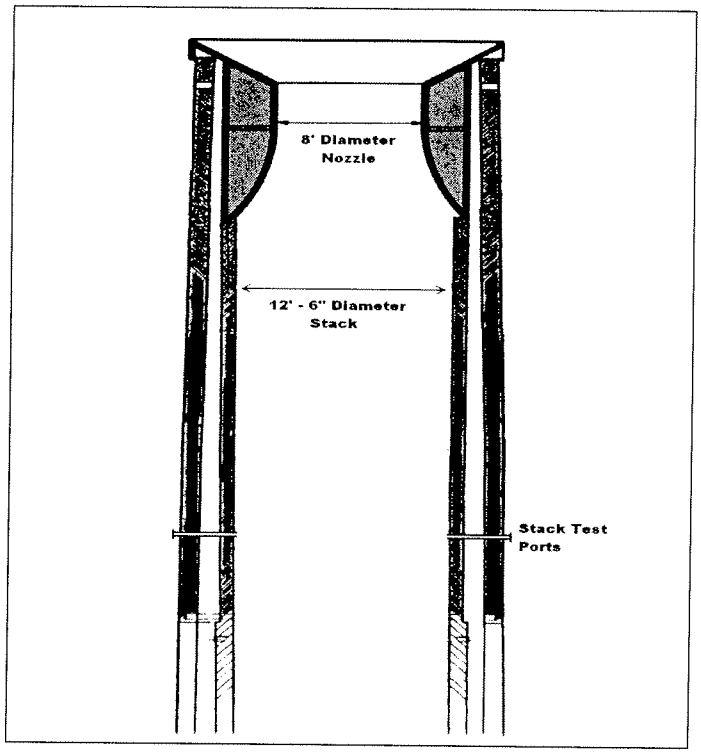
Settings in the Study were converted back to full scale conditions using buoyancy and momentum scaling and these values are presented in Table 1b of the Study. In the table, the equivalent full scale stack gas exit temperature and gas exit velocity for Unit 1 are listed as 304.9°K and 21.16 m/sec, respectively. The actual values for these parameters at 65 MW are 443.2°K and 25.5 m/sec, respectively. The Study therefore underestimated real world plume buoyancy and real world plume rise at 65 MW.

The stack gas exit parameters used in the Study to simulate 65 MW load also underestimate plume buoyancy and produce lower plume rise than actual conditions, even at a minimum load of 35 MW. The actual stack gas exit temperature and gas exit velocity for Unit 1 at minimum load are 442.6 °K and 19.0 m/sec, respectively. While the Study used a slightly higher exit velocity than actual (21.16 m/sec versus 19.0 m/sec), the Study temperature of 304.9° K is much lower than the actual temperature of 442.6° K. Resulting plume buoyancy and plume rise in the Study assuming 65 MW mid load conditions are therefore lower than actual plume buoyancy and plume rise at 35 MW minimum load condition. For example, assuming a stack top wind speed of 8.8 meters/sec (the value used in the study), the calculated plume rise for Unit 1 at 65 MW using the Study's full scale stack gas exit parameters is 27 meters above the stack. The calculated plume rise using the actual stack gas exit parameters for Unit 1 at 35 MW is 75 meters above the stack. The Study's underestimation of plume buoyancy and plume rise also applies to the four other units at the power plant. Therefore, the Study did simulate worst case operational scenarios.

3. *"The Wind Tunnel Study used stack-exit velocity that significantly overstates plume momentum."*

Response: In Table 3 of the Letter, the City presents stack gas exit velocities from recent stack testing: 17.5 m/sec for stack 1 and 14.6 m/sec for stack 5. These values are correct for the location where the stack tests were taken. These values are not the stack gas exit velocities, however. The wind tunnel used velocities of 25.5 m/sec and 21.5 m/sec for stacks 1 and 5. These values are the gas velocities at the stack exit where there is a nozzle on each stack that restricts the stack inner diameter. The nozzles are part of the original design due to FAA stack height restrictions. The nozzles were placed at the stack exit to increase velocity. The wind tunnel used the correct stack gas exit velocities. See Figure 1.

Figure 1: Stack Exit Configuration



4. *"The Wind Tunnel Study failed to identify roof-top receptors on buildings west of Marina Towers."*

Response: The NAAQS protects the ambient air at balconies and rooftops accessible by the public. The structures located on Slaters Lane are commercial buildings with no public access to the rooftops, and therefore NAAQS impact analysis on these rooftop receptors is not required.

5. *"The Wind Tunnel Study incorrectly identified scales and direction indicators."*

Response: Figure 5, Figure 6b, and Figure 6d of the Study report contain typographical errors that did not affect the wind tunnel results.

"The Study did not measure concentrations at any point closer than 90 meters."

Response: The wind tunnel setup was constructed with the correct scale and the concentration profiles used to determine EBDs were measured at distances closer than 90 meters in many directions, as shown in Appendix E. The grid was designed to capture maximum concentrations in every direction. For example, page E-1 of the Study report shows measured concentrations from stack 1 (BS1) for the EDB 13 at a distance of about 40 meters from the stack. The lateral and longitudinal spacing of receptors was designed so that the maximum concentration was defined in the lateral and longitudinal directions. Appendix E also illustrates that measured concentrations are low at 40-190 meters, peaking at 200-300 meters, after which measured concentrations decrease gradually. CPP has never seen a

double peak in longitudinal ground level concentrations. This means that the maximum concentration was captured.

6. *"Surface roughness is inconsistent with actual conditions for both water and land approach."*

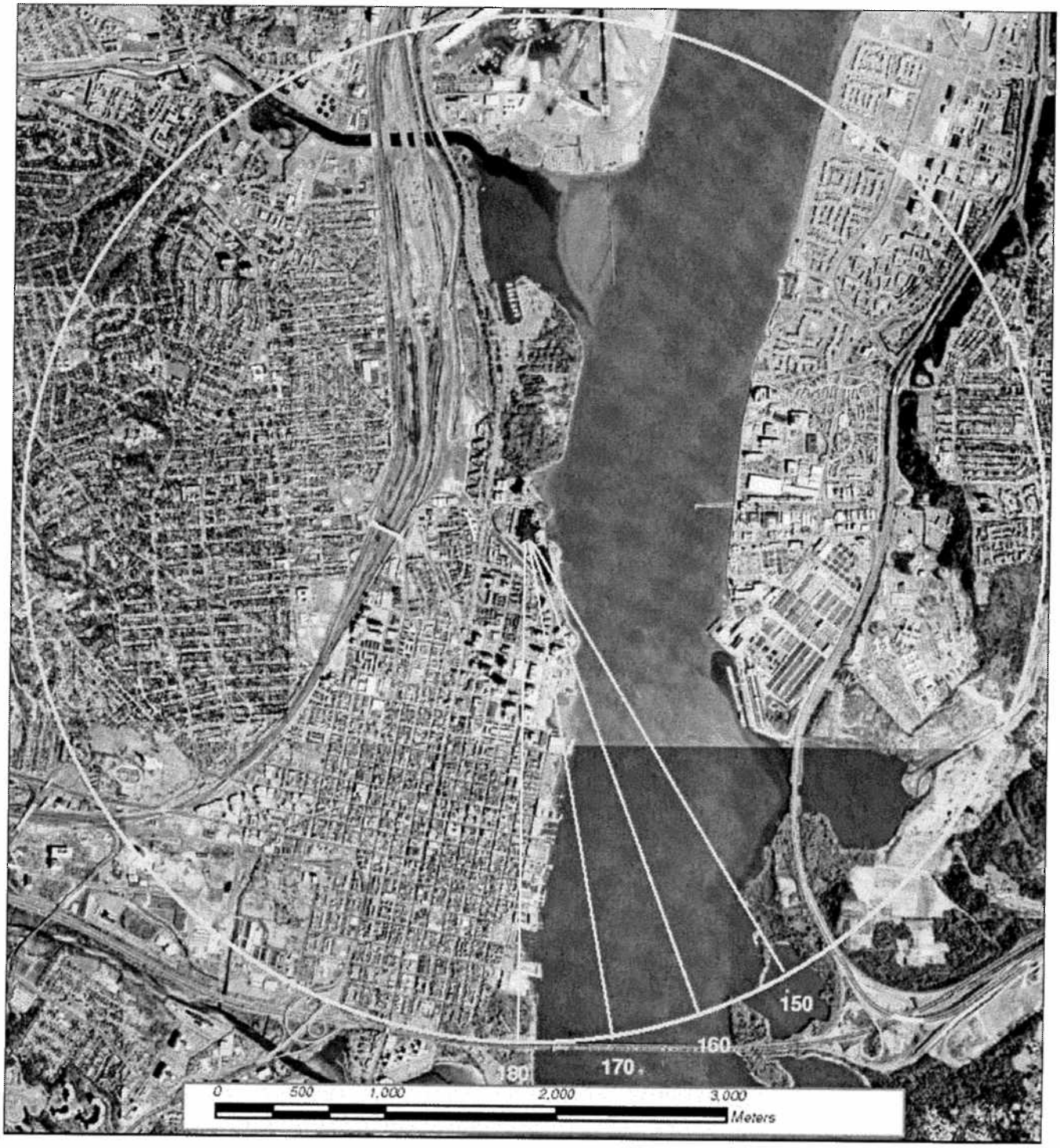
Response: The Study used 0.15 meters surface roughness for wind direction from 1 to 170 degrees ("water approach") and 0.79 meters surface roughness for wind direction from 171 to 360 degrees ("land approach"). The Letter states that the "land approach" had to be applied from 159 to 360 degrees. AERMET user's guide (page 5-9) states that "for AERMET applications, an upwind fetch distance of 3 kilometers is recommended for defining user-specified values such as albedo, Bowen ratio, and surface roughness. In each sector, it is likely that a mixture of land use is present, and the resulting user input should be a weighted average of the values selected for each land use type." Figure 2 shows a 3-km circle around the PRGS with the sectors of concern. It is clear from the figure that the 150-160 degrees sector is approximately 100% water and the 160-170 degree sector has about 90% water. Therefore, using "water approach" for the wind directions from 1-170 degrees was correct.

The 170-180 degrees sector has about 50% water and about 50% land and the Study used "land approach" for this sector, which is appropriate.

"The present approach has a high potential to significantly understate maximum impacts at Marina Towers."

Response: AERMOD was run using the EBDs and the resulting concentrations were lower than AERMOD run in default mode. Nevertheless, AERMOD with EBDs still significantly over-predicted concentrations as compared to monitored concentrations on the Marina Towers. Therefore, use of the EBDs developed in the wind tunnel is protective of public health.

Figure 2: A 3-km Circle with Critical Sectors



7. *"Due to complexity and number of structures, relationship between buildings to each stack's exhaust dispersion patter is unique – the Wind Tunnel Study failed to analyze wind direction for each stack."*

Response: The Study developed EBDs for stacks 1 and 4 for every 10 degrees of wind direction. The Study also developed EBDs for stacks 2, 3 and 5 for every 40 degrees of wind direction for winds from the SE, SW, W, NW and N. For other wind directions, i.e., winds from the NNE, East and ESE, high plant-related impacts are not expected and BPIP dimensions would be used in AERMOD. The wind tunnel did not identify EBDs for all wind directions for stacks 2, 3, and 5 because the stacks are only 25 meters apart and EBDs for adjacent stacks are expected to be similar. Similarity was confirmed with the set of EBDs developed for stacks 2, 3 and 5.

The EBDs were run in AERMOD and predicted concentrations were lower than AERMOD run in default mode. However, as shown in the accompanying plots of predicted to observed concentrations at the two Marina Towers rooftop SO_2 monitors (unpaired in time), AERMOD/default (upper figure) and AERMOD/EBD (lower figure) predict significantly higher values than actual observed concentrations at the two roof top monitors. The plots show predicted and observed concentrations for the months of June through November 2006. In the figures the solid diagonal line represents a perfect 1:1 predicted to observed value. If the model was perfect, all concentrations would be on this line. The upper and lower dashed lines represent a factor of two over-prediction and a factor of two under prediction, respectively. Therefore, use of the EBDs developed in the wind tunnel is protective of public health.

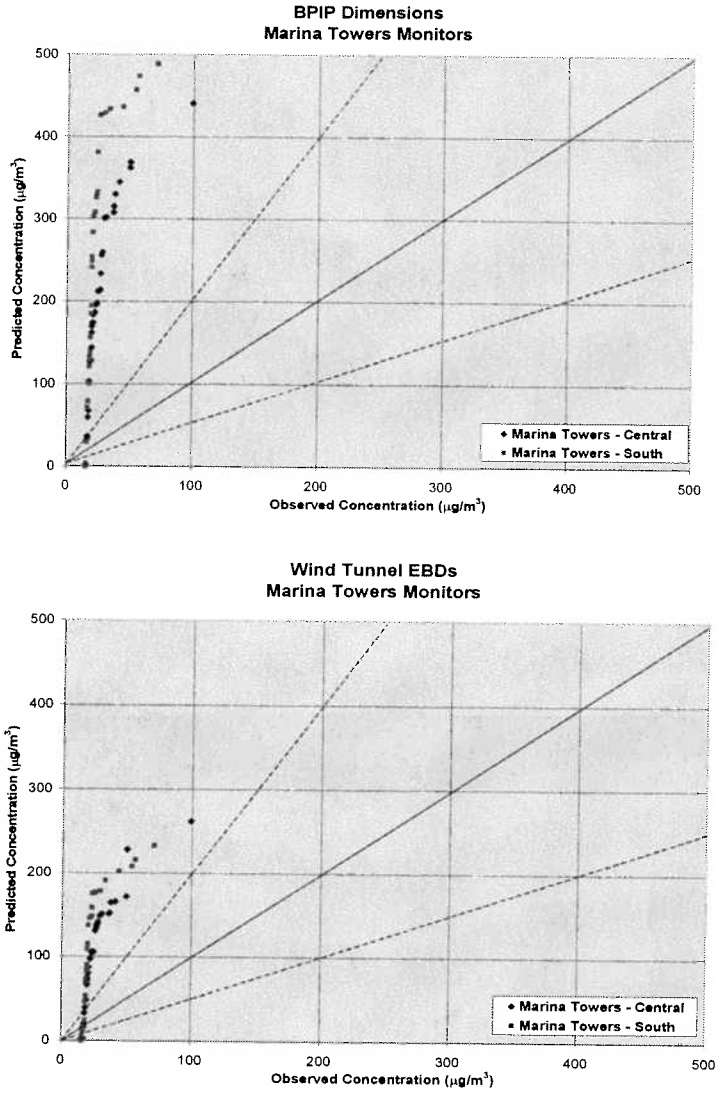
8. *"The Wind Tunnel's flow visualization exercise illustrates only rare or non-existent scenarios."*

Response: The visualizations are presented for illustrative purposes only. The quantitative measurements form the basis of design.

9. *"Similarity parameters were developed using incorrect anemometer height."*

Response: The Letter states that prior to 1996 the anemometer height at the Reagan National Airport was 6.1 meters and then the height was changed to 10 meters. The Study used historical (1964-2002) wind speed records from the airport to calculate wind speed over the PRGS. CPP scaled all weather data to a common height using a power law relation with a 0.14 exponent. Wind speeds typically increase with height according to a power law and 0.14 is a typical value. Regardless, the EBD results are very insensitive to the selected wind speed as long as it is a high wind speed. If anything, the results are conservative because the Study simulated an infrequent high wind speed that produces low plume rise and maximum building downwash effects.

Figure 3: **Q-Q Plots of 24-hour Predicted vs. Observed Concentration, When Observed Concentration > 15 µg/m^3**



10. *"Full scale concentrations results indicate historical severe violations of NAAQS; West and Northern wings also experience very high impacts."*

Response: The Study measures pollutant concentrations that represent 10-minute averaging periods. The City extrapolated from these 10-minute averages to arrive at 3-hour and 24-hour averages in calculating the plant's impact of SO_2 and $PM_{2.5}$ concentrations. The Study results should not be used to derive concentrations for purposes other than developing EBDs. The wind tunnel was designed to provide conservative estimates, as discussed above, of building downwash effects. Consistent with USEPA guidance, 3-hour and 24-hour average concentrations are predicted using hourly meteorological conditions.

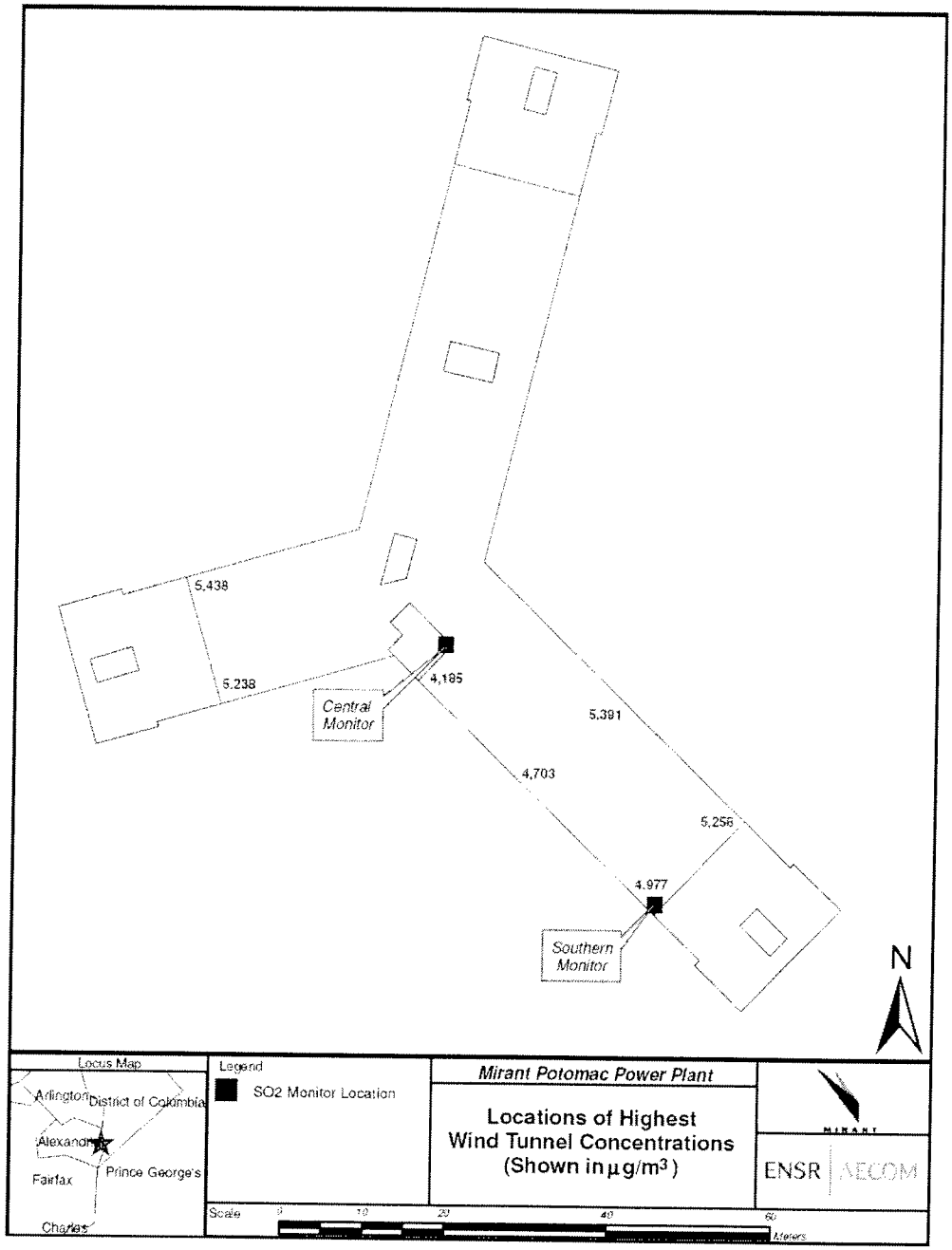
"Actual full-scale simulation results from the Wind Tunnel Study show that monitoring of the facility's operations through placement of only two monitors on Marina Towers – on the rooftop at the southeastern-most point and center – is grossly inadequate."

Response: Figure 4 shows the top of Marina Towers roof. The location of the highest concentrations measured during the Study are shown and the location of the two ambient SO_2 monitors are also shown. The highest wind tunnel concentration of 5,438 $\mu g/m^3$ was measured on the west wing during a 160° wind direction. The next highest value of 5,391 $\mu g/m^3$ was measured on the SE wing between the locations of the two Mirant SO_2 monitors during a wind direction of 170°. A wind direction of 165° would have transported power plant gases directly toward the central monitor resulting in a measured concentration higher than the 4,185 $\mu g/m^3$ value shown in the figure. However, this direction was not included in the Study. The highest values for the 170° (5,391 $\mu g/m^3$) and 160° (5,438 $\mu g/m^3$) wind directions are within 1% of each other. Therefore, the two SO_2 monitors are located appropriately to measure highest plant-related impacts.

"It is not clear why full-scale concentrations results at every one of the 46 receptors studies were not included in Appendix I. Nor were full-scale concentrations results for Boiler 4 presented for review."

Response: Appendix I includes full-scale results at every one of the 46 receptors. Full-scale concentrations for Boiler 4 are not shown for all cases because no-tracer gas was released from this stack for those cases. Hence, no concentration is reported because none was measured. To obtain an estimate of the total impact due to all Boilers, one could use the average concentration of Boiler 3 and 5 to estimate the impact of Boiler 4.

Figure 4: Wind Tunnel Concentrations



11. *"The Wind Tunnel Study illustrates failure of the ACO to adequately protect public health against NAAQS violations."*

Response: Mirant has installed six SO_2 monitors in locations where highest plant-related SO_2 impacts were predicted from previous AERMOD/Default modeling and measurements in the wind tunnel study. Highest measured SO_2 concentrations during June – December 2006 are 44% and 65% of the 3-hour

and 24-hour NAAQS, respectively. Higher concentrations than this would not be expected at other locations based on the modeling. Therefore, Mirant can confidently state that their operations are protective of public health and that future SO_2 emission limits established from AERMOD modeling will also protect public health.

12. *"Health Analyses. The Letter states that historical EPA 5-min SO_2 concentrations at Marina Towers likely have exceeded levels of concern and endangerment."*

Response: See response to allegation No. 10.

"$PM_{2.5}$ impacts, derived from wind tunnel analysis, show NAAQS violations."

Response: The Study measures pollutant concentrations that represent 10-minute averaging periods. The City extrapolated from these 10-minute averages to arrive at 24-hour averages in calculating the plant's impact on $PM_{2.5}$ concentrations. The Study results should not be used to derive concentrations for purposes other than developing EBDs because hourly variations in wind speed and direction and atmospheric stability, all of which govern the rate at which the stack gas effluent disperses in the atmosphere, are not included in the Study. Consistent with USEPA guidance, 24-hour average concentrations should be predicted using hourly meteorological conditions.

Furthermore, Mirant has been operating a $PM_{2.5}$ monitor on the roof of Marina Towers since early November 2006. The measured concentrations at this monitor have been below the 24-hour NAAQS for $PM_{2.5}$ of 35 $\mu g/m^3$. $PM_{2.5}$ measurements on Marina Towers do not vary meaningfully from background measurements of $PM_{2.5}$ in the region. Therefore, the power plant's $PM_{2.5}$ impacts in Marina Tower are negligible.

13. *"Summary of deficiencies and modifications."*

"Approval of the EBDs set out in the Wind Tunnel Study would lead to higher power output rates by the PRGS and higher impacts."

Response: The EBDs were run in AERMOD and predicted concentrations were lower than AERMOD run in default mode. However, as shown in Figure 3, AERMOD/default (upper figure) and AERMOD/EBD (lower figure) predict significantly higher values than actual observed concentrations in ambient air. Therefore, use of the EBDs developed in the wind tunnel is protective of public health.

(i) *"The Wind Tunnel Study should present $PM_{2.5}$ full-scale concentrations results."*

Response: See response to allegation No. 12.

(ii) *"The Wind Tunnel Study should be re-simulated using agency-approved velocity and temperature for low, mid- and high range loads."*

Response: See response to allegation No. 2.

(iii) *"The wind tunnel analysis is inconsistent with stack testing results of exit velocity and diameter."*

Response: See response to allegation No. 3.

(iv) *"Mirant should expand the number of monitors on Marina Tower to encompass all possible points of maximum impacts, including on the rooftops at the ends of the western and northern wings, at approximately mid-level height in each of the faces of the wings, and at several locations between the PRGS and MT at ground location."*

Response: See response to allegation No. 10.

"$PM_{2.5}$ should employ continuous sampling methods. Mirant should also place SO_2 and $PM_{2.5}$ monitors along the southwest and northwest fences."

Response: See response to allegation No. 10.

(v) *"Mirant should perform all resimulations in the wind tunnel analysis by correcting the treatment of overland trajectories staring from 159 degrees and onward on a clockwise basis. Dispersion modeling also should be consistent with actual surface conditions along the critical trajectory and all trajectories."*

Response: See response to allegation No. 6.

(vi) *"In all resimulations in the wind tunnel, Mirant should include rooftop receptors in other multi-story structures in the vicinity, including buildings to the west of MT on Slaters Lane."*

Response: AERMOD/Default modeling and measurements in the wind tunnel study shows that maximum impacts occur on the Marina Towers and not on any other multi-level structures in the vicinity of the PRGS.

(vii) *"Mirant must measure full-scale concentrations and develop unique EBDs for each wind direction and for each of the five stacks."*

Response: See response to allegation No. 7.

"For ground level measurements, the Study should measure concentrations starting at the closest points of public access."

Response: See response to allegation No. 5.

(viii) *"All full-scale concentrations results of the re-simulation in the wind tunnel must be presented, including impacts by BS4, and impacts on all receptors."*

Response: See response to allegation No. 10.

(ix) *"In the revised Wind Tunnel Study report, visualizations of flow for wind directions of 150-180 degrees fir all of the operating scenarios that are simulated should be presented, including the scenario where the five boilers stack are operating simultaneously."*

Response: See response to allegation No. 8.

Should you have any questions about our analysis, please contact me.

Sincerely yours,

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Air Quality Engineering & Studies
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ATTACHMENT B

Mirant Potomac River, LLC Generating Station

Presentation to Virginia Air Pollution Control Board

January 16, 2007

Electricity Generation at Potomac River

- **Regulatory Authority**
- **Plant Features and Operations**
- **Environmental Performance and Technology**

Regulatory Authority

MIRANT

- **Mirant complies with all federal and state requirements**
- **Reliable, Diverse, and Affordable Source of Power**
  - The US Department of Energy (DOE)
  - The Federal Energy Regulatory Commission (FERC)
- **Environment**
  - Environmental Protection Agency (EPA)
  - Virginia Department of Environmental Quality (VDEQ)
  - DC Department of Environment (DDOE)

Station Features

MIRANT

Mirant is critical to reliability of power delivered to the DC Metro area.

5 coal-fired generating units totaling 482 MWs

Commercial Operation Dates

Unit 1.....1949
Unit 2.....1950
Unit 3.....1954
Unit 4.....1956
Unit 5.....1957

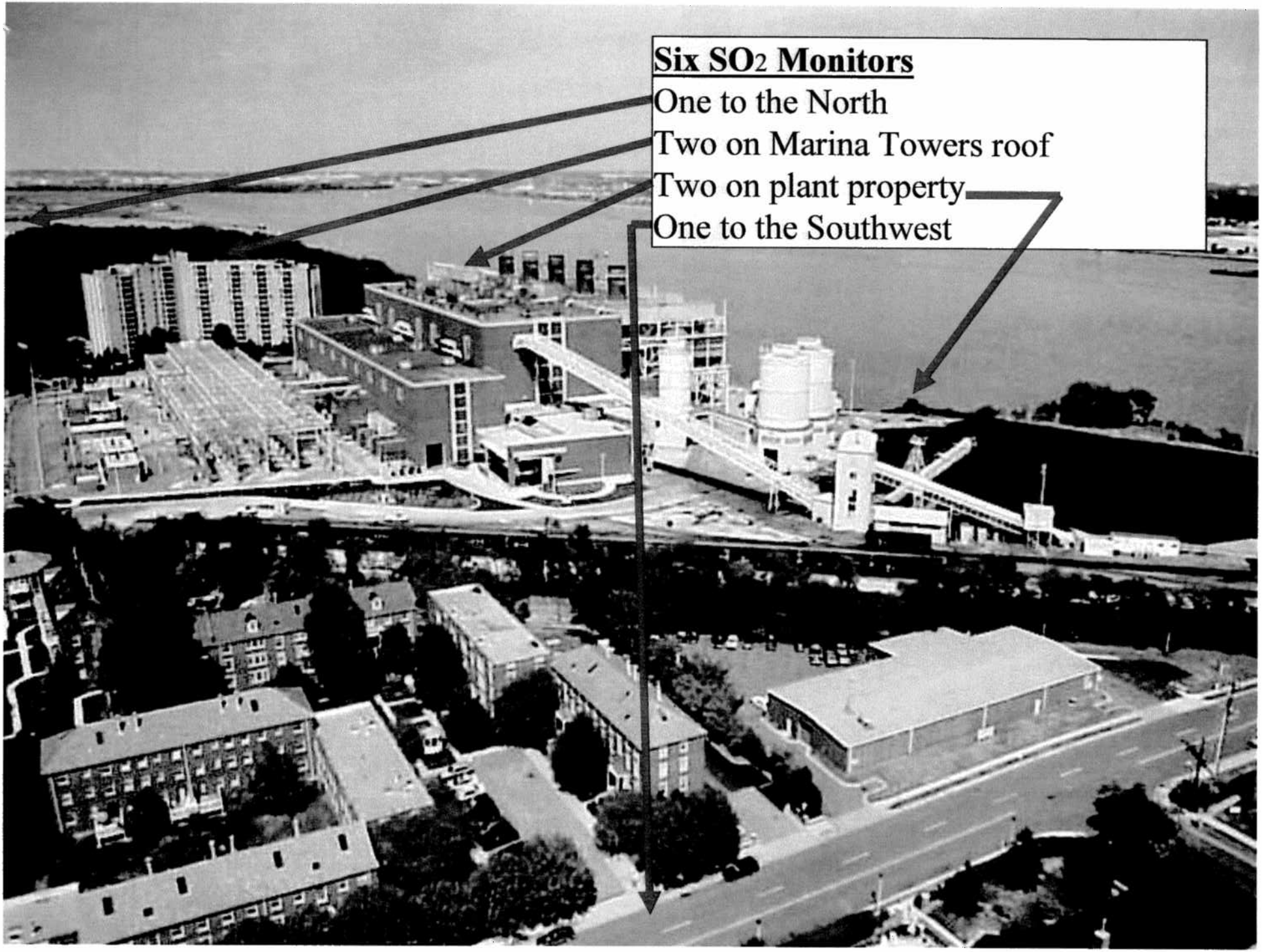
Multi-skilled workforce: 128 people

Average age: 47.....Average service: 20 years

Measuring Emissions

MIRANT

- Continuous Emissions Monitors (CEMs) installed on each stack
- SO_2, NO_x, CO_2, CO and opacity continuously measured and recorded
- Data transmitted to EPA and Virginia DEQ quarterly
- Annual accuracy test of CEMs by third party using EPA testing standards
- Six (6) ambient SO_2 monitors installed in the neighboring area
- PM2.5 Monitors installed on-site and on roof of Marina Towers
- City of Alexandria collected and analyzed dust samples – post-combustion coal particulate minimal (Eastmount Environmental Report is attached)


Six SO_2 Monitors
One to the North
Two on Marina Towers roof
Two on plant property
One to the Southwest

Sulfur Dioxide (SO_2)

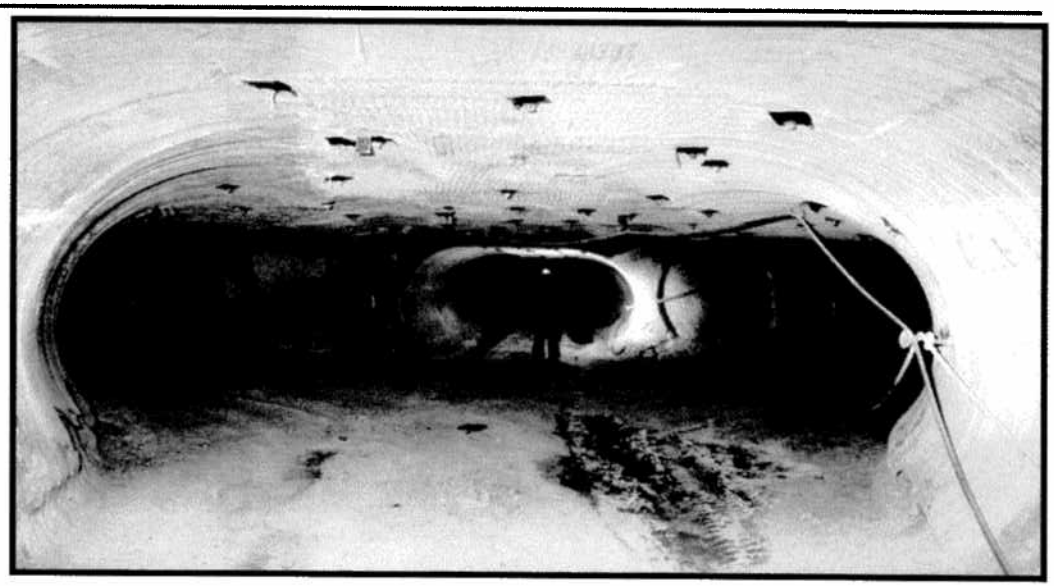
MIRANT

- Use of low-sulfur coal (1% sulfur maximum)
- Use trona injection system
- Plant has reduced SO2 emission rate by 50% since 2005

Trona Background

MIRANT

- Naturally occurring mineral mined in Wyoming
- Numerous beds contain billions of tons of trona



Properties

- Chemically similar to baking soda
- Bonds with acid gases when injected into gas stream (SO_2, SO_3, HCl, etc.)
- Used at a variety of plants for SO2 and SO3 removal – glass, cement, power, incinerators

Trona Injection System

MIRANT

Mirant is using sodium sesquicarbonate (Trona) to reduce sulfur dioxide (SO2) emissions

- **After reacting,**
  - Products are removed from the exhaust gas by hot and cold electrostatic precipitators
  - Tests have shown PM emissions decrease when trona is used
- **Limits to Trona usage**
  - Efficacy diminishes at higher removal rates
  - Particulate removal equipment
  - Ash Hauling
  - Feed equipment requires frequent maintenance and is prone to interruptions particularly at higher feed rates
  - Railcar logistics
  - Size of storage silos

Mid-Atlantic NOx Settlement

MIRANT

- **Control Technology**
  - Potomac River 3,4,5 – Low NOx Burners in 2004, SOFA in 2005
  - Morgantown 1,2 – SCRs in 2007, 2008 respectively
- **Declining NOx Tonnage Caps from 2004 through 2010**
  - Ozone Season Caps – for Potomac River and System
  - Annual Caps – for System
- **Emissions Rate Limits**
  - Ozone Season System limit of 0.150 lb/MBtu starting in 2008
  - Morgantown SCRs limit of 0.100 year-round, once installed
- **Penalty and Projects**
  - Cash payment of $500,000
  - Supplemental Projects totaling $1.0 M to reduce dust and particulate matter emissions at the site

Nitrogen Oxides (NOx)

MIRANT

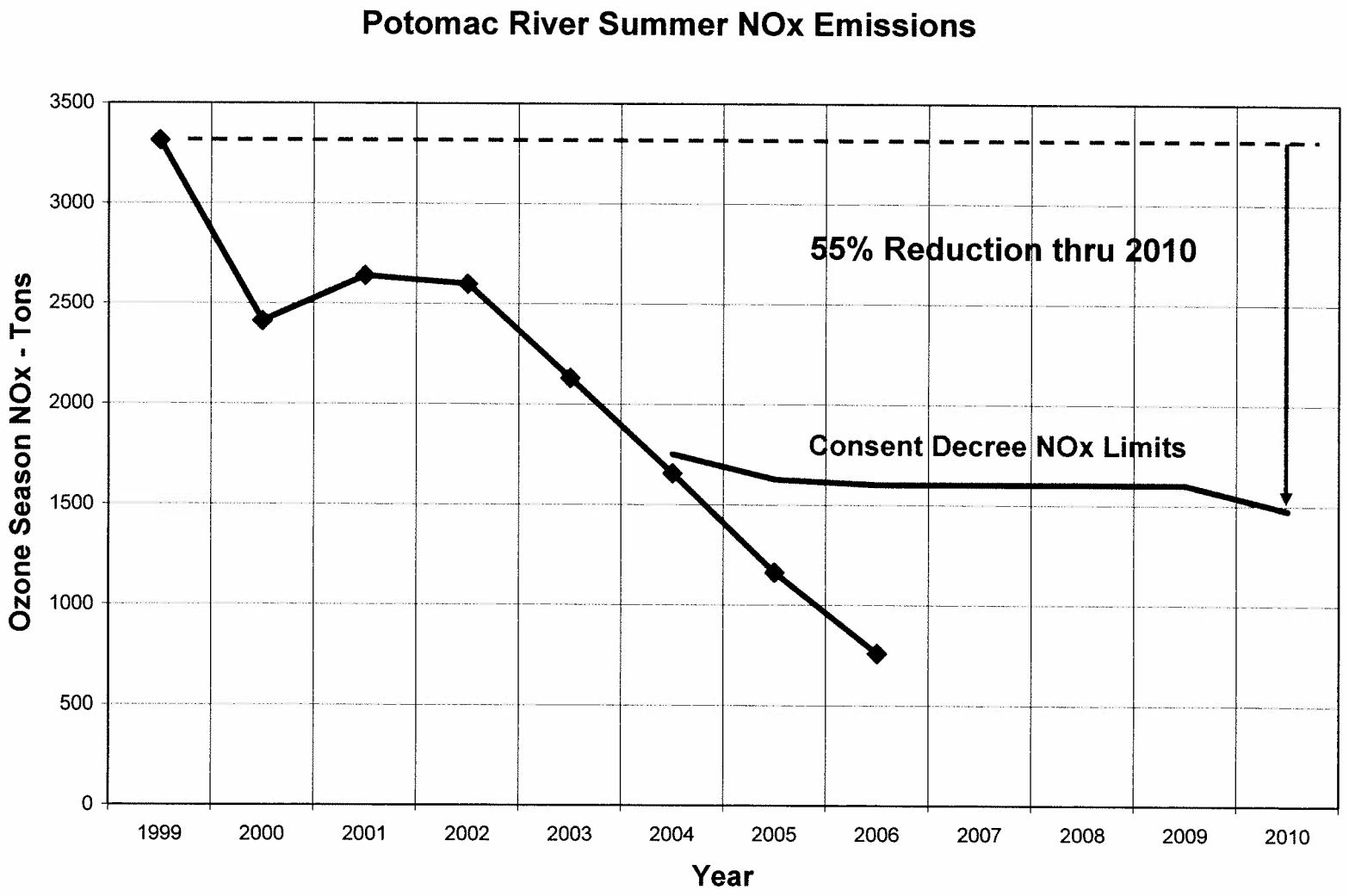
- **Precursor of smog**

Control Measures:

- Low NOx burners on all units
- Separated Overfire Air Controls (SOFA) on Units 3-5, which run more frequently than Units 1 & 2
- Combustion Optimization
- Enhanced boiler controls
- Fifty-five percent (55%) reduction through 2010 prescribed by NOx consent decree

Summer NOx Reductions

MIRANT



Particulate Matter (flyash)

MIRANT

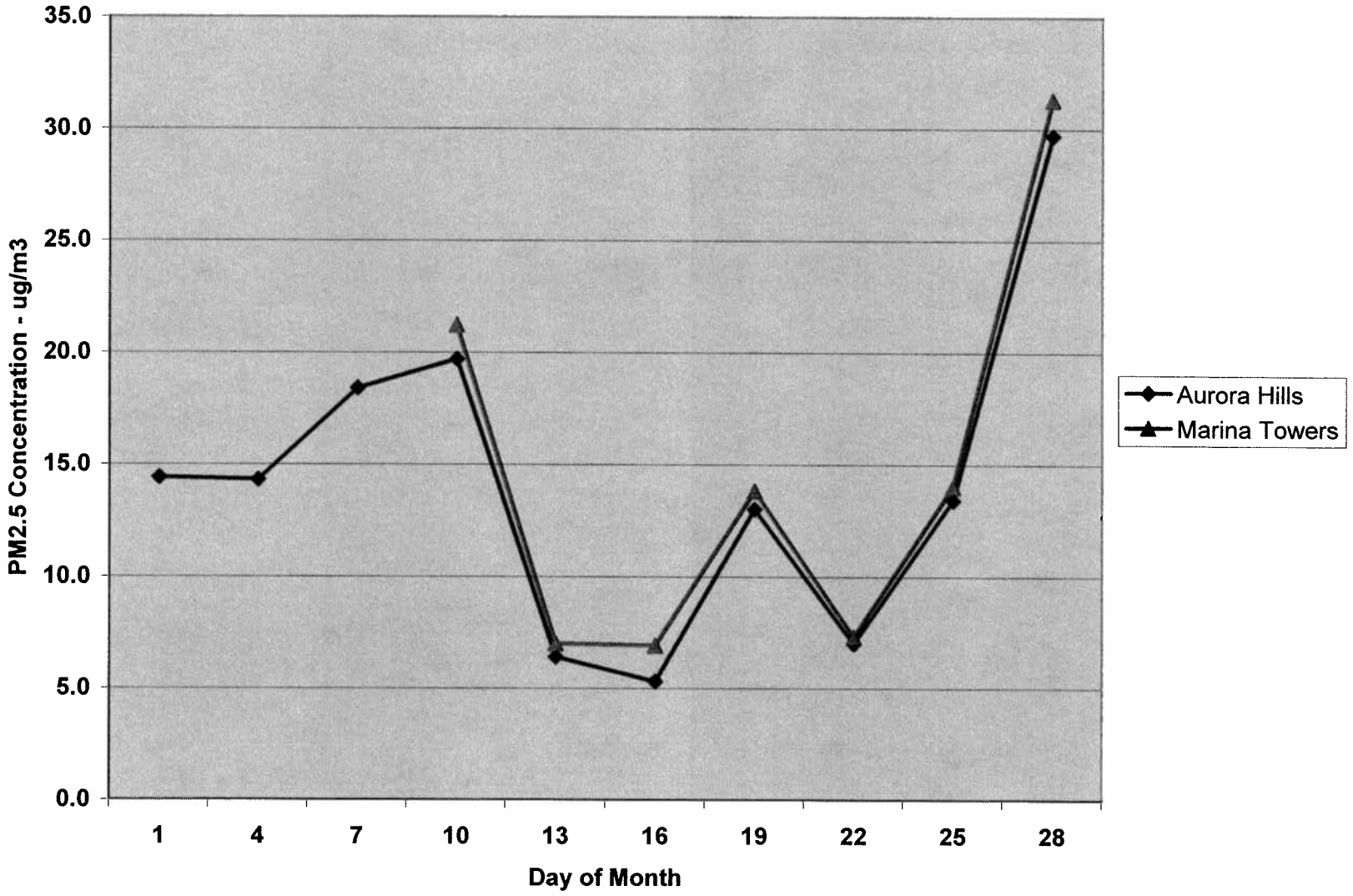
- **More than 99% of flyash is captured**

- **Technology**
  - Oversized "Hot" electrostatic precipitators
  - "Cold" electrostatic precipitators
  - Use of both is unusual for a plant this size

- **PM 2.5 monitoring data collected near plant mirror regional values.**

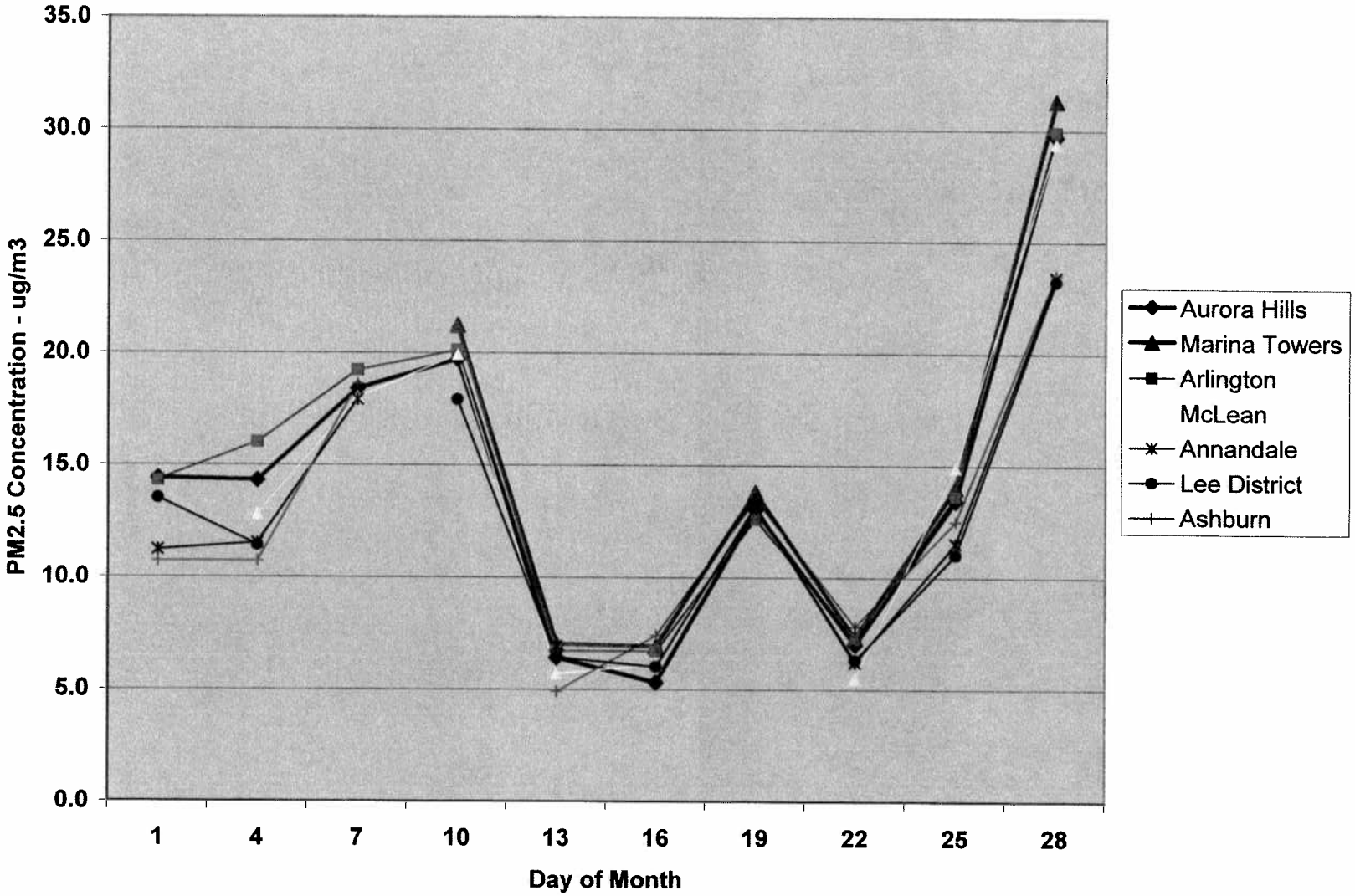
PM2.5 Monitoring Data – November 2006
Marina Towers vs. DEQ's Aurora Hills

MIRANT



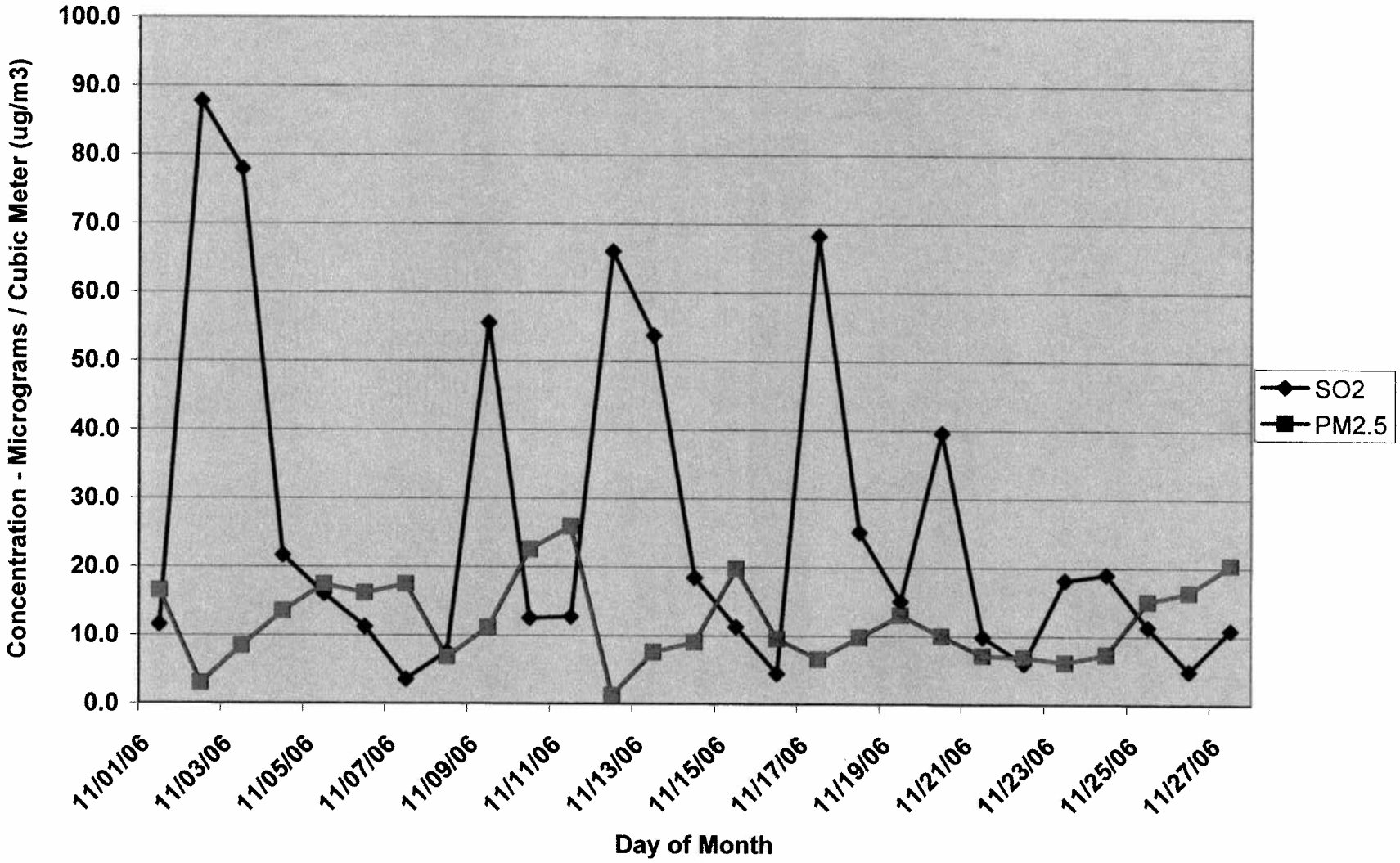
PM2.5 Monitoring Data – November 2006
Marina Towers vs. All Northern VA DEQ Monitors

MIRANT



PM2.5 & SO2 Data Comparison
24 Hr Averages

MIRANT



Improving Dust Control

MIRANT

PROJECT	Estimated PM Reduced per yr
– Ash Silo Vent Removal	30.4 tons
– Truck Wash Facility	13.7 tons
– Coal Pile Windscreen	2.8 tons
– Coal Pile Binding Agent	0.4 ton
– Truck Loading Dust Suppression	0.1 ton
– Railcar Unloading Dust Suppression	0.1 ton

Environmental Performance Rewarded

MIRANT

- **ISO 14001 Certification**
  - Rigorous international standard recognizing sound environmental management systems.
  - Audit of a facility's environmental aspects relative to its operations, processes, products and location, including possible effects on the surrounding community.
  - Mirant is committed to continued improvement and must demonstrate performance annually.

DOE Addresses Electric Reliability

MIRANT

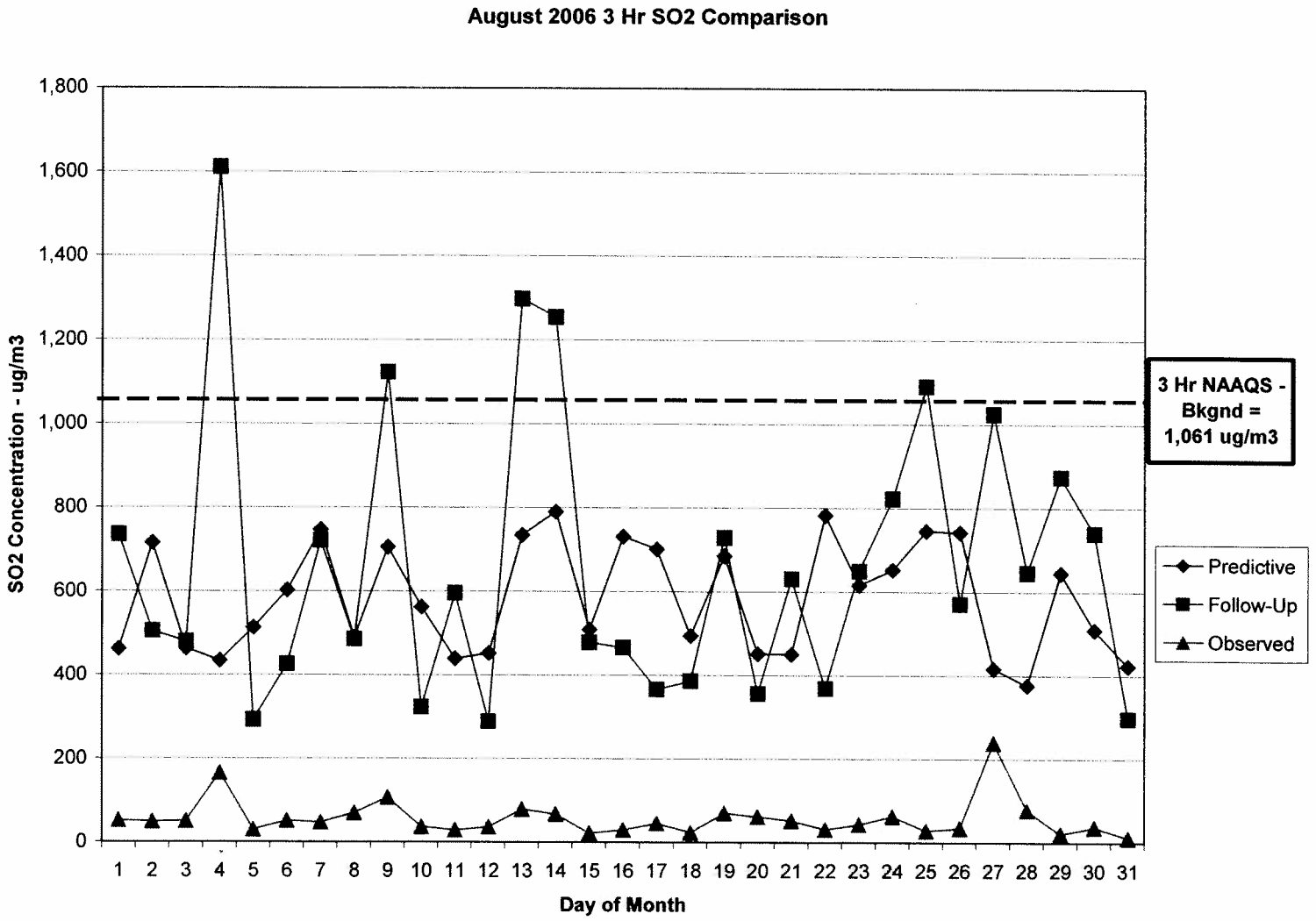
- **DOE asks EPA to develop a plan:**
  - Maximize summer 2006 plant generation
  - Do not exceed the NAAQS under non-emergency conditions
- **Result: Model Evaluation Study (MES) under an Administrative Compliance Order (ACO)**
  - On June 1, ACO signed with EPA and reviewed by VA DEQ
  - On June 2, DOE issued a letter directing Mirant to expand operations in accordance with the ACO

EPA Administrative Compliance Order

MIRANT

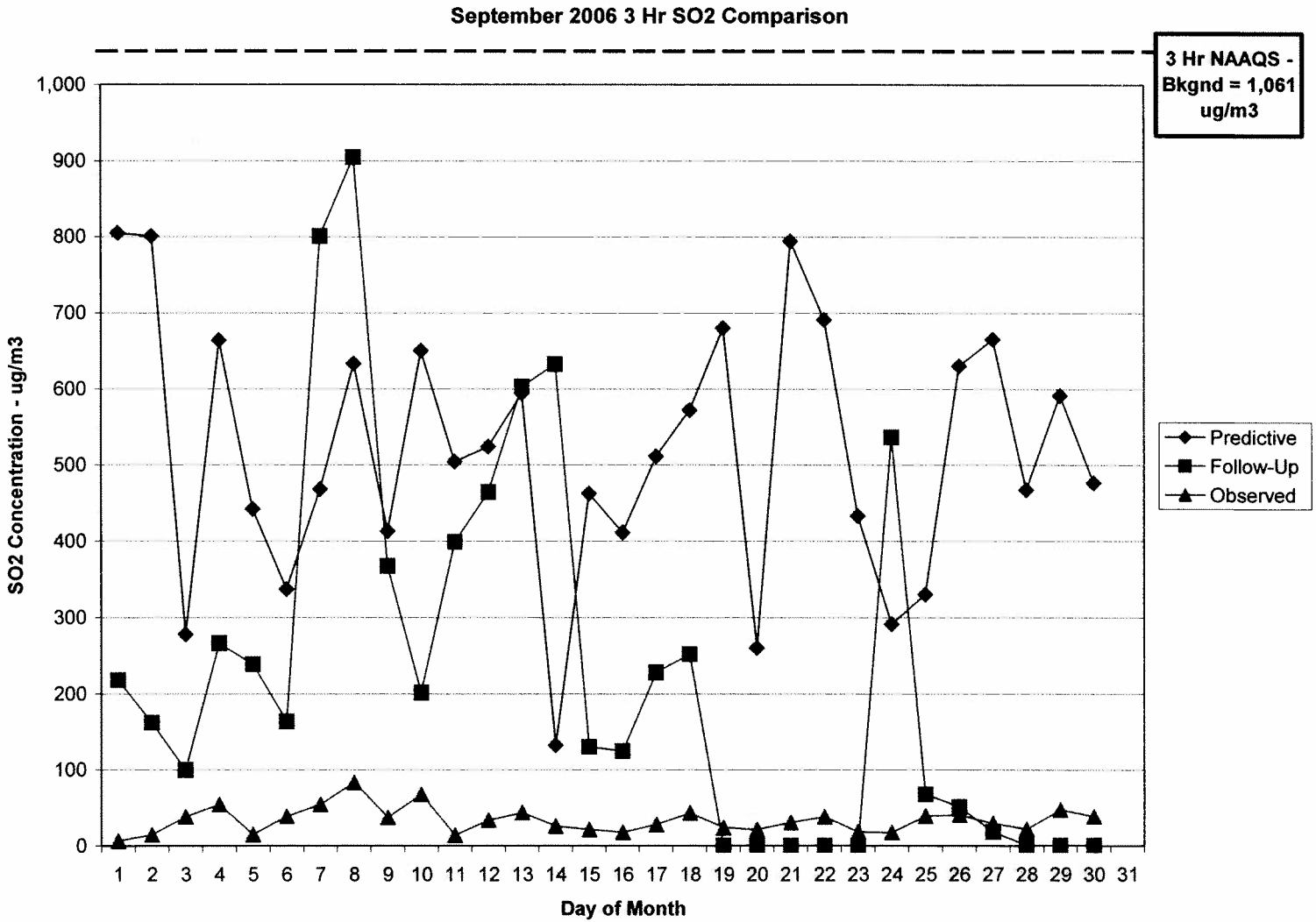
- **Installed 6 ambient SO_2 monitors**
  - At modeled maximum impact areas
  - Collect data to measure actual impacts.
- **Conduct daily predictive computer modeling**
  - Using next day's weather forecast
  - Forecast levels of SO_2 and PM_{10}
- **Submit "after-the-fact" modeling to verify compliance**
- **At end of study,**
  - Compare computer modeling results to monitored data
  - Adjust the computer model to match observed readings
  - Use adjusted model to determine appropriate emission limits

Real-Time SO_2 Monitor Performance
Max 3 Hr Averages – August



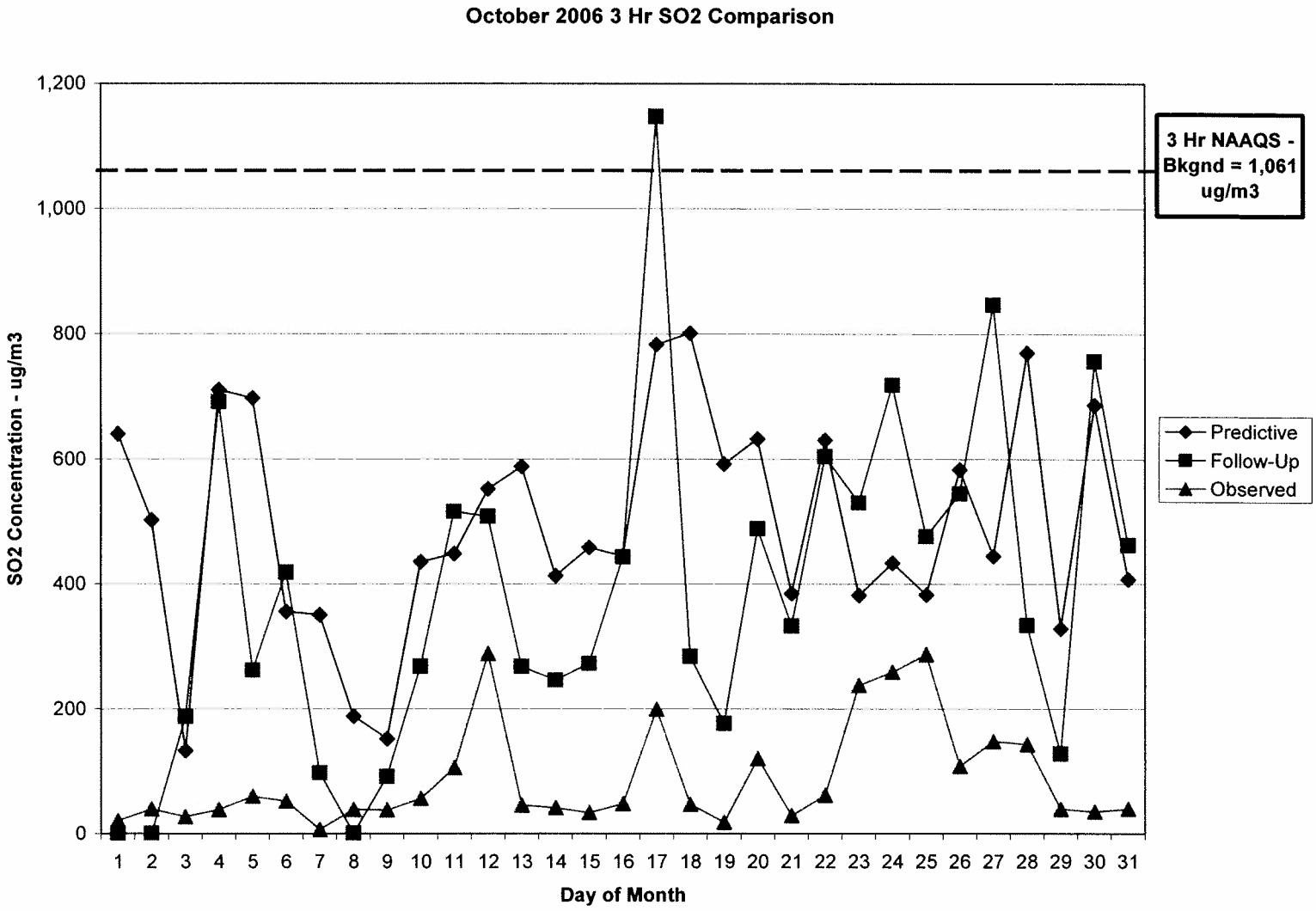
Real-Time SO_2 Monitor Performance
Max 3 Hr Averages - September

MIRANT



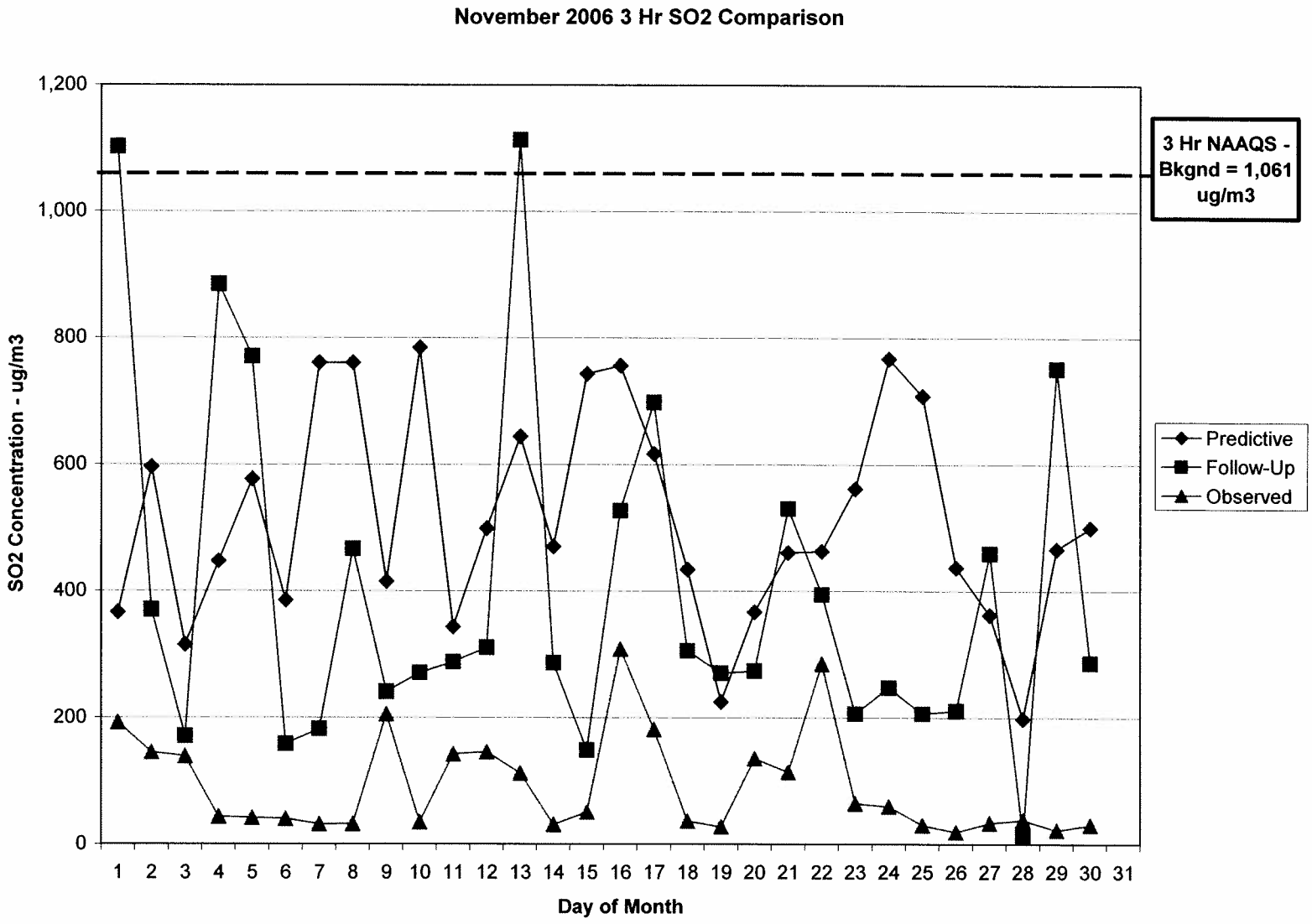
Real-Time SO_2 Monitor Performance
Max 3 Hr Averages - October

MIRANT



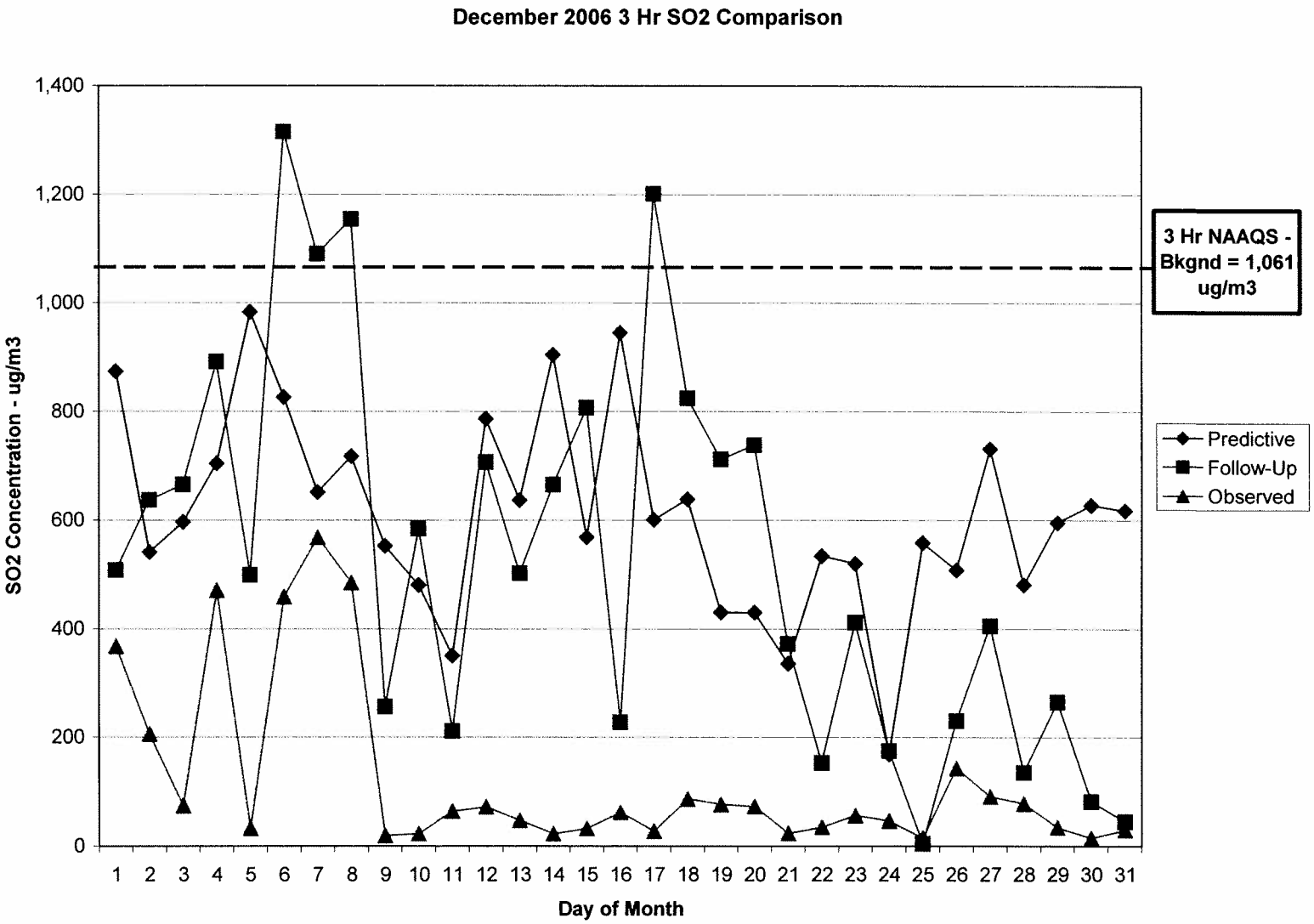
Real-Time SO_2 Monitor Performance
Max 3 Hr Averages - November

MIRANT



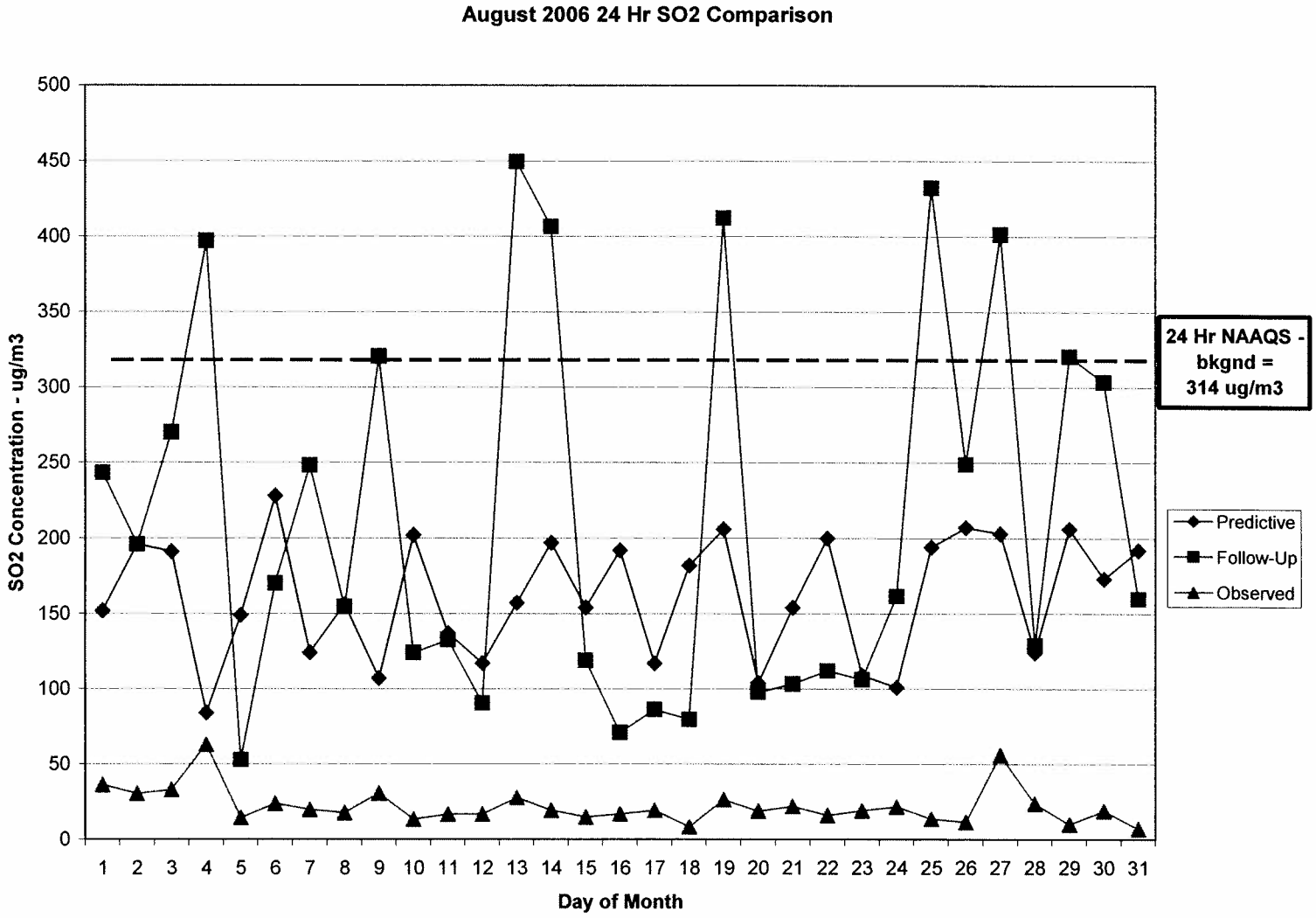
Real-Time SO_2 Monitor Performance
Max 3 Hr Averages - December

MIRANT



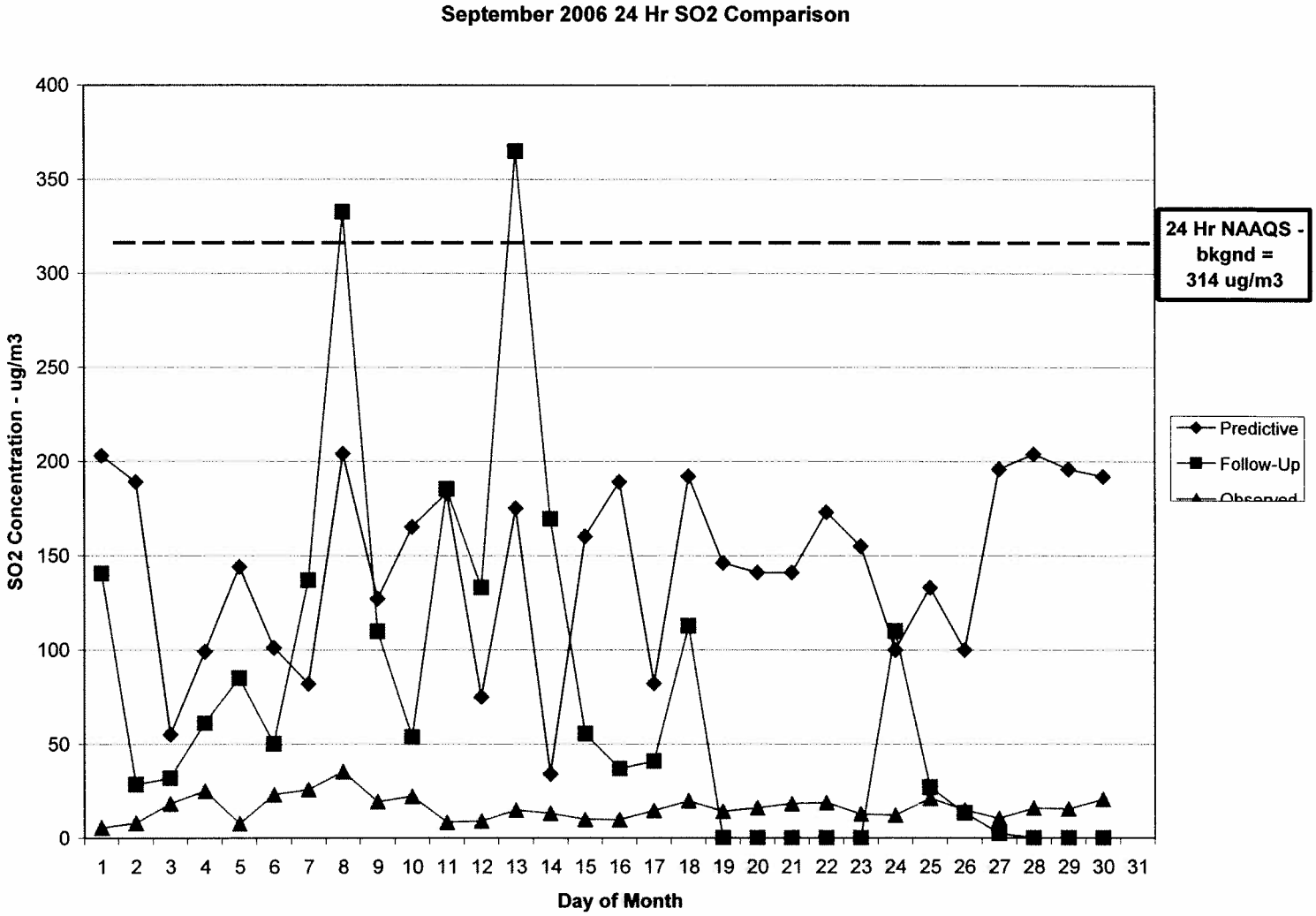
Real-Time SO_2 Monitor Performance
24 Hr Averages - August

MIRANT



Real-Time SO_2 Monitor Performance
24 Hr Averages - September

MIRANT



Real-Time SO_2 Monitor Performance
24 Hr Averages – October

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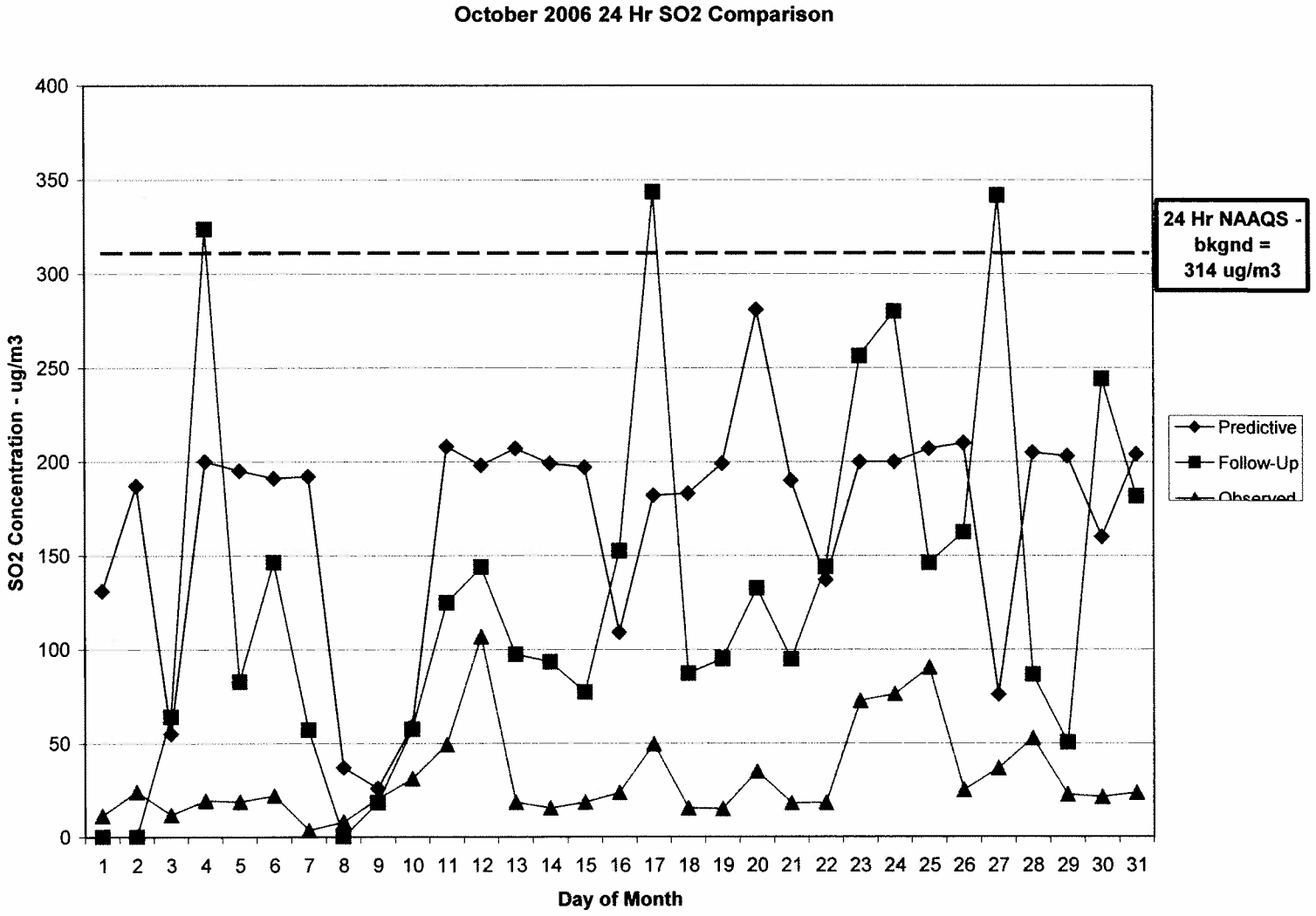
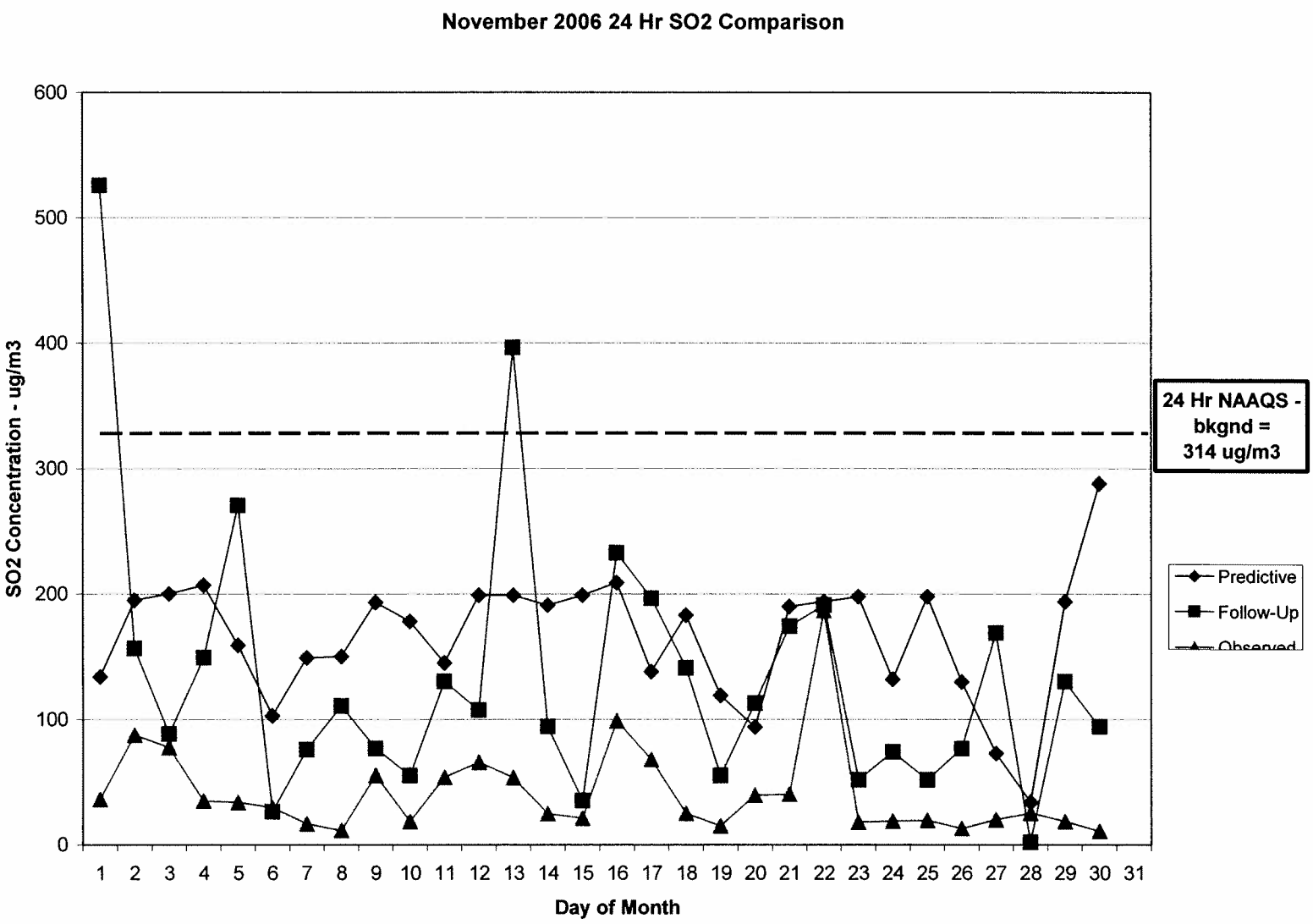


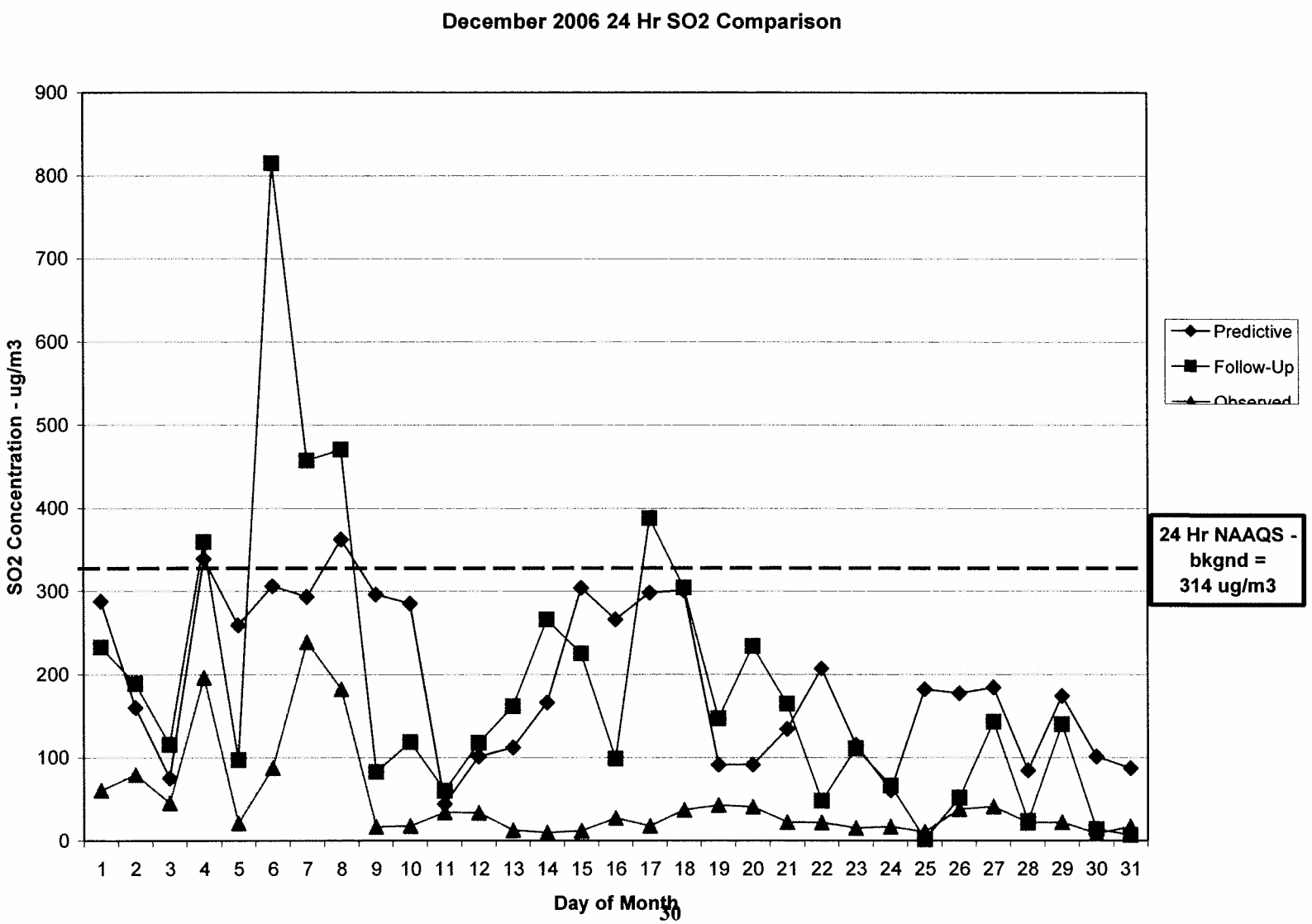
Real-Time SO_2 Monitor Performance
24 Hr Averages - November

MIRANT



Real-Time SO_2 Monitor Performance
24 Hr Averages – December

MIRANT



Long-Term Solution

MIRANT

Stack Merge Project

- Duct Units 1 & 2 gases into Unit 1 stack
- Duct Units 3, 4 & 5 gases into Unit 4 stack
- Replace Induced Draft fans to overcome resistance
- Merged flue gases will result in significantly improved dispersion
- Plant operations will not change or increase

Raise the Stacks

- FAA determined a 50' height increase presents no hazard to air traffic
- Preferred environmental solution

ATTACHMENT C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

JUL 19 2006

Honorable James P. Moran
U.S. House of Representatives
Washington, D.C. 20515-4608

Dear Representative Moran:

Thank you for your letter dated June 12, 2006 to the U.S. Environmental Protection Agency (EPA) regarding operation of the Potomac River Generating Station, owned and operated by Mirant Corporation (Mirant), and located in Alexandria, Virginia. EPA understands and fully appreciate the concerns that you and your constituents have expressed about air quality in the vicinity of the facility and would like to assure you that EPA, the U.S. Department of Energy (DOE), Commonwealth of Virginia, and Mirant have worked hard to quickly reduce emissions through a series of short-term actions while establishing the basis for a long-term solution that will address both environmental and electrical reliability concerns.

It is important to note that absent a compelling showing that imminent and substantial endangerment of public health exists, the Clean Air Act establishes a process that normally requires several years before an affected source must come into compliance. Through a series of actions, some of which were undertaken voluntarily by Mirant before the Administrative Compliance Order (ACO) was issued, we have endeavored to more rapidly reduce emissions at the facility to ensure that air quality will be protected. Currently, the plant is operating under an ACO, issued June 1, 2006, which ensures that under normal operations the plant complies with the National Air Quality Standards (NAAQS) for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and particulate matter (PM_{10}). The ACO required the plant to install trona injection systems at the plant that can achieve an 80 percent removal rate of SO_2, conduct daily dispersion modeling runs based on predicted weather conditions, install and operate six new SO_2 monitoring stations in the vicinity where elevated pollutant concentrations have been predicted. The plant is also required to operate specific boiler units in accordance with operating scenarios whereby daily modeling runs have demonstrated the plant will be in compliance with ambient air quality standards. In addition, if at any time the installed SO_2 monitors indicate that the plant is within 80 percent of the NAAQS limits for SO_2, Mirant must take steps to reduce emissions until measured ambient SO_2 concentrations are reduced.

In the long-term, Potomac Energy Power Company has committed to install two new transmission lines capable of providing electric reliability to the central Washington, D.C. area (central DC area) by June 2007, which will obviate the need for the Potomac River plant to operate to provide electric reliability in the event of a transmission line outage situation. Additionally, the Model Evaluation Study (MES) will be complete after collecting 12 months of data, the most appropriate model will be selected by the MES, and emission limits for the plant will be established. These emission limits will be incorporated into a Virginia state operating permit.

The ACO is the result of an extraordinary combination of circumstances. First, the close proximity of the Reagan National Airport necessitates a limitation on stack heights. Higher stacks could alleviate the downwash problem but would be a potential hazard to aircraft. Second, the Potomac River plant is one of only three potential sources of electricity to the central DC area. The DOE representatives have advised EPA that under certain circumstances blackouts could occur if the Potomac River plant is not capable of meeting a minimum power demand. The blackouts could have their own environmental concerns and other consequences, such as the release of untreated water from the Blue Plains Sewage Treatment plant, which until recently relied solely on the Potomac River plant for electric reliability. It is necessary and prudent for different parts of the Federal government to work together, along with the Commonwealth of Virginia, to solve complicated problems that overlap public safety and health issues, as well as Homeland Security concerns. Together, EPA and DOE are ensuring compliance with the NAAQS while ensuring electric reliability is maintained as necessary to provide power to critical Federal agencies in the central DC area.

To ensure compliance with the NAAQS, the ACO requires significant data collection and reporting, which EPA believes will provide sufficient evidence that Mirant is complying with the requirements of the ACO. Additionally, EPA, the Virginia Department of Environmental Quality and the City of Alexandria Department of Transportation and Environmental Services have been in close contact with responsible persons at the plant. On June 29, 2006, all three governmental entities visited the plant to inspect for compliance with the terms and conditions of the ACO. Furthermore, periodic inspections to verify compliance with the requirements of the ACO will continue to be conducted, and violations of the ACO will be enforced.

Finally, EPA wishes to respond to your perception that the trona injection technology is untested and has not been shown to be effective in reducing air pollutant emissions. Trona has been used at various power plants, glass furnaces, battery reclamation facilities, municipal waste incinerators, chemical plants, secondary metal smelters, cement and mining operations as far back as 1989. Not only is there documentation that the trona injection process has achieved SO_2, emission reductions of greater than 80 percent, but also over 95 percent reduction of hydrogen chloride emission.

If you have any questions, please do not hesitate to contact me or have your staff contact Ms. Stephanie Branche, EPA's Virginia Liaison, at 215-814-5556.

Sincerely,

for Donald S. Welsh
Regional Administrator