

**Arlington County Solids Master Plan  
Stakeholders Meeting  
March 3, 2018  
2:00 pm - 3:30 pm**

**Attendees (citizens):**

Joan McIntyre, ACE  
Sandra Borden, CCCA  
Charlie Hughes, ARCA  
Paul Guttridge, AHCA

**Staff and Consultants:**

Mary Strawn, Arlington County  
Tom Broderick, Arlington County  
Lisa Racey, Arlington County  
Katie O'Brien, Arlington County  
Richard Tsang, CDM  
John Pearson (via Phone), CDM  
Samantha Villegas, SaVi PR

**Meeting Overview**

*At the start of the meeting, Crystal City Civic Association requested that a high-level summary of all the work to date be developed. The summary should be approximately two paragraphs and will be used for their association newsletter.*

*Crystal City Civic Association also informed the group that stakeholder Michael Battaglini had passed away.*

Tom Broderick welcomed attendees and began the meeting with a safety minute to familiarize everyone with the emergency exits.

Mary Strawn provided an overview of the agenda, which included an update on the regional solution, results of the emissions study, and next steps for the project.

**Regional Talks**

The regional solution is still under consideration and staff will continue to evaluate this option as long as possible. Conversations with DC Water revealed that they are unable to accept outside thickened or dewatered sludge at this time. DC Water is unable to commit to excess capacity while they continue to optimize their new solids processing system. Currently, there is not enough data available to properly compare this option with the recommended alternative. Arlington staff will continue to check in at appropriate project milestones; the next will be prior to starting the initial design.

Fairfax County approached Arlington early on in their own Solids Master Plan process. Fairfax is no longer available to partner with Arlington, but may have an opportunity to allow backup "emergency" offloading if needed.

AlexRenew, the wastewater treatment provider for the City of Alexandria, is another option. This opportunity is on the distribution and marketing side. We may be able to partner with them to develop a soil amendment product which could be sold or given away.

We will keep our eyes and ears open for more regional opportunities.

## **Emissions Study**

The results of the Emissions Study are in draft right now. The final report will be shared with this group. The objectives of the study were to evaluate the air quality impacts of the technologies identified in the Solids Master Plan. As a reminder, the THP/AD process produces biogas (methane) in quantities that can be reused either onsite for combined heat and power (CHP) or further cleaned and used offsite as compressed natural gas (CNG). We are still assessing the benefits of each of these two options.

The study evaluates the impacts of emissions on both the WPCB's air quality permit and the ambient air quality standards. Air quality standards are a measure of the concentration of pollutants in the ambient air you breathe, usually provided in parts per million or billion (ppm or ppb, respectively). These standards are designed to protect public health, especially in at-risk groups. Ambient air quality standards apply outside the fence of the plant. The concentration standards are set for each pollutant over a period of time. The longer the exposure period (chronic exposure) the lower the allowable standards. Exposure periods for defining air quality standards range from one hour to annual.

By contrast to the standards, the air quality permit (enforced by EPA and VADEQ) applies inside the fence. It is not an indicator of health effects but rather sets limits on the WPCB's emissions and requires control measures for identified equipment. Emission limits are typically expressed as a mass emission rate in pounds per hour or tons per year for a given pollutant.

The pollutants modeled in the Emissions Study were NO<sub>2</sub>, SO<sub>2</sub>, CO, Inhalable Particulate Matter (PM<sub>10</sub>) and Fine Particulate Matter (PM<sub>2.5</sub>).

We used the EPA AERMOD model software, which considers dispersion and concentrations of pollutants downwind of the source. Three years of data from Arlington County's monitoring station at 18th Street South and South Hayes Street provided the background concentrations for this study. The emissions data for existing and new equipment comes from EPA tools, manufacturer's product data, and existing permits.

We determined that primary wind direction, based on 5 years of hourly data – 40,000 hours of modeled data – was south to north. We focused our evaluation on residential sites as well as the fence line. The fence line represents the beginning of ambient air quality, where the public would be closest to the emissions source.

Six scenarios were considered: (1) CHP engines north of Glebe road, (2) CHP engines south of Glebe, both of these with added controls (1a and 2a), (3) CNG/Pipeline – cleaning onsite and exporting offsite, and (4) all gas to the waste gas burner flare.

Results showed that the production and cleaning of CNG/pipeline onsite and use of it offsite results in the lowest impacts to air quality. The two onsite CHP options would require additional controls (similar to those already used onsite) be added to the equipment selected during design to meet the air quality permitting requirements. The complete combustion provided by the high temperature waste gas burner resulted in lower impacts.

## **Next Steps**

The final Master Plan will be delivered to County leadership, and the Executive Summary will be distributed to all interested parties, including members of this group. We will also finalize the emissions study and share the results with this group. It will then be incorporated into the Master Plan as an Appendix.

We would like to gather letters of support for the Master Plan in advance of the April or May County Board meeting where the plan will be reviewed. If you would like to submit them, the best timing would be by the end of March. Letters can be submitted to the County Board at [countyboard@arlingtonva.us](mailto:countyboard@arlingtonva.us) with a copy to [countymanager@arlingtonva.us](mailto:countymanager@arlingtonva.us). The Board should adopt the plan in conjunction with the CIP at the July meeting. Phase 3 design, the design of the THP/AD system, will likely start in 2020. A more precise emissions study will be completed as part of the design. The stakeholder group agreed that they would like to re-convene at key project milestones, rather than on a set schedule.

In the meantime, we will keep our eyes open for any new technologies or opportunities that may arise, so we can evaluate whether they are more appropriate than our recommended alternative.

Question/Comment	Response	Actions
Does DC Water need additional infrastructure to take our sludge?	<p>For dewatered material, there is a provision for a cake receiving facility, so they have the space, but it would have to be constructed.</p> <p>They can take our thickened sludge as-is, but the number of trucks that would be needed to haul from our site would increase significantly.</p> <p>Additional infrastructure would need to be evaluated at both the WPCB and DC Water including potential modifications to the receiving station, additional screening facilities at the WPCB if we were to send dewatered cake to DC, or even a new digester.</p> <p>It was noted that if the regional option emerges as the best path forward and if additional infrastructure is needed, DC Water would need to commit to building additional infrastructure in a timely manner.</p>	
Are trucks the only shipping option?	Yes. It is cost prohibitive to build a pipeline under the Potomac River and pump thickened sludge to DC Water.	
Do you have any sense of the environmental impacts of sending them our sludge?	<p>The most significant environmental impact would be from trucking. More trucks would be required to ship thickened sludge, which is 4 percent solids and would need to be transported in tanker trucks, than dewatered sludge which is 30 percent solids.</p> <p>Shipping <u>dewatered</u> sludge would have a similar truck emissions impact compared to Arlington's</p>	

	current solids process. However, it would be approximately twice as many trucks compared with THP/AD because solids are reduced by about half using the recommended technology.	
Is there language about the regional talks in the Master Plan?	Yes. This option and its continued evaluation will be captured in the Executive Summary.	
How do these emissions scenarios compare to current facility conditions?	Each scenario increases the amount of each of the parameters we looked at, however all parameters remained within the permit when appropriate emissions controls are used.	
If you send CNG offsite, are you also sending emissions off site?	Yes. The CNG fuel for the buses would be the source of most of the emissions. CNG emissions from vehicles are very low when compared with diesel and the fleet is already operating on CNG.	
What is the source of the NO <sub>2</sub> , is it for the boilers heating the plant?	The boilers contribute some NO <sub>2</sub> , but the most significant source is the standby generators. The amounts used assumed the highest hourly impact.	
Did you consider the elevation of residences?	Yes. USGS terrain and building elevation data was part of the model.	
Scenario 4 is 100% flaring 24-7-365 and it is better than what you're doing now? How is that possible?	All scenarios add emissions to the site. Scenario 4 is better in emissions because the waste gas burner is designed to completely combust the biogas and its constituents before discharging into the atmosphere. The CHP generator, on the other hand, is not designed to do so. Additional emission controls will be needed to maintain emission below the ambient air quality limits. In regards to emissions, offsite gas utilization (CNG) offers more benefits than CHP.	

<p>What is the difference between each of the processes for CO2 emissions?</p>	<p>We compared the greenhouse gas emissions (GHG) of CHP and CNG. Because we're reusing the carbon as a fuel source, there is a beneficial impact on GHG, due to the THP/AD process if the biogas was used onsite or off-site. Heat drying was not beneficial because gas was reused in heat drying process so there was no net export.</p>	<p>Complete – attachment “CEP Analysis for Solids Master Plan update”</p>
<p>How long has the monitoring station at Aurora Hills library been there? And why use that location? The terrain goes up then down. It doesn't seem ideal.</p>	<p>That station has been there at least a decade. It's the closest DEQ air monitoring facility. We are actually lucky to have a monitoring station in such close proximity to the WPCP.</p>	
<p>Can you redo the bar charts to show existing conditions on all graphs?</p>	<p>Yes</p>	<p>Complete – attachment “TM 4.4 Existing Conditions on Same Slide”</p>
<p>Is there an EPA regulation that talks about health aspects of running 24-7-365?</p>	<p>The ambient air quality standards were developed based on health effect studies, and those standards were set to protect human health and welfare. Therefore, exposure to air pollutant concentrations that are lower than (meaning better than) the standards would not have serious health consequences.</p>	
<p>How do you make sure you don't take the most favorable data?</p>	<p>Several steps were taken to produce potentially worst-case results. First, the background ambient air quality used in the analysis represents an upper bound of the measured data over the past three years. Second, the existing facility concentrations were modeled assuming that the existing equipment at the plant was operating at its maximum allowable permitted emission rate. Third, the proposed new unit concentrations were modeled assuming each unit operated at its maximum design capacity. Finally, the maximum modeled concentrations from both existing and new units at the facility were added to the upper</p>	

	bound background data to produce a total concentration that was compared to the ambient air quality standards.	
How will you decide between CHP and CNG?	Both gas utilization options are discussed in the plan. The decision will be made during the preliminary design phase. If CNG is selected, formal agreements will need to be executed with Washington Gas, WMATA, and/or Arlington Transit to ensure we have a long-term customer.	
Arlington Transit is not planning to convert to all electric buses, right?	That is correct, they are not.	
Will the Board discuss the Solids Master Plan in open session?	Yes.	
What assurances will you give to the residents who live right outside the fence that air quality will be okay (and how)?	Good question. We will put a plan together to reach out to them, possibly going door to door with information, or we will hold a lighter version of this meeting for them.	
Can we get a copy of the draft emissions report?	Let us get back to you on that.	**follow-up needed