*City of Alexandria, Virginia*

# MEMORANDUM

DATE: SEPTEMBER 28, 2004

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

THROUGH: PHILIP SUNDERLAND, CITY MANAGER

FROM: RICHARD BAIER, P.E., DIRECTOR, T&ES
WILLIAM SKRABAK, DIVISION CHIEF

SUBJECT: REPORT ON MIRANT POTOMAC RIVER POWER PLANT

This memorandum provides a report on the activities concerning the Mirant Potomac River Power plant that Council directed to be undertaken this past June, and includes a summary of the recently announced agreement among the Virginia Department of Environmental Quality, the U.S. Environmental Protection Agency, the U.S. Department of Justice and Mirant regarding certain emissions from the Potomac River plant and three other coal-fired power plants operated by Mirant in the Washington, D.C., metropolitan region.

On June 22, Council instructed staff to undertake actions relating to the Potomac River plant in nine separate areas. Each of these areas is addressed below.

1. Land Use Regulation of the Potomac River Plant

In June, Council instructed staff to pursue the revocation of two special use permits (SUP 2296 and SUP 2297) issued to Mirant's predecessors in 1989, and to revoke the non-complying use status that was granted to the plant in 1992. The City Attorney's Office has been working on these issues, and will docket these three items before the Planning Commission on October 5. Council will consider them during its October 16 public hearing meeting.

2. Oxides of Nitrogen (NOx) Emissions from the Potomac River Plant

As you know, the Potomac River plant was issued a Notice of Violation (NOV) for exceeding its ozone season (May through September) NOx emissions limit in 2003. The Virginia Department of Environmental Quality (DEQ), the U.S. Environmental Protection Agency (EPA), the U.S. Department of Justice (DOJ) and Mirant have now reached a settlement on this violation and, as a result, a consent decree was filed in federal court on September 27. Notice of the consent decree will soon be published by EPA in the Federal Register, and public comment on the decree will be accepted and reviewed by EPA. Although the City was not a party to the settlement discussions, City staff, as instructed by Council in June, tracked the progress of the negotiations

and provided input designed to ensure that the interests of Alexandria were reflected in any agreement reached by the parties.

Since the consent decree arises out of a violation of the NOx emissions limit at the Potomac River plant, the decree contains a number of provisions that are directed at NOx emissions. However, these provisions are not limited to the Potomac River plant, but rather include NOx reductions and new emissions limits at Mirant's three other regional coal-fired power plants.[1]

The following summarizes the decree's major provisions on NOx.

a. At the Potomac River Plant, the decree places hard caps on NOx emissions for the summertime ozone season, with a cap of 1,750 tons established for 2004 which is reduced incrementally over time, ending with a cap of 1,475 tons in 2010. During the 2002 ozone season, the plant emitted 2,600 tons of NOx. Hence, the 2004 cap will result in a 33% reduction during the ozone season in NOx emissions compared with 2002 emissions. The 2010 cap will produce a 43% reduction. To meet these caps, Mirant will install Separate Over Fired Air (SOFA) control technology on Units 3, 4, and 5 by May 1, 2005 (along with the low NOx burners which were placed in service this summer). Though not required by the decree, Mirant is also pursuing the installation of low NOx burners on Units 1 and 2.

b. The consent decree also places hard NOx caps which effect Mirant's other three regional coal-fired facilities. The decree places hard caps on NOx emissions on a system-wide basis (i.e., on the emissions from all four regional facilities) for both the summertime ozone season system and the entire year.

   - During the ozone season in 2002, the four regional Mirant facilities, together, emitted tons 19,250 of NOx. The consent decree requires NOx emissions from these four plants during the ozone season to decrease to 14,700 tons in 2004, a 23% reduction from 2002, and to decrease each year thereafter, ending with a limit of 5,200 tons in 2010, a 72% reduction from the emissions level in 2002.

   - During all of 2002, these four plants, together, emitted 45,000 tons of NOx. The consent decree requires total NOx emissions from the plants in 2004 to decrease to 36,500 tons, a 18% reduction from 2002, and to decrease each year over time, ending with a limit of 16,000 tons in 2010, a 72% reduction from the tonnage emitted in 2002.

c. Last spring, DEQ proposed a revision to the operating permit for the Potomac River plant that limited NOx emissions during the ozone season to 1,019 tons.

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[1] These three plants are all located in Maryland -- the 853 megawatt Dickerson facility, the 1,492 megawatt Morgantown facility, and the 2,429 megawatt Chalk Point facility. By comparison, the Potomac River plant has a capacity of 482 megawatts.

Under the consent decree, the Potomac River plant's revised operating permit will contain less stringent NOx limits -- i.e., as noted, there will be a NOx limit of 1,750 tons in 2004, and an increasingly lower limit in each subsequent year until 2010 when a ongoing limit of 1,475 tons is set. In this regard, four observations are in order.[2]

- First, for each ton of NOx above 1,019 tons emitted during the ozone season at Potomac River plant, but below the applicable hard cap, Mirant will reduce many more tons of NOx at its three other facilities. Thus, during the summer of 2005, for every ton above 1,019 allowed to be emitted at the Potomac River plant, six tons of NOx will be reduced at the other three regional Mirant facilities. In 2010, the ratio will increase to 1:30 -- i.e., in 2010, for every ton of NOx allowed to be emitted at the Potomac River plant above 1,019, approximately 30 tons of NOx will be reduced at the three other Mirant facilities.

- Second, compliance with the hard NOx caps applicable system-wide to the four Mirant facilities may not be achieved through the purchase of pollution credits or other trading devices.

- Third, the air quality in Alexandria, as a result of consent decree's system-wide NOx caps, will be considerably better over time than it would be if the NOx limit at the Potomac River plant were set at 1,019 tons and the other three Mirant facilities were left with no limits on their NOx emissions.[3]

  The region's (as well as Alexandria's) air quality problems associated with NOx emissions stem primarily from the emissions' role in forming secondary pollutants, particularly, summertime ozone and fine particulate matter (PM2.5). These secondary pollutants are generally formed away from the source of the NOx emissions. Thus, the NOx emitted from the Potomac River plant form the vast majority of their ozone and secondary

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[2] DEQ will likely propose an amendment to the draft operating permit for the Potomac River plant that was released for public comment in April 2004, in order to make it consistent with the consent decree. It is our understanding that DEQ will provide a public comment period on this amendment.

[3] It is important to note that currently there are no permit or other limits on the NOx emissions at the three Mirant facilities in Maryland, and there is no statutory, regulatory or other enforceable obligation for Mirant to reduce NOx emissions at these facilities. Absent the consent decree, and Mirant's underlying agreement to reduce emissions at these facilities, the NOx emissions from all of Mirant's regional facilities would be substantially greater than they will be under the decree; this is also the case even if the more stringent ozone season cap of 1,019 were applied to the Potomac River plant.

PM2.5 some distance from Alexandria. On the other hand, the three other Mirant facilities covered by the consent decree are to the south, southeast and northwest of Alexandria. The work undertaken for the City by Dr. Jonathan Levy demonstrates that emissions from these facilities impact Alexandria, and form secondary pollutants in Alexandria.

As a result, not only will the significant NOx reductions required by the consent decree at the Potomac River plant and Mirant's three Maryland facilities improve air quality in the City, but, in addition, that improvement will be much greater than if the decree only required Mirant to meet a 1,019 ton summertime NOx limit at the Potomac River Plant.

- Finally, were a 1,019 ton NOx limit placed on the Potomac River plant, control equipment that involves the shipment and storage of ammonia would likely be required. The City has not favored the addition of such equipment to the plant, in part out of a concern with the ammonia, and in part because the equipment, due to its substantial cost, would lengthen the life of the plant.

4. Particulate Emissions From the Potomac River Plant

The just-announced consent decree (largely, as a result of City efforts) also identifies a number of control measures -- referred to as "Environmental Projects" – that will achieve significant reductions in particulate and fugitive dust emissions from the Potomac River plant. These reductions will produce direct and measurable air quality improvements in the immediate neighborhood of the plant.

A summary of these control measures is provided below.

a. New Controls to Reduce Fine Particulate Emissions (both PM2.5 and PM10)

- Installation of additional, secondary bag houses at the facility that collects the bottom and fly ash produced by the coal combustion process. This facility is the largest source of non-stack particulate emissions at the plant, and emissions from this facility are of major concern to the surrounding community. These bag houses are expected to reduce particulate emissions from this facility by up to 30 tons a year. The consent decree requires their installation by September 2005.

- Installation of ash loader upgrade. This upgrade to the ash collection equipment is expected to reduce particulate emissions by up to 200 pounds a year. The consent decree requires the installation of this equipment by June 2006.

- Addition of a dust suppression system to the ash loading process. This involves the installation of a water fogging system at certain points in the loading process. This is expected to reduce particulate emissions by up to 200 pounds a year. The consent decree requires the installation of this equipment by June 2005.

- Installation of a truck washing facility. Considerable fly ash is "kicked up" by trucks leaving the ash handling facility and contributes to particulate pollution in the plant's neighborhood. The consent decree requires the installation of a permanent truck washing facility which will lessen this source of pollution. This new equipment is expected to reduce particulate emissions by up to 13.7 tons a year. The consent decree requires its installation by July 2005.

b. New Controls to Reduce Larger Particulate Emissions (larger than PM10)

- Installation of coal pile wind erosion and dust suppression system. This involves installation of a 12-foot high fence around the perimeter of the coal pile, along with a wind screen, to reduce wind erosion of the pile. This is expected to reduce particulate emissions by up to 2.8 tons a year. The consent decree requires its installation by April 2005.

- Installation of coal pile conveyor suppression system. This involves the spraying of a "binding agent" on coal as it is dropped onto the coal pile. The "binding agent" will assist in preventing particulates from escaping from coal both when being dropped onto the pile, and when on the pile and subject to wind. This is expected to reduce particulate emissions by up to 800 pounds a year. The consent decree requires this project to be completed by December 2004.

- Installation coal rail car unloading suppression system. This involves the spraying of a mixture of water and binding agent on coal while being unloaded from rail cars. It is expected that this will reduce particulate emissions by up to 200 pounds a year. The consent decree requires this project to be completed by June 2006.

c. Settled Dust Study

Apart from these additional controls of particulate matter emissions from locations other than plant stacks, the consent decree requires Mirant to conduct a Settled Dust Study. This is not the Downwash study which is discussed below. Rather, this study includes the daily and weekly collection of settled dust samples at a number of stations along the perimeter of the plant, and the analysis of these samples by qualified consultants outside of the Mirant laboratories. This study is to begin no

later than November 2004 and be completed within six months. Mirant is required to make the results of this study public.

5. Downwash Study and Follow-Up Activities

Separate from the consent decree, Mirant has reached a consent order with the DEQ for a Downwash study of the Potomac River plant. The order requires Mirant to:

- conduct a refined modeling analysis, pursuant to a protocol approved by DEQ, to assess the effects of "downwash" from the plant on ambient concentrations of SOx, NOx, CO, and PM10;

- perform a refined modeling analysis, pursuant to a protocol approved by DEQ, to assess the effects of "downwash" from the plant on ambient concentrations of mercury; and

- if the modeling demonstrates any exceedences of applicable standards, submit a corrective action plan within 90 days that eliminates and prevents such exceedences on a timely basis, and following DEQ approval, undertake the action plan.

The City is retaining a consultant to review the protocol of this study. The community will also be able to review and comment on the protocol. In staff's discussions with DEQ, the agency has indicated that, upon receiving and reviewing the Mirant analysis, it will perform its own analysis for other hazardous air pollutants.

Upon receiving the protocol for the proposed study, City staff with its consultant will review, comment and make recommendations to DEQ. We also will closely track and monitor the technical issues related to this effort.

All in all, staff believe that the consent decree and consent order are reasonable actions that will have significantly favorable impacts on air quality in Alexandria and the region. Anyone desiring a copy of the lengthy consent decree that has been filed in federal court or the consent order, please give Mr. Baier a call.

6. Virginia General Assembly Legislation

City staff continues to work with our local delegation on legislation, such as the Virginia Clean Smoke Stacks Bill, that would impact operation of the Potomac River plant. We envision such legislation being introduced during the 2005 General Assembly session.

7. Mirant Bankruptcy Proceeding

Under its terms, the consent decree will not be binding on Mirant until it is approved by the Federal Bankruptcy Court for the Northern District of Texas, which has jurisdiction over

Mirant's pending bankruptcy proceeding. Mirant has 60 days to submit the decree for approval by the bankruptcy court. The City Attorney and the City's outside counsel are reviewing the decree in order to assess what impact, if any, it has on any representations the City will make to the bankruptcy court regarding the continued operation of the Potomac River plant.

8. Quarterly Facility Audit of Potomac River Plant

Outside of the consent decree and consent order, City staff have met with representatives from Mirant who have agreed in concept to fund a quarterly facility audit that would be conducted by an independent consultant. Although the scope of the audit has yet to be worked out, we anticipate it would include:

- the monitoring of Mirant's implementation of its obligations under the consent decree and consent order that involve actions at the Potomac River plant;
- the review of the plant's emissions to ensure compliance with all applicable permits and regulations; and
- the review of the plant's operation and maintenance practices to ensure that the facility is running as "clean" as possible under the applicable regulatory framework.

9. Upcoming Federal Regulations Which will Impact Potomac River Plant

There are several federal regulatory actions that may impact operations at the Potomac River plant, as well as Mirant's other coal-fired power plants in the region. The impact of these actions on the Potomac River plant is unclear at this time. Staff will continue to track these developments and keep Council informed. Two of the upcoming actions are discussed below.

a. PM2.5

EPA is currently in the process of designating non-attainment areas for the PM2.5 air quality standard (annual mean 15 microgams per cubic meter). Currently, all the PM2.5 monitors in Virginia show compliance with the standard, but measurements in the District and Prince George's County show non-compliance. Based on the data from the District and Prince George's County, EPA is considering designating the entire Washington metropolitan area, including Northern Virginia, as "non attainment" for PM2.5. A final decision is scheduled for release in November 2004.

The schedule and requirements for PM2.5 non-attainment areas are:

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| November 2004 | Final non-attainment designations are made |
| February 2005 | Designations become effective and implementation guidance is released |
| February 2008 | State Implementation Plans (SIP) are submitted |
| February 2010 | Attainment is required |

b. 8 Hour Ozone Standard

The standard for ozone is in a transition from the 1-hour standard of 120 ppb (parts per billion) to an 8-hour standard of 80 ppb. The region must develop and submit a SIP for the new 8-hour ozone standard by April 2007, and must meet that standard by April 2010. It is anticipated that additional control measures in the region will be required to reduce emissions to meet the standard.

One final Mirant-related item that, in June, Council asked staff to pursue is the purchase of clean energy for City facilities. General Services is currently researching options in this area, and will pursue this in the FY 2006 budget process.

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The above discussion shows the wide range of issues and associated information that pertain to the Potomac River plant -- issues and information in which much of the nearby community has considerable interest. In order to facilitate a more coordinated dissemination of information on these issues, we recommend that Council consider forming a Mirant monitoring group made up of five to seven community stakeholders. The primary purpose of the group would be to receive progress reports on the variety of issues involving Mirant and the Potomac River plant, and assist in the dissemination of timely and accurate information to the broader community. If Council wishes to form such a group, staff will docket this item with suggestions of potential members.

cc: Michele Evans, Assistant City Manager
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