

December, 2008

Biosolids Division Monthly Report

Submitted by:

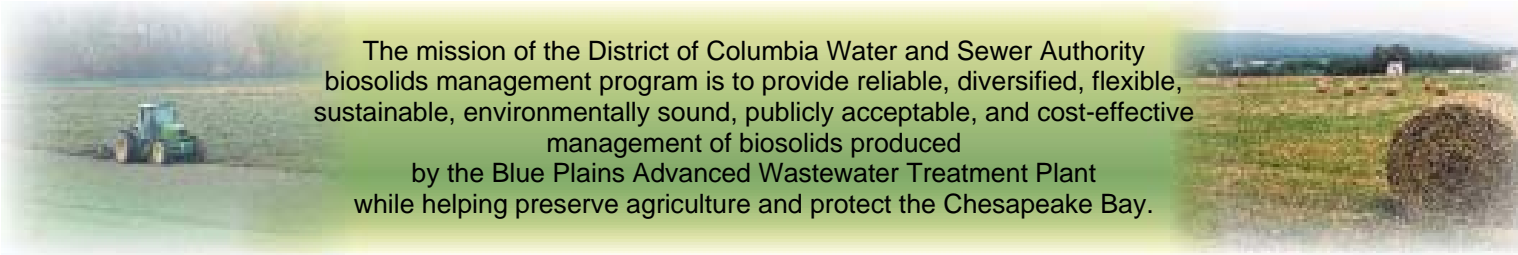
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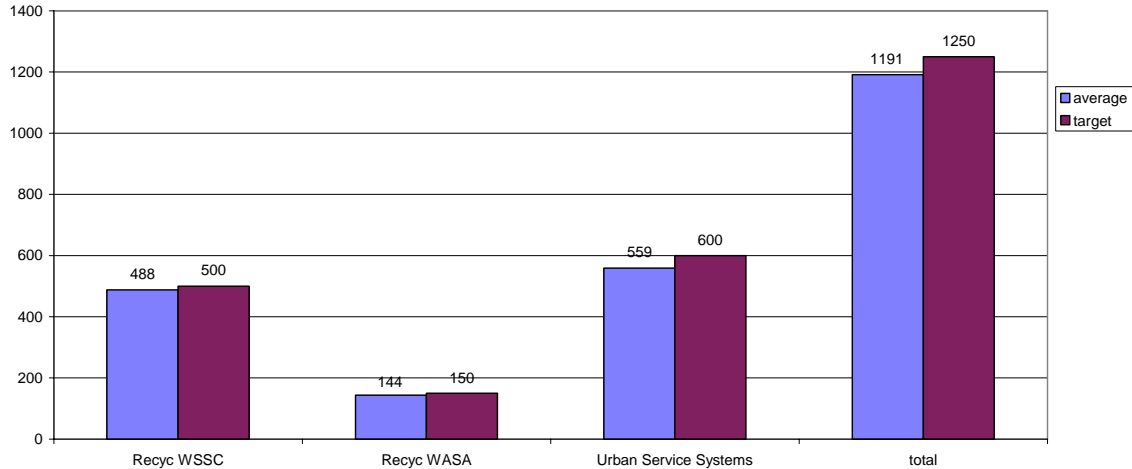
The mission of the District of Columbia Water and Sewer Authority biosolids management program is to provide reliable, diversified, flexible, sustainable, environmentally sound, publicly acceptable, and cost-effective management of biosolids produced by the Blue Plains Advanced Wastewater Treatment Plant while helping preserve agriculture and protect the Chesapeake Bay.

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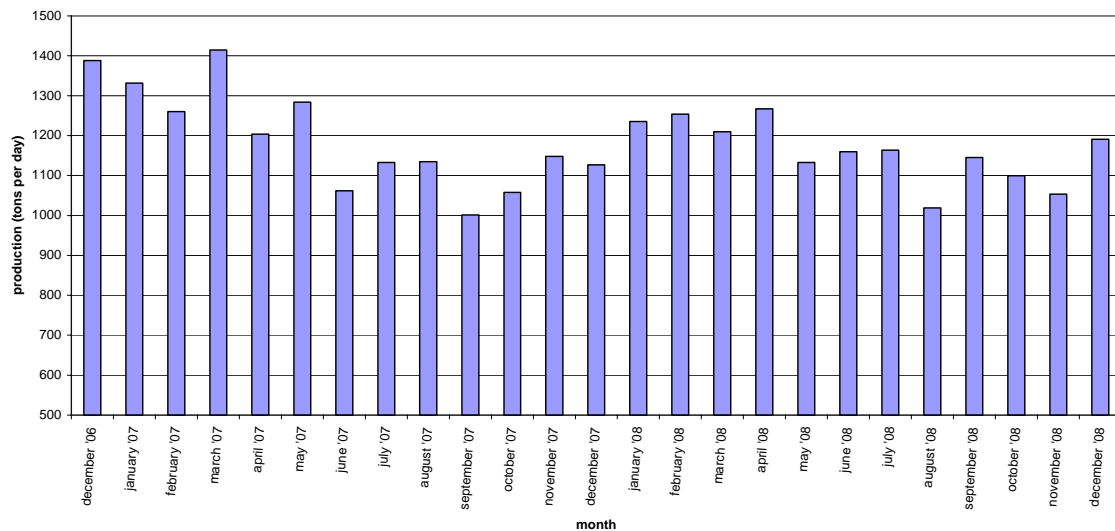
In December, biosolids hauling averaged 1191 wet tons per day. The graph below shows the hauling by contractor for the month of December. The second graph shows average tons recycled per day for the last 24 months. The average % solids was 26.62%, and average lime dose was 12.8%.

In December, WASA again shipped biosolids to the McGill Compost Facility in Waverly, VA. This is done through the Urban Service Systems contract. In December a total of 2067 tons went to compost production.

Average Daily Hauling by Contractor for December, 2008

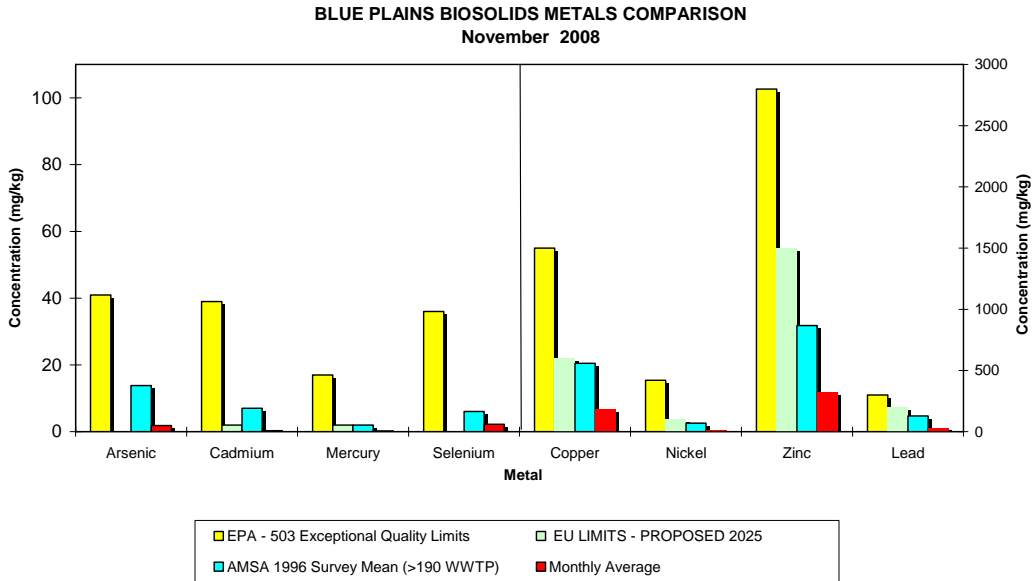


Average Daily Biosolids Production

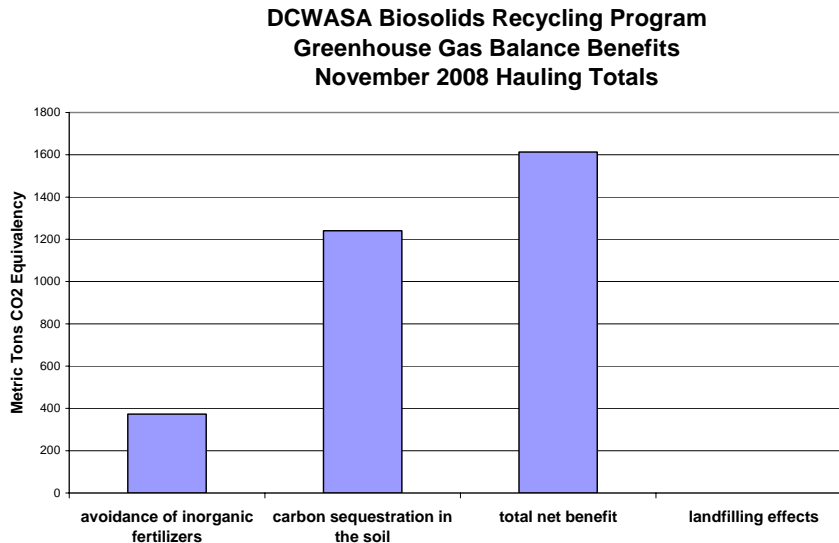


The graphs below show the EPA regulated heavy metals in the Blue Plains biosolids for the month of November 2008. As can be seen in the graphs, the Blue Plains levels are

considerably below the regulated exceptional quality limits, the AMSA average levels surveyed in 1996, and even the proposed 2025 European Union (EU) limits.



Environmental Benefits



In November of 2008 staff sent 25,565 wet tons of biosolids from the plant. In addition, 2,033 wet tons of material came out of storage in November. No tonnage went to landfills in November. The graph below shows the benefits as compared to landfilling all the biosolids in a non-energy recovering landfill. Taking into account the fuel required to transport biosolids to the field, the net benefit is 1613 metric tons CO₂ equivalent avoided emissions. The graph shows the benefit (carbon credit) of the sequestration, the energy savings due to avoiding conventional fertilizer use, and the total of the two. This is equivalent to taking 7,318,850 car miles off the road in the month of October (assumes 20 mpg, 19.4 lb CO₂ equivalent emissions/gallon gas – EPA estimate).

HIGHLIGHTS

In December, staff completed service on the Virginia Department of Environmental Quality Biosolids Expert Panel. The last meeting was held in December, during which panel members decided on consensus language and recommendations. The following language is pulled from the report executive summary, listing the questions and issues posed to the Panel, and a brief summary of the Panel response.

1. Are citizen-reported health symptoms associated with the land application of biosolids?

- a. DEQ should formalize a process that clearly defines the roles and responsibilities of agencies in addressing concerns to land applications on the basis of individual health.
- b. Additional research should be conducted on the potential relationship between human health and exposure to biosolids.
- c. An incident response protocol should be used to systematically collect data regarding citizen complaints.
- d. A communication plan should be used to improve communication among all parties involved in or potentially affected by biosolids land application, especially those who believe that their health has been or may be affected by biosolids land application.

2. Do odors from biosolids impact human health and well-being and property values?

- a. The Technical Advisory Committee (TAC) should examine the DEQ regulations pertaining to odor, including considering that municipal biosolids generators be required to have odor control plans.
- b. Municipal wastewater treatment facilities should voluntarily implement an Environmental Management System to address quality control issues such as odor.

3. To what degree do biosolids-associated contaminants accumulate in food (plant crops and livestock)? The response to this question is closely aligned with the additional directive that the Panel “**evaluate the toxic potential of biosolids constituents derived from land application to humans, agricultural products, soil organisms, and wildlife.**” The Panel responses are summarized here simultaneously. As long as biosolids are applied in conformance with all state and federal law and regulations, there is no scientific evidence of any toxic effect to soil organisms, plants grown in treated soils, or to humans (via acute effects or bio-accumulation pathways) from inorganic trace elements (including heavy metals) found at the current concentrations in biosolids. Whether there are longer term chronic effects from bioaccumulation of pharmaceutical and personal care products and other persistent organic compounds that might be applied in biosolids is more difficult to measure, and has not been rigorously studied to date. There are gaps in the research to characterize the composition, fate, and effects of these constituents in biosolids, as well as in other products, materials and the environment. Furthermore, the relative importance and risk of these constituents, which have not been fully assessed, and their potential for bioaccumulation in plant crops and livestock are the subject of ongoing research. In response to its findings related to these questions, the Panel recommends regular review of the research that pertains to biosolids and its fate and transport to livestock and plant crops, with summaries developed that would document any significant new findings.

4. To what degree do biosolids-associated contaminants affect water quality?

- a. The TAC should examine the DEQ regulations regarding environmentally sensitive sites, mined and disturbed land reclamation, and the methods used to determine the phosphorus application rate.
- b. Review and consolidation of recent information on water quality impacts other than those from nutrients. The Panel notes there is ongoing research on this topic.

5. What are the effects of an accumulation of biosolids-associated contaminants in wildlife?

The evidence concerning the impact of biosolids on wildlife is mixed, with some studies indicating a positive effect on wildlife populations as a result of the use of biosolids to restore wildlife habitat, as well as minimal impact on forest small mammal populations due to heavy metal contamination from the application of biosolids for silvicultural purposes. However, other studies have suggested potential long-term negative health, reproductive, behavioral and population viability impacts from the exposure to compounds and contaminants that are ubiquitous in multiple environmental media including biosolids. There are few studies or field trials that have investigated the above listed impacts of these contaminants on wildlife from biosolids land application.

In response to its findings related to this question, the Panel recommends research to investigate potential acute and chronic health impacts of biosolids on wildlife.

Additionally, research should be regularly reviewed that pertains to biosolids and its effects on wildlife, with summaries developed that would document any significant new findings.

HJR 694 also directed the Panel to take the following additional steps in conducting their study:

Perform a detailed analysis of the chemical and biological composition of biosolids.

The Panel was limited in the performance of this task considering no funding was available to conduct new analyses. The vast number of constituents in biosolids combined with the specialized analytical methodologies to detect and quantify these constituents involves significant cost. Thus the Panel relied on existing data.

In an effort to gather information on the biosolids material being land applied in Virginia, the expert panel sent a request to wastewater treatment plants that generate biosolids land applied in Virginia. The results of this survey demonstrate that an extensive history of the compliance regarding levels of regulated parameters is available. Information on non-regulated parameters is limited, although it was noted that in the small data set obtained by the Panel, the levels of most of these other parameters were non-detectable based on the sensitivity of the analytical methodology. The complete results of the latest US EPA limited biosolids survey are expected to be released by the end of calendar year 2008. This survey will report on the concentrations of 145 chemical constituents in biosolids.

Alternative Technology

HJR 694 also directed the Panel to investigate the capacity of alternative technologies to facilitate the beneficial use of biosolids and their disposal. The Panel discussed many different technologies and the benefits and detractors of each. The Panel noted that adoption of alternative technologies is often hindered by cost and lack of performance history. The Virginia Biosolids Council held a Biosolids Technology Forum in September, 2008 to explore new technology. The notes from that forum are attached as an attachment to the report.

The Panel recommends that additional research and engineering analysis of alternative technologies is needed to fully evaluate the risk-benefit and cost-benefit. The institutional and financial mechanisms that should be considered when implementing or investigating alternative technologies include federal government agencies, state financial incentives in cooperation with local governments, partnering with private companies, and research foundations. Incentives for conducting pilot studies of alternative technology also should be investigated. Public-private partnerships and development of a state or regional project should be explored.

Additional Panel Considerations

The Panel recommends that the fees collected from municipal wastewater treatment plants to fund the biosolids permitting, compliance and enforcement program should be continued in order to provide assurance that the regulations that protect human health and the environment are followed.

Map of Blue Plains Biosolids Applications and Agricultural \$'s for November 2008

