Attachment B1

OVERVIEW OF CITY OF ALEXANDRIA'S COMMENTS ON MIRANT'S WIND TUNNEL MODELING EVALUATION FOR PRGS

Alexandria recommends that the U.S. Environmental Protection Agency ("EPA") and the Virginia Department of Environmental Quality ("DEQ") reject the Mirant Wind Tunnel Modeling Evaluation for the Mirant Potomac River Generating Station ("PRGS"), dated August, 2006 as incomplete and based on unsupported assumptions that may minimize PRGS's actual impacts. With its Wind Tunnel Study, Mirant requests the EPA and DEQ to grant an alternative to EPA's Guidelines on Air Quality Monitoring modeling procedures. Regulatory agencies defer to the Guidelines when supporting data are inadequate for a clear evaluation of any alternative. Such should be the case here. Until a more thorough and rigorous Wind Tunnel Study is completed that addresses the issues set out below, Mirant should not be allowed to deviate from EPA's standard procedures—a benefit only to Mirant and at the expense of the public health.

Mirant did not simulate a range of loads and potential worst-case operations.

- Despite the fact that the PRGS boilers operate within a wide range of loads, from approximately 30% to 110%, the Wind Tunnel Study simulated only one, mid-range load for all the boilers. Boiler load affects plume temperature and velocity, extremely important determinants in downwashing situations. Yet there was no analysis to determine that the load simulated was worst-case.

- Actual pollutant impacts can increase because of the non-linear losses in plume buoyancy and momentum that occur with reductions in stack exhaust velocities and temperatures. Minimum load conditions could result in much more severe pollutant impacts on Marina Towers than the mid-range load modeled because of greater plume capture in the cavity between Marina Towers and PRGS due to downwash effects.

- Determination of worst-case load is standard guideline procedure that other major sources must follow to ensure that impacts under worst-case conditions are evaluated.

Mirant used one set of assumed stack-exhaust velocity and temperature that may significantly exceed actual conditions.

- Mirant's assumptions, which are not supported by a load analysis, may lead to overestimates of plume momentum, and to overestimation of plume rise within the wind tunnel's simulation of actual flow characteristics. The result is that the Wind Tunnel Study may underestimate the effect of downwash.

Mirant failed to include important rooftop receptors on buildings west of Marina Towers.

- Although the Wind Tunnel Study included the multi-story buildings located on Slater's Lane immediately west of Marina Towers in the simulation, pollutant concentrations were not measured at the rooftop locations for these buildings.

Rooftop concentrations are critical because of expected high impacts that occur on elevated structures where air intakes supply air to building occupants.

Mirant failed to measure ground level concentrations at the fenceline.

- Although the shortest distance between the fenceline and the PRGS structure is about 30 meters to the north, less than 5 meters to the east, and about 60 meters to the southwest, the Wind Tunnel Study did not measure concentrations at any point closer than 90 meters. Impacts along the PRGS' fenceline are among the highest.

Mirant failed to analyze wind direction for each stack.

- The Wind Tunnel Study erroneously extrapolates pollutant impacts from only two of five boilers for winds from the north to southeast (clockwise). There is no analysis for winds from the northeast, east and southeast for three of the five boilers.

- Review of the orientation of Marina Towers relative to PRGS indicates that the cavity extent of the taller Marina Towers structure affects different stacks and for different wind directions. Each ESP structure affects each stack uniquely. This is an especially troublesome omission given that Mirant's monitoring results show that some of the overall highest impacts measured occur almost one half mile away to the southwest of the PRGS, yet the Wind Tunnel Study derives no concentration results for three boilers at locations to the southwest. Further, the limited concentrations that are measured in the Wind Tunnel Study fall short of maximum impacts because they are not measured at the fenceline.

- The Wind Tunnel Study should be re-simulated for all boilers, all wind directions and the full range of loads. To not do so benefits only Mirant by allowing higher output rates at the expense of protection of public health.

- The Wind Tunnel Study understates impacts on Marina Towers because it defines most of the critical wind flows as over-water flows, with very smooth surfaces and a reduced rate of plume dispersion.

Full scale concentration results indicate historical severe violations of the National Ambient Air Quality Standards ("NAAQS"); Marina Towers rooftop monitors inadequate.

- The Wind Tunnel Study shows several operating scenarios where, historically, impacts on Marina Towers led to severe violations of NAAQS.

- Even with the limited range of plant operations measured, the Wind Tunnel Study also shows that impacts on Marina Towers are not highest on the southeastern tier and center, where ambient monitors are currently located, but rather on the northern side of the western wing. In addition, impacts among rooftop monitors vary significantly for any one combination of wind speed, direction and operating scenario.

- Results make clear that monitoring of PRGS's operation through placement of only two monitors on Marina Towers is grossly inadequate. The City's own monitoring results show this: simultaneous measured impacts at lower levels are generally higher than on the rooftop.

Health impacts of PRGS operations are understated.

- The Wind Tunnel Study shows that impacts of SO_2 on Marina Towers exceed health-based standards even with optimistic assumptions of control with trona. Historical and current 5-minute SO_2 exposures likely have exceeded both the level of concern and the level of endangerment. The recent ATSDR report on the PRGS supports this as a concern for Marina Towers residents. Mirant's SO_2 sampling protocol should be modified so that 5-minute impacts can be recorded and reviewed on-line by all Marina Towers residents.

- The Wind Tunnel Study fails to analyze $PM_{2.5}$ impacts. These impacts seriously endanger the health and welfare of the residents of Marina Towers and others and should be analyzed.