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*BY E-MAIL*

Anthony J. Como  
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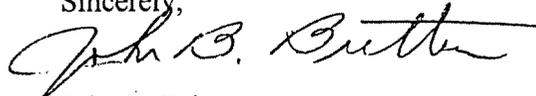
Re: Special Environmental Assessment; DOE/SEA-04

Dear Mr. Como:

Attached please find the Comments of the City of Alexandria, Virginia to the U.S. Department of Energy's Special Environmental Analysis concerning DOE Emergency Orders 202-05-3, 202-06-2, 202-06-2A.

If you have any questions, please don't hesitate to call.

Sincerely,



John B. Britton  
Schnader Harrison Segal & Lewis LLP

JBB/maj

Attachment

**UNITED STATES OF AMERICA  
DEPARTMENT OF ENERGY**

<b>Special Environmental Assessment</b>	)	
<b>For Actions Taken under Emergency</b>	)	<b>DOE/SEA-04</b>
<b>Orders Regarding Operation of the</b>	)	<b>Re: Order Nos. 202-05-3,</b>
<b>Potomac River Generating Station in</b>	)	<b>202-06-2, 202-06-2A</b>
<b>Alexandria, Virginia</b>	)	

**COMMENTS OF THE CITY OF ALEXANDRIA**

The City of Alexandria, Virginia (“Alexandria”) hereby submits these Comments to the Special Environmental Analysis (“SEA”) for Actions Taken under U.S. Department of Energy (“DOE”) Emergency Orders Regarding Operation of the Potomac River Generating Station in Alexandria (Re: DOE Order Nos. 202-05-3, 202-06-2, 202-06-2A).

**BACKGROUND**

On December 20, 2005, pursuant to section 202(c) of the FPA, 16 U.S.C. § 824a(c), Secretary Samuel W. Bodman (the “Secretary”) issued DOE Order No. 202-05-3 (the “Order”). The Order was the Secretary’s response to an emergency petition and complaint filed by the District of Columbia Public Service Commission (“DCPSC”) on August 24, 2005. In his Order, the Secretary deemed the shutdown of the Potomac River Generating Station (“PRGS”) in Alexandria, Virginia an “emergency” and directed the Mirant Corporation (“Mirant”) to resume operation of the PRGS.

The National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4321 *et seq.*, requires that, in the event of an agency action that may significantly affect the quality of the human environment, the federal agency must prepare a detailed statement on the environmental impact of the action and alternatives to the proposed action. The DOE did not prepare such a statement. Rather, pursuant to regulations of the Council on Environmental Quality (“CEQ”) which provide for consultation with the CEQ in emergency situations to determine alternative arrangements that will be taken in lieu of preparing an impact statement, the DOE agreed to prepare an SEA by August 2006. The stated purpose of the SEA was to “examine the potential impacts from issuance of the Order, and identify potential mitigation measures.” 71 Fed. Reg. 3279 (January 20, 2006). The DOE did not prepare the SEA by August 2006.

On June 1, 2006, Mirant entered into an Administrative Compliance Order (“ACO”) with the U.S. Environmental Protection Agency (“EPA”) regarding operation of the PRGS. The ACO orders Mirant to operate the PRGS under “non-line outage situations” pursuant to daily predictive modeling that permits the PRGS to operate up to

the maximum level each day where modeling results show no violations of the NAAQS. Under "line outage situations" the ACO orders Mirant to operate the PRGS as necessary to meet demand while taking "reasonable steps" to limit emissions of criteria pollutants. The ACO does not prohibit the PRGS from operations that result in emissions that violate the National Ambient Air Quality Standards ("NAAQS").

On June 2, 2006, DOE ordered Mirant to comply with the ACO. In so ordering, DOE did not undertake any independent analysis of the impacts associated with operation of the PRGS pursuant to the ACO. On September 28, 2006, again without any environmental analysis and after the date on which the SEA was due to be prepared, DOE extended the Order until 12:01 a.m., December 1, 2006. On the day that the SEA was made publicly available, November 22, 2006, DOE extended the order again until 12:01 a.m., February 1, 2007.

## COMMENTS

Alexandria is deeply disappointed and troubled by the SEA. It has been close to a year since the DOE issued the Order and in that time the DOE has produced a document that amounts to little more than an academic exercise undertaken to ratify the actions taken by and intended to be taken by the DOE. Alexandria residents have faced a year of operation of the PRGS under the Order, pursuant to which the PRGS has emitted pollutants at concentrations that exceed health based standards and that are known to be harmful to Alexandria residents. And yet the SEA fails to recommend even one concrete measure to mitigate this impact. The SEA ensures that the burden of DOE's stated "emergency" will continue to fall entirely on Alexandria residents. In the end, the SEA seems calculated more to ensure the continued operation of the PRGS than to ensure the protection of the environment and the health and safety of Alexandria residents.

The SEA fails in many critical respects. In particular, the SEA (i) endorses an unorthodox modeling procedure that is unique to PRGS and that is not protective of human health, (ii) underestimates the impacts of sulfur dioxide ("SO<sub>2</sub>") and particulate matter ("PM<sub>10</sub>") emissions, (iii) fails to adequately consider the impacts of fine particulate matter ("PM<sub>2.5</sub>") emissions, (iv) fails to adequately analyze the impacts of hazardous air pollutants, (v) fails to independently assess impacts by inappropriately relying on data provided by Mirant, (vi) fails to properly assess whether the Order conforms to the State Implementation Plan, and (vii) fails to consider mitigation of the serious health effects caused by operation of the PRGS under the Order.

**1. The Administrative Consent Order Establishes an Unorthodox Procedure That is Not Protective of All NAAQS.** The ACO provides a framework whereby the PRGS's output can rise, on a daily basis, to limits as high as SO<sub>2</sub> NAAQS limits allow, based on predicted, not actual, daily weather conditions. This is a wholly unorthodox procedure that fails to comply with the rules binding the operations of other power plants, which must operate at limits consistent with the assumption that every day may result in the worst-case set of meteorological conditions. By contrast, the ACO permits maximum emissions on any given day based on the previous day's forecasts with the only assurance

that there are no violations of the NAAQS being an audible alarm when SO<sub>2</sub> emissions have reached the limits at a very limited number of locations. Previous modeling submitted by Mirant to DOE shows that for many of the PRGS's current operational scenarios, impacts equivalent to or almost equal to the SO<sub>2</sub> NAAQS occur at points to the northwest and southwest of the plant where no monitors are currently located. There are not even these limited assurances for other criteria pollutants; PM<sub>2.5</sub> impacts by the PRGS are completely ignored both in Mirant's submittals to the DOE in response to the Order and in the ACO's predictive modeling approach. Furthermore, there are no monitors to measure impacts on the surrounding public residences. Yet the SEA confirms that the PRGS's emissions cause or contribute significantly to severe exceedances of the PM<sub>2.5</sub> standards with PM<sub>2.5</sub> impacts *as the most constraining* for design of the PRGS's operational scenarios that comply with the NAAQS.<sup>1</sup>

It is difficult to reconcile the requirements of the DOE's Order, intended to address electricity reliability for the District of Columbia's core downtown area (see Ordering Paragraph B), with the flexible multi-boiler and near normal operating scenarios allowed by the ACO. By stating that "regulation of PM<sub>2.5</sub> is still developing," SEA attempts to reduce DOE's responsibility with respect to PM<sub>2.5</sub>. In this, the SEA is disingenuous. The PM<sub>2.5</sub> NAAQS has existed since 1997. The standard is "developing" only in the sense that recent regulatory developments have made it more restrictive--the maximum allowable ambient level for 24-hour averaging periods has been lowered due to near unanimous consensus within EPA's Clean Air Scientific Advisory Council that the original 1997 level was not sufficiently protective of the public health.

The SEA's analysis of the PRGS's PM<sub>2.5</sub> impacts confirms that none of the ACO's operational scenarios can comply with *all* NAAQS, as required by the DOE Order (see Table 1 below). For these reasons, the SEA should recommend reverting to the most restrictive operational scenarios that were allowed by DOE during periods when both 230 kV lines that serve the District of Columbia were operating, *i.e.*, "non-outage" scenarios, and providing capacity sufficient to prevent any loss of electricity in the District of Columbia. Put simply, the one- and two-boiler operating scenarios employed during the first six months of 2006 are sufficient and appropriate to satisfy the requirements of the Order both for compliance with the NAAQS and to maintain electricity reliability.

In the SEA, DOE's SO<sub>2</sub> predictive modeling methodology does not consider the 3-hour standard for the stated reason that the run times are too large to model. For a large, sophisticated federal agency charged in this instance with review of public health impacts, this is a shocking and unsupportable justification to dismiss analysis of a

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<sup>1</sup> Mirant's modeling results of proposed operational scenarios in submittals to DOE and the Virginia Department of Environmental Quality ignored the NAAQS for PM<sub>2.5</sub> (see Updates 1 through 6 within Supplements No. 1 through 4, dated September 20, 2005 through February 6, 2006). Simple scaling of the SO<sub>2</sub> test results to reflect PM<sub>2.5</sub> shows severe exceedances of the short-term and annual PM<sub>2.5</sub> standards. These results also showed that maximum overall impacts for many scenarios occur at locations to the northwest and southwest of the PRGS, where no monitors are located.

NAAQS standard. This is particularly disturbing because, under the ACO's operational scenarios which allow much greater boiler output and SO<sub>2</sub> rates over the short-term period than over the daily period, the 3-hour impacts are more constraining than 24-hour impacts.<sup>2</sup> Thus, because they are based on the lower 24-hour emission and output rates, the maximum 3-hour impacts in SEA Table 4.3.1-2 are significantly understated. Rather than dismiss this very important analysis, DOE should have modeled each of the possible 3-hour scenarios using a more powerful computer, if necessary, or used other means to first define that scenario with the greatest potential to exceed standards and then model only that scenario. This huge variability in allowed operational scenarios and the deficiencies in monitoring all the possible points of maximum impact for all NAAQS pollutants also exposes the inadequacy of the ACO to protect public health.

There is similarly no justification for not simulating the effects of daily predictive modeling on particulate matter emissions. For PM<sub>10</sub>, the SEA states that "DOE found that with the 0.019 lb/MBtu emission rate, stack emissions never lead to exceedances of the NAAQS limit for PM<sub>10</sub>." Not only is this statement completely unsupported, there is also no basis for the validity of this emission rate--April, 2006 test results at the PRGS show an emission rate that is significantly higher.<sup>3</sup>

Neither the SEA nor the ACO provide a sufficient justification to warrant a departure from the normal rules governing the manner in which emission limits are established for power plants. It is not at all clear that if the PRGS were constrained on a daily basis to operate at limits consistent with overall worst-case meteorological conditions, that it would not provide the necessary reliability for non-outage situations. Consequently, for the *Potential Extension of the Order Scenario*, daily, non-varying permit limits should be developed with NAAQS-compliance as the criteria, and the resulting plant output should be evaluated to see if it meets the minimum DOE reliability criteria.

Even after having endorsed the ACO's jerrigged modeling procedure to maximize emissions, the SEA still inappropriately distinguishes between modeled exceedances and actual exceedances ("[t]he exceedances indicated in the table are modeled exceedances, not actual exceedances." SEA at 67. In terms of the permitting process, where emission limits are established, modeled exceedances are actual exceedances. Unless there are extenuating circumstances where a model does not apply, the model is the standard. Measured air quality concentrations are used by regulatory

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<sup>2</sup> Table 1 of the ACO shows that 3-hour rolling SO<sub>2</sub> rates are in many cases two or more times the scenario's 24-hour SO<sub>2</sub> rate. Additionally, for many of the 19 scenarios, two or three boilers are allowed to run at maximum load for up to 8 hours while output is significantly curtailed for the balance of the daily period.

<sup>3</sup> "Summary of Results - Mirant - Potomac - Unit 5 Stack - Alexandria, VA" for test dates of April 25 and 27, 2006.

agencies to set attainment status for urban air quality designations, but the air quality permit process is a model-based approach.<sup>4</sup>

**2. The SEA Underestimates SO<sub>2</sub> and PM<sub>10</sub> Emissions.** It is fundamental that in a document intended to analyze all the impacts from the operation of the PRGS that the impacts for all operating scenarios should represent worst-case. The SEA fails in this regard. For pre-shutdown operations, DOE assumes an SO<sub>2</sub> emission rate and annual output that are too low. Publicly available DOE fuel delivery records of sulfur, Btu content and weight show that for the years 2002-2005, the average SO<sub>2</sub> emission rate at the PRGS ranged from 1.12 to 1.15 versus the 1.05 lb per MMBtu rate assumed, and coal consumption exceeded 988,000 tons for at least one recent year versus the 832,000 tons assumed.<sup>5</sup>

Similarly, the DOE states that the ash content of the coal combusted at the plant before shutdown in August, 2005 is 14%. SEA at 17. The SEA does not provide a reference for this information. This 14% ash content is very different, however, from the average ash content of the coal delivered to the plant in 2002, 2003, 2004 and 2005, which publicly available purchase records for the facility show equaled 7.4%, 7.7%, 8.5% and 7.7% respectively<sup>6</sup>. This is significant because if trona injection requires the use of a higher ash content coal for optimum efficiency, the increased ash content should be considered in estimating PM emissions.

The final draft of the SEA comments should note this change in ash content of the coal. The increase in ash to be hauled off the site with trona will increase by more than a factor of two, because in addition to the trona mass collected in the ESPs, there will be additional mass from coal ash (with this higher ash coal) and gaseous SO<sub>2</sub> mass that is converted to particulate mass. Overall, the ash to be hauled for the trona scenarios could be about four times the pre-trona ash hauling.

PM<sub>10</sub> emission rates err on the side of underestimation for several reasons. For stack emissions, DOE relies on test results that have not been accepted as valid by any regulatory agency. DOE adopts the average result of one set of these three 90-minute tests, without accounting for contributions to daily PM<sub>10</sub> emissions from soot-blowing,

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<sup>4</sup> On page 70 of the SEA there is a discussion of the discrepancy between monitored and modeled maximum SO<sub>2</sub> concentrations. It is not clear, however, why the discussion focuses exclusively on the reasons why AERMOD might over-predict. Completely absent from this discussion are reasons related to possible deficiencies in the monitoring data, including (i) monitor bias, (ii) possible reduction in measured SO<sub>2</sub> concentrations due to sample tubing length from monitor to analyzer that may exceed recommended lengths and (iii) the reliance on only two monitors on Marina Towers, neither of which are located at the point of PRGS's maximum impact as shown by the previously published Wind Tunnel Study. Attached hereto is Alexandria's response to Mirant's Wind Tunnel Study, submitted to EPA and VDEQ on January 5, 2007.

<sup>5</sup> See for each year—<http://www.eia.doe.gov/cneaf/electricity/page/f423x1s>

<sup>6</sup> Id.

ESP-rapping or to reflect expected variations in operating conditions through the course of a 24-hour period, including variations in trona use.<sup>7</sup> Additionally, the set of results that DOE selects is only one set of many test results at the PRGS, some of which indicate significantly higher PM<sub>10</sub> rates.<sup>8</sup> One example is the PM<sub>10</sub> stack test performed by the same vendor that DOE references, but performed in April, 2006, for which results are approximately 20% higher than the test result DOE selects.<sup>9</sup> PM<sub>10</sub> impacts should be recalculated using the maximum 24-hour average PM<sub>10</sub> emission rate that the facility is willing to commit to, with compliance determined by an in-stack continuous emission monitor for PM<sub>10</sub>. Unless Mirant is willing to commit to a lower rate with an in-stack PM<sub>10</sub> CEM for each boiler, the emission rate assumed in the SEA should be at least twice the value derived from the optimum and time-limited conditions that testing represents.

For the *Operations Under the Order and Potential Extensions of the Order*, PM<sub>10</sub> impacts are significantly understated due in part to the neglect of contributions by increased fugitive emissions that derive from the need to handle at least two times the ash of the pre-shutdown scenario. The SEA reports that in estimating PM<sub>10</sub> impacts, “[t]he parameters are based on the assumption that four of the five units operate full time, but they do not account for the extra dust generated by disposal of trona waste.” SEA at 62. Given that up to 25 tons of trona may be used per hour, exclusion of trona waste as a potential source of particulate matter is unacceptable. Also, the SEA ignores completely the increased corrosivity of the flyash as a result of its trona content.

**3. The SEA Fails to Adequately Assess the Impacts of PM<sub>2.5</sub>.** The SEA confirms that PRGS emissions of PM<sub>2.5</sub> 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.<sup>10</sup> SEA at 70-72. However, impacts are likely to be even more severe because

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<sup>7</sup> A recent peer-reviewed evaluation of the effect of ESP rapping on electrostatic precipitator outlet emissions from a pulverized coal boiler shows that PM<sub>10</sub> emissions increase by approximately 100% during rapping events. See “Characteristics of Inhalable Particulate Matter Concentration and Size Distribution from Power Plants in China.” H. Yi, J. Hao, L. Duan, X. Li and X. Guo, *J. Air & Waste Manage. Assoc.*, 56:1243-51, Sept. 2006.

<sup>8</sup> See “City of Alex Po River Data Request 4-1-05 Rev. 1.xls.” submitted by Mirant to City of Alexandria, June, 2005, in which TSP rates from RATA tests for boilers 1, 2 and 3 range from 0.033 to 0.057 lb per MMBtu. These rates likely do not include condensable emissions, and when condensable emissions are estimated and filterable TSP scaled to PM<sub>10</sub> using AP-42 assumptions, PM<sub>10</sub> rates likely exceed 0.06 lb per MMBtu.

<sup>9</sup> “Summary of Results – Mirant – Potomac – Unit 5 Stack – Alexandria, VA.” for test dates of April 25 and 27, 2006.

<sup>10</sup> New PM<sub>2.5</sub> standards took effect on December 18, 2006, after the SEA was released. Given the adoption of new standards, sections 4.1 through 4.3.2 of the SEA should be revised to focus on the PRGS’ impacts on PM<sub>2.5</sub>. Similarly, all tables showing facility impacts (Tables 4.3.1-1 and 4.3.1-2) should be modified to present PM<sub>2.5</sub> impacts versus the NAAQS in addition to PM<sub>10</sub> impacts.

PM<sub>2.5</sub> emission rates are understated due to several inappropriate assumptions made in the SEA.

For stack emissions of PM<sub>2.5</sub>, the SEA scales down the PM<sub>10</sub> emission rate. However, as discussed above, the test results from which the PM<sub>10</sub> emission rates derive have not been accepted by any regulatory agency, and are not values that the plant could meet on a continuous 24-hour basis. In addition, condensable emissions are not considered in the SEA. The SEA refers to EPA's AP-42 that shows that the ratio of PM<sub>2.5</sub> to PM<sub>10</sub> emissions equals 0.76; however, this ratio applies only to the filterable component. Condensable emissions, all of which fall in the PM<sub>2.5</sub> size range, are about two times the mass of the PM<sub>10</sub> filterable portion. Therefore, total PM<sub>2.5</sub> emissions from the stack exceed 90% of total PM<sub>10</sub> emissions  $((0.76 + 2 \times 1.0)/3.0)$ . Additionally, contributions to PM<sub>2.5</sub> impacts by secondary formation of this NO<sub>2</sub> and SO<sub>2</sub> laden gas-stream are regulated as Mirant's but not accounted for here, and these concentrations are a significant percentage of total PM<sub>2.5</sub>. Table 1 repeats the SEA's own results for the PRGS's maximum PM<sub>2.5</sub> impacts. Even using emission rates that err on the side of underestimation, the SEA shows that the PRGS causes or contributes significantly to exceedances of the NAAQS for all operational modes.

TABLE 1

<b>Modeled Maximum Ambient PM<sub>2.5</sub> Concentrations (µg/m<sup>3</sup>) for PRGS Operations Among All Receptor Locations Without Background Concentrations.</b>		
	<b>Maximum 24-hour Average</b>	<b>Maximum Period Average</b>
Pre-shutdown operations	76	7.8
Pre-Order operations	9.2	2.0
Dec. 30, 2005 to June 30, 2006	41	3.9
July 1 through September 30, 2006	43	5.7
<b>Maximum Impact Allowed in this Non-Attainment Region</b>	<b><u>5.0 µg/m<sup>3</sup></u></b>	<b><u>1.0 µg/m<sup>3</sup></u></b>

For fugitive emissions of PM<sub>2.5</sub>, the assumption that PM<sub>2.5</sub> is 15% of PM<sub>10</sub> is far too low. While for re-suspended roadway dust recent US EPA studies indicate that the fraction of PM<sub>2.5</sub> to PM<sub>10</sub> is about 15%, for all of the other processes that contribute to fugitive dust at the site, including coal and ash handling, coal dumping and wind erosion, EPA's AP-42 shows that the ratio of PM<sub>2.5</sub> to PM<sub>10</sub> emissions equals 30% or higher.<sup>11</sup> Additionally, the SEA completely ignores the contribution to total PM<sub>10</sub> and PM<sub>2.5</sub> impacts from the combustion emissions from heavy duty diesel trucks, which make many trips per day in order to haul off the ash from this coal and trona combustion process. For

<sup>11</sup> See Sections 11.19.2, 13.2.1, 13.2.4 of "AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Vol. 1: Stationary, Point and Area Sources." US EPA, September, 1998, for crushing and transferring operations, re-suspended roadway dust from truck travel, and aggregate handling and Section 4.1.2 of "Control of Open Fugitive Dust Sources," EPA-450/3-98-008(a) for wind erosion from piles.

the post-Order operational scenarios, PM<sub>10</sub> and PM<sub>2.5</sub> emission rates should reflect the expected increase in truck trips with trona use. Therefore, fugitive PM<sub>2.5</sub> emissions in the SEA have been underestimated in this analysis by at least a factor of 2.

For the *Operations Under the Order and Potential Extensions of the Order*, PM<sub>2.5</sub> impacts are significantly understated, in part due to the neglect of contributions by increased fugitive emissions that derive from the need to handle at least two times the ash of the pre-shutdown scenario. The SEA states that adding background levels to PM<sub>2.5</sub> impacts “involves some double counting of plant effects.”<sup>12</sup> It is not clear why the DOE interjects this commentary on a standard guideline procedure for evaluating compliance. However, this comment is especially misplaced in this analysis, where the entire DC/Northern Virginian region is classified as nonattainment, not on the basis of the single monitor at Aurora Hills but by results at numerous monitors located around the region.

While the SEA acknowledges the nonattainment status of the area, it never states what this means for the plant’s compliance status, *i.e.*, that for compliance with the PM<sub>2.5</sub> NAAQS the PRGS’s maximum potential impacts must fall below significance levels. Therefore, the exercise on p. 72 in which the DOE adds the plant’s maximum impacts for PM<sub>2.5</sub> to background levels is unnecessary. Instead, PM<sub>2.5</sub> impacts for the plant should simply be compared against significance levels, as shown in Table 1.

**4. SEA Fails to Analyze Impacts of Hazardous Air Pollutants.** Prior to the shutdown of the PRGS in August 2005, air quality analyses showed elevated levels of hazardous air pollutants (“HAPs”) emitted from the PRGS, in particular, the acid gases of hydrogen fluoride and hydrogen chloride and trace metals. The SEA fails to provide any analysis whatsoever regarding impacts associated with hydrogen fluoride and hydrogen chloride. Additionally, the SEA ignores the air impacts of trona’s hazardous component silica. Assessment of impacts against health-based standards for all of these stack-based hazardous pollutants for which analysis is absent could easily have been undertaken by simply scaling SO<sub>2</sub> impacts. The SEA also fails to assess the impacts of the emissions of trace metals. The SEA does undertake a mass balance analysis on the fly ash captured from the combustion of Appalachian coal, but according to the SEA that analysis reveals likely emissions of toxic metals into the atmosphere. The SEA, however, undertakes no analysis of the quantities of these emissions. This is a very serious omission because the impacts on human health associated with emissions of toxic pollutants, particularly during downwash events, is severe.

**5. SEA Fails to Independently Assess Impacts.** In several areas where it describes procedures within its AERMOD analysis, DOE states that it relied on data provided by

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<sup>12</sup> The SEA suggests that because the background concentrations used in DOE’s PM<sub>2.5</sub> estimates were measured while PRGS was operating at pre-shutdown levels, there is the potential for double counting of the PRGS’s effects. However, the Aurora Hills monitoring station is approximately 2.5 miles from the PRGS. Review of isopleths analyses would show that double counting is insignificant.

US EPA. However, in a meeting that Alexandria's consultants had with US EPA in March, 2006, Meteorologist Denis Lohman stated that when simulating the PRGS under various operating scenarios, he used Mirant's consultant's AERMOD input files. Therefore, the SEA does not provide a truly independent analysis of the PRGS's impacts. Receptors, meteorological data and building dimensions should be independently processed by the DOE and used in AERMOD as the basis for deriving all results.

According to AERMOD implementation guidance issued in September, 2005, meteorological data should be processed within AERMET using the meteorological station site as the center of the 3-kilometer land use circle, *i.e.*, the surface characteristics around the measurement site (Ronald Reagan National Airport) should be used. There is no description of how meteorological surface characteristics were treated in the SEA. If the DOE relied on AERMET data processed by Mirant's consultant, then meteorological data will *not* have been processed with the measurement site as the center. These input files should be independently derived by DOE with the measurement site as the center if this is not the case currently. Additionally, in accordance with the modeling guidelines, DOE should process a full five-year set of historical meteorological data in order to ensure that maximum potential impacts for the many different operating scenarios and averaging periods reflect all expected meteorological variability.

There is also no discussion of the format of the meteorological data processed in AERMET and used in the SEA's analysis. While it is stated that Reagan National Airport data were used, several available formats of recent National Weather Service ("NWS") data from the Reagan National Airport station use a higher wind speed reporting threshold, so that wind speeds below 3 knots are reported as calms. In contrast, before 1993 the NWS station at Reagan National Airport used a lower reporting threshold that allows for recording of wind speeds in the 2 to 3 knots category. In air quality simulations, the highest offsite impacts often occur during hours when wind speeds are their lowest, due to decreased pollutant dispersion.<sup>13</sup> Additionally, for Reagan National Airport, wind speeds in the 2 to 3 knot category account for a significant 10% of total hours. Use of lower threshold data allow for a fuller accounting of possible impacts of the PRGS. For this important analysis, all AERMOD results should be re-derived using the Reagan National Airport NWS meteorological data that report this subset of wind speeds in the category of 2 to 3 knots. These data and the concurrent upper air data for the region are readily available from the EPA's meteorological data online system.<sup>14</sup>

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<sup>13</sup> Recent analysis of the PRGS's baseline impacts shows that maximum overall impacts increase when these lower wind speeds are included. Additionally, when using TD-3280 formatted data for the year 2002, for which the reporting threshold is 3 knots, versus the TD-1440 data for the year 1991, for which the reporting threshold is 2 knots, approximately 800 hours are excluded from the analysis.

<sup>14</sup> See, Surface Archived Data in TD-1440 format at the SCRAM site -- <http://www.epa.gov/ttn>.

6. **The SEA's Determination Regarding Compliance with the Virginia State Implementation Plan is Flawed.** Section 176(c)(1) of the Clean Air Act requires that DOE's Order conforms to Virginia's State Implementation Plan ("SIP"). *See* 42 U.S.C. § 7506(c)(1). The SEA disingenuously concludes that the Order is in conformity with the SIP on the grounds that the Order "does not cause or contribute to new emissions not already accounted for in the SIP" and because there is not currently a SIP for PM<sub>2.5</sub>. SEA at 76. The obvious fact which somehow escapes DOE is that emissions from the PRGS cause or contribute to violations of the NAAQS for PM<sub>2.5</sub> and SO<sub>2</sub>, and the DOE Order is specifically responsible for the continued operations of the PRGS notwithstanding these violations. When the Virginia Department of Environmental Quality ("VDEQ") became aware of the violations it ordered immediate corrective action consistent with its obligation under the SIP to ensure compliance with the NAAQS. DOE's Order directly interfered with VDEQ's efforts to enforce the SIP. For the DOE to now take the position in the SEA that the Order conforms with the SIP notwithstanding continued violations of the NAAQS is nothing short of incredible.

Even if the SIP did already account for emissions of the PRGS, and somehow sanction emissions that violate the NAAQS, the Order makes it impossible for Virginia to achieve "timely attainment of any standard." *See* 42 U.S.C. § 7506(c)(1)(B)(iii). This is a required component of the conformity analysis and one that the SEA utterly fails to consider.

The SEA's conclusion that the Order is exempt from conformity regulations is wrong as a matter of fact and law. The conformity regulations exempt those actions that are taken "in response to emergencies or natural disasters such as hurricanes, earthquakes, etc., which are commenced on the order of hours or days after the emergency or disaster . . ." 40 C.F.R. § 93.153(d)(2). The "emergency" that existed here, if at all, was the shutdown of the plant on August 24, 2006. The action taken by DOE in response to the "emergency" was not taken until December 20, 2006, almost four months later. This action was not taken on the order of hours or days after the emergency and hardly constitutes "quick action" within the meaning of 40 C.F.R. § 93.152, which refers to the kinds of quick action necessary after natural disasters or armed conflicts. The Order does not fall within the definition of an emergency under the Clean Air Act and is not exempt from compliance with the conformity requirements.

7. **SEA Fails to Adequately Address High Water Quality Impacts from the PRGS.** The SEA acknowledges that "[p]rincipal water quality concerns for the Potomac River tributary streams . . . near the Plant include . . . high fecal coliform bacteria counts . . . ." SEA at 32. Yet, the SEA fails to discuss mitigation measures for the four-fold increase in the concentrations of these bacteria in PRGS's effluent compared to the intake water. SEA at 20. The historical wastewater effluent from the PRGS (345 million gal/day) is roughly equal to the rated capacity of the Blue Plains Wastewater Treatment Plant (370 million gal/day) and therefore has a similar potential to influence the water quality in the river as the Blue Plains facility. PRGS's effluent discharge contains, however, considerably higher concentrations of constituents than the Blue Plains facility, *i.e.*, almost three times the biochemical oxygen demand, over five times the total

dissolved solids, and the presence of several metals not found in Blue Plains' effluent. The SEA makes no attempt to explain the adverse effects of PRGS's effluent on this important aquatic resource and how these impacts can be mitigated. On the contrary, the SEA and DOE's extension Order appear to sanction the continuation of these impacts.

8. **The SEA Permits Excessive Operations of PRGS.** A major flaw in the SEA is that, notwithstanding acknowledged violations of NAAQS and adverse health impacts, it permits operation of the PRGS at levels that ignore the actual demand in the District of Columbia load pocket and the total available capacity that can reliably supply it. A load pocket occurs when electricity supply can be delivered from only one source, creating a pocket. The downtown DC load is considered a load pocket, in that no other feeders supply it except the PRGS units (482MW) and the two Palmer's Corner to Blue Plains' substation transmission tielines (930MW). This provides a total of 947 MW (first contingency) that can serve an historical maximum load of 520 MW in downtown District of Columbia area. The load in the downtown area can vary significantly between 150 and 550 MW, depending on weather and other external factors. The DOE fails to incorporate this type of analysis in its SEA. When there are no line maintenance scenarios between Palmers' Corner and the Blue Plains Substation, only one PRGS unit is required to meet the maximum load at the time of the system peak. At other times, especially low load periods, there may not be a need for PRGS generation at all.<sup>15</sup>

During non-line outage situations, which occurs the vast majority of the time, the SEA would permit the PRGS to operate at a level that Mirant claims is necessary to be able to produce full power within a few hours of a line outage, *i.e.*, each baseload unit to operate 20 hours per day at minimum power (about 30MW) and 4 hours at maximum power (about 105 MW), and the load-following or cycling units to operate 8 hours per day at minimum power (30) MW and 4 hours at maximum power (88MW). SEA at 110. Thus, the SEA would allow Mirant to generate between 150 and 492 MW of power that is not needed.

In effect, the SEA permits the PRGS to operate at these higher levels even though they are not necessary to meet demand, so that according to Mirant, it can achieve full power during line outage situations. But full power is only necessary for reliability in the extremely unlikely event of an unplanned outage of both 230 kV transmission lines. In the event of transmission planned outages, Mirant would have plenty of notice to start up the required base load units to meet the demand. It is unconscionable for the DOE to

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<sup>15</sup>The PRGS is connected by two 230 kV lines from Palmers Corner to the Blue Plains Substation for a total transmission capability of 930 MW. Under a single contingency scenario, with one line out and zero generation at PRGS, there is still 465 MW available to flow into the District which will meet demand under all but maximum load situations. At the time of an historical load pocket system peak of 520 MW, only one PRGS unit needs to run 55 MW to fulfill the one contingency requirement. Thus with no maintenance on the Palmers Corner to Blue Plains Bus tielines, only one PRGS unit needs to run at the time of the system peak to supply the downtown load pocket in the District of Columbia.

expose Alexandria residents to excessive and harmful pollution when it is plainly unnecessary and mainly serves to provide a significant financial benefit to Mirant.

**9. The SEA Imposes Burdens of “Emergency” on Alexandria Residents.**

Perhaps the greatest failure of the SEA is that while it acknowledges that operations at the PRGS under the Order have resulted and will continue to result in emissions that exceed the NAAQS for SO<sub>2</sub> and particulate matter, and that such emissions cause illness and increase incidence of premature death, the SEA fails to fulfill its core mission of identifying potential mitigation measures. The SEA provides cursory discussion of alternatives and mitigation measures that were raised by others in comments to the DOE. However, it fails to undertake comprehensive, critical analysis of these alternatives and without any of the urgency that an “emergency” should invoke.

The SEA should have, but did not, identify specific, emergency and non-emergency load reduction programs in the District of Columbia to compensate for electricity generation or transmission reduction at PRGS. In light of the significant use of electricity by government customers and the existence of an “emergency,” the SEA should have included as an alternative the Secretary imposing load shedding or load cycling for Federal and District of Columbia buildings.<sup>16</sup>

Most critically, the SEA fails to offer any mitigation measures that will protect Alexandria residents from the known health hazards that continuation of the Order will cause, and, in particular, under line outage situations.<sup>17</sup> If this is truly an “emergency” justifying operations that violate federal environmental protection laws, then extraordinary protective measures are appropriate. The DOE should require that

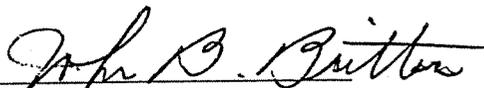
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<sup>16</sup> The SEA unnecessarily constrains its consideration of alternatives and mitigation measures to those that can be implemented prior to the time the two 230-kv power lines have been brought into service. Continued reliance by Washington D.C. on electricity generated by the PRGS, whether under the Order or not, will require continued mitigation measures. The SEA should have considered, and the DOE must consider, mitigation measures that ensure the protection of Alexandria’s residents for as long as necessary.

<sup>17</sup> SEA concludes that because “only very small amounts of construction and employment are associated with the changed operations at the Plant, no appreciable effects on *social* or *economic resources* are anticipated.” SEA at 12. However, the SEA acknowledges that PRGS’s emissions lead to increased incidence of illnesses and premature mortality among the population of adults leading to work loss days numbering in the thousands. These lost days of work have a direct impact on social and economic resources. The SEA fails completely to assess the impact on Alexandria and the region from reduced productivity caused by increased illness and death. Also, although the SEA provides an analysis pursuant to Executive Order 12898 (“Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations”) concerning PRGS’s impacts on minority and low income residents in Alexandria, it fails to provide any such analysis for communities of similar residents in the District of Columbia where modeling analyses have shown impacts.

appropriate measures to protect residents around the PRGS be undertaken whenever emissions may exceed the NAAQS. Incredibly, the SEA fails even to suggest that those most adversely impacted—residents of communities nearby and adjacent to the PRGS—be notified prior to periods when emissions may exceed the NAAQS. It is unacceptable that the brunt of an electric reliability “emergency” in Washington, D.C. should fall entirely on Alexandria’s residents, especially when the burden they must bear is paid for with their health and their lives. Once the additional kV transmission lines are installed for the supply of electricity for the District of Columbia, there is absolutely no need for the PRGS to operate for reliability reasons. At the very least, the DOE should then terminate its Order and declare that the PRGS should only operate if in strict compliance with all air quality standards.

Respectfully submitted,



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