

City of Alexandria/ Mirant Settlement Agreement Phase II Engineering Study - Progress & Update

Presented to the State Air Pollution Control
Board and Virginia DEQ

September 10, 2010



City of Alexandria

Key Chronological Events

- City & Mirant entered into settlement agreement in July 2008
- Agreement addresses City/citizen concerns over particulate matter emissions from PRGS
- Fundamentals of the agreement:
 - Mirant placed \$34 million in escrow account for City to spend on improved fugitive dust controls (Phase I; \$2 million) and PM_{2.5} stack emissions controls (Phase II; \$32 million)
 - City agreed to drop opposition to Mirant stack merge project
- DEQ issued operating permit that was acceptable to both Mirant and City in July 2008. Stack merge completed in February 2009



Project Under City/Mirant Agreement

- City and Mirant jointly selected WorleyParsons as the Project Engineer
- Project kick-off meeting in October 2008
- Regular project review meeting (~once a month) at PRGS
- Weekly conference call to discuss progress, issues and next steps
- All parties provide input to assist City in deciding on project steps/ actions



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Phase I - Fugitive Dust Emissions Control

- WorleyParsons issued the final report on the Phase I engineering study in April 2009
- Recommended control options include:
 - Install a fog dust suppression for ash loading
 - Purchase a street sweeper
 - Install a new ash loader (partial funding)
 - Installation of 30-foot high windscreens for the coal pile as well as conveyor drip pans is deferred until cost for the Phase II project is firmly established



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Phase II – PM_{2.5} Stack Emissions Control

- Held brainstorming session to develop a list of potential PM_{2.5} emission reduction technologies
- Conducted literature search for additional PM_{2.5} emission reduction technologies
- Obtained technology solutions from leading air quality control vendors
- Narrowed down technology options for more detailed consideration and cost estimates



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Phase II – PM_{2.5} Stack Emissions Control

- Mirant raised several legitimate concerns which were addressed
 - Conducted performance testing on PRGS existing I.D. fans
 - Evaluated methods to reduce pressure loss in boiler exhaust duct (install vanes at the base of common stack #4 & modify existing in-duct silencers)
 - Carried out transient analysis of the boiler system



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Phase II – PM_{2.5} Stack Emissions Control

Conclusions from Phase II final report

- Pulsed Jet Fabric Filter (PJFF) is the most suitable technology for additional PM_{2.5} reductions/control
- PRGS's current ID fans are capable of handling the future PJFF pressure drop with some modifications
- Conversion of cold ESPs to PJFFs in base-loaded units does not negatively impact on the plant safety or structural integrity
- Preliminary cost estimate for installing the recommended technology option is \$31.1 million



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Phase II – PM_{2.5} Stack Emissions Control

Recommendations from Phase II final report

- Convert cold ESPs on base-loaded units 3, 4, and 5 to PJFF polishing baghouses
 - Due to possible cost constraints, Cold ESP conversion should be bid for two of the three base loaded units with an option to include the third unit
- Upgrade transformer/ rectifier controller of the hot ESP for units 1 and 2



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Phase II – PM_{2.5} Stack Emissions Control

- City Council voted to unanimously approve the recommendations by the Engineer on June 22, 2010
- Mirant's staff reviewed the Phase II report and had no reservation about impacts on employee safety or the structural integrity of the plant with the recommended technology option
- The City and Mirant are proceeding with the preparation of the bid package for the selected technology improvement
- Mirant will apply to DEQ for any required permit or permit modifications prior to any project construction



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Phase II – PM_{2.5} Stack Emissions Control

- The City would like to thank the current and previous SAPCB members and Virginia DEQ staff for their interest and cooperation throughout this process
- The City would also like to thank Mirant and its staff for their participation and cooperation in the execution of the City/Mirant agreement

