

September/October, 2010

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## Biosolids Division Monthly Report

Submitted by:

**Chris Peot, P.E.**

Biosolids Division Manager

### District of Columbia Water and Sewer Authority

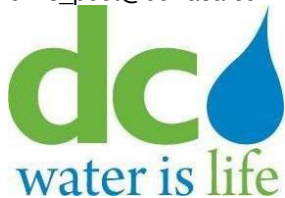
Biosolids Division

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The mission of the District of Columbia Water and Sewer Authority

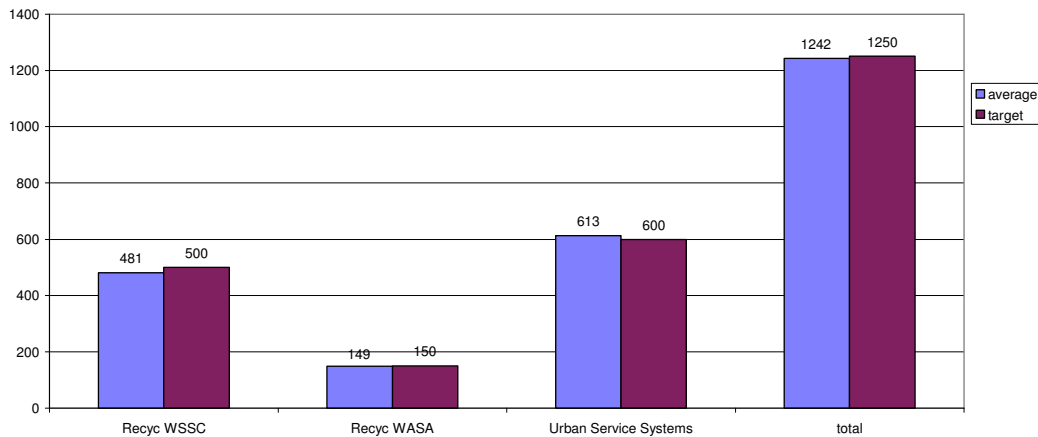
biosolids management program is to provide reliable, diversified, flexible, sustainable, environmentally sound, publicly acceptable, and cost-effective management of biosolids produced by the Blue Plains Advanced Wastewater Treatment Plant while helping preserve agriculture and protect the Chesapeake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

## September/October 2010 Biosolids Division Report

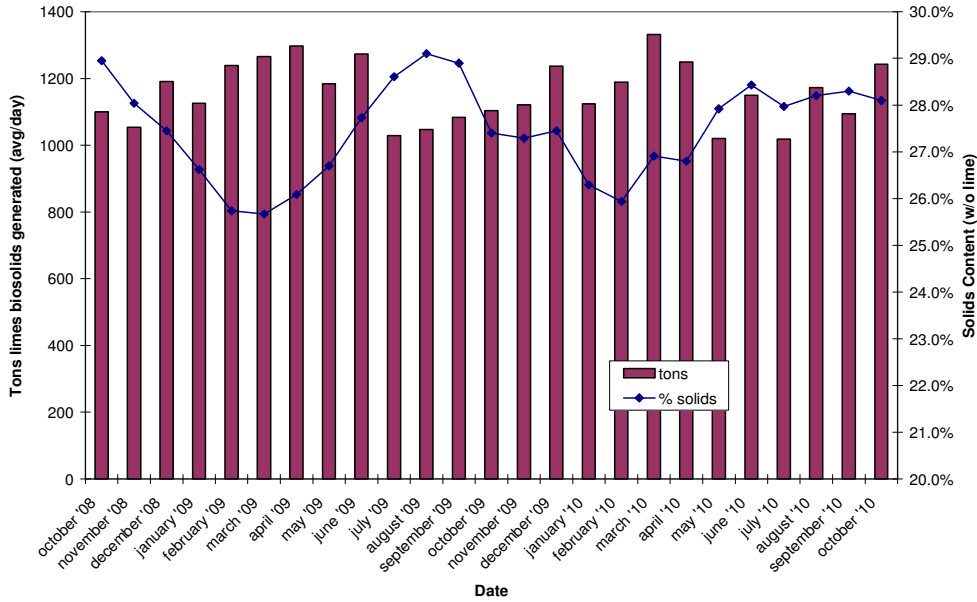
In October, biosolids hauling averaged 1242 wet tons per day. The graph below shows the hauling by contractor for the month of October. The second graph shows average tons recycled and solids content for the last 24 months. The average solids percentage for October was 28.1%, and average lime dose was 17.4%.

In October WASA again shipped biosolids to the McGill Compost Facility in Waverly, VA. This is done through the Urban Service Systems contract. In October a total of 779 tons went to compost production. Storage totals as of the end of October include 1206 tons in Cumberland County, VA, no (0) tons in the Fauquier Lagoon, and no (0) tons in Cedarville Lagoon.

Average Daily Hauling by Contractor for October, 2010

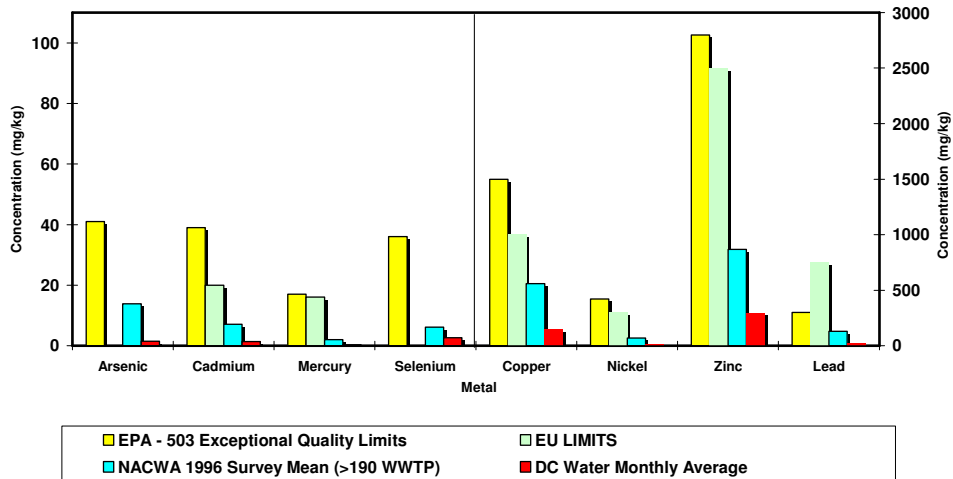


**Average Daily Biosolids Production and Solids Content**



The graphs below show the EPA regulated heavy metals in the Blue Plains biosolids for the month of September 2010. 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 the European Union (EU) limits. The EU limits are more conservative than the USEPA limits, and Blue Plains biosolids metals content is lower than the EU standards as well.

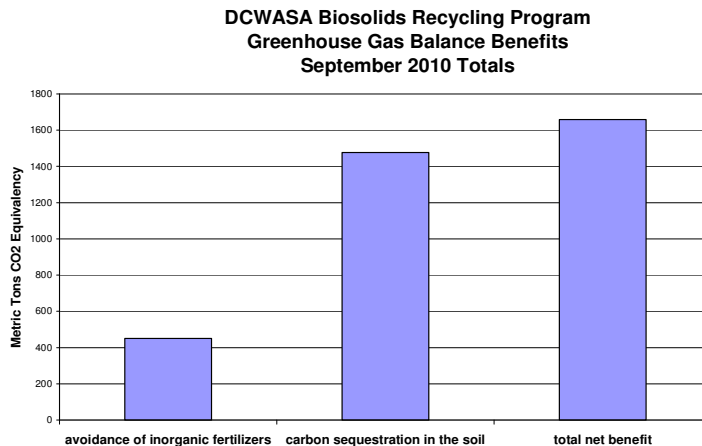
**BLUE PLAINS BIOSOLIDS METALS COMPARISON  
SEPTEMBER 2010**



**Environmental Benefits**

217 tons of biosolids went to landfills in September. The tonnage coming directly from the plant and from storage facilities equaled 25,375 tons of biosolids land applied in September. 998 tons went to composting. Taking into account the fuel required to

transport biosolids to the field, the net benefit of the land applied material is 1658 metric tons CO<sub>2</sub> equivalent avoided emissions. This is equivalent to taking 3,760,789 car miles off the road in the month of September (assumes 20 mpg, 19.4 lb CO<sub>2</sub> equivalent emissions/gallon gas – EPA estimate). The cumulative total avoided carbon emission since January, 2007 is 65,094 metric tons CO<sub>2</sub> equivalent.



## October Highlights

Staff participated in a two day WERF project subcommittee meeting to finalize a report on pilot-testing of a survey tool to gather information from individuals that believe they have been adversely affected by the land application of biosolids. The survey is designed to be implemented regionally so that we can gather scientific data when these complaints occur. The PI, Paul Rosile, of the Franklin County (Ohio) Board of Health, tested the survey in Ohio, Pennsylvania, and Virginia. The full report and the survey tool will be made available by WERF in early 2011.

Ampun Janpengpen, an engineering student at the University of Maryland and a DC Water intern, successfully defended his PhD this past month, based on work funded by DC Water and performed at Blue Plains. The three year project was funded through the biosolids program nutrient rebate research fund, which originates from the biosolids reuse contracts (\$1/ton is rebated back to DCWATER which we are contractually required to spend on research, demonstration, and outreach). Ampun's project, entitled "Monitoring and Forecasting Biosolids Odors at Prior Lime and Post Lime Addition in Wastewater Treatment Plants" developed a tool to predict and prevent odors in our biosolids product. In doing so, Ampun installed odor monitoring equipment and an early warning detection system that calls staff cell phones when odor peaks occur. This allows staff to communicate with field crews to see if the site for the day is appropriate for the odor profile of the material. If field crews and inspectors determine that neighbors might be impacted, the material is diverted to a more remote site. The result of this early warning system, along with process improvements to reduce odors, has been a dramatic reduction in odor complaints associated with the biosolids program. Our records show that in the past 12 months we have received only three odor complaints, which is remarkable for a program of our size. Since its inception, the DC Water intern program in the Department of Wastewater Treatment has spawned 13 PhD and 39 MS degrees

(with an additional 8 PhD and 14 MS candidates currently), making it a national leader in preparing young professionals for this profession. See the list below of past and current MS and PhD students.

## DC Water DWT Intern MS and PhD Researchers

<p><b>Virginia Tech</b></p> <ol style="list-style-type: none"> <li>1. Steve Robbins, MS 2004</li> <li>2. David Inman, MS 2004</li> <li>3. Sangeetha Subramanian, MS 2005</li> <li>4. Jared Webb, MS 2006</li> <li>5. Nitin Kumar, MS 2006</li> <li>6. Christopher Wilson, MS 2006</li> <li>7. Eric Schneekloth, MS 2007</li> <li>8. Sarita Banjade, MS 2008</li> <li>9. Martin Musabyimana, PhD 2008</li> <li>10. Charan Tanneru, MS, 2009</li> <li>11. Christopher Wilson, PhD, 2009</li> <li>13. Ana Rodriguez, MS Current</li> <li>14. Cheng Qian, MS Current</li> </ol> <p><b>George Washington University</b></p> <ol style="list-style-type: none"> <li>1. Dilli Neupane - MS., 2005</li> <li>2. Marija Peric - MS., 2006</li> <li>3. Adam Nichols - MS., 2008</li> <li>4. Jeneva Hinojosa - MS., 2008</li> <li>5. Sandip Chatterjee - MS., 2008</li> <li>6. Farid Ahmed - MS., 2009</li> <li>7. Arbina Shresta – MS., 2009</li> <li>8. Rekha Hareendran - MS., 2009</li> <li>9. Nazia Salam - MS., 2010</li> <li>10. Yalda Mokhayeri - Ph.D., 2010</li> <li>11. Sebnem Aynur - Ph.D., Current</li> <li>12. Nuruol Mohd - Ph.D., Current</li> <li>13. Digvijay Bisht - MS, Current</li> <li>14. Muriel Dumit - MS, Current</li> <li>15. Biplab Ghimire MS, Current</li> <li>16. Viviana Torres – MS, Current</li> </ol> <p><b>Pennsylvania State University, Harrisburg</b></p> <ol style="list-style-type: none"> <li>1. Wade Yankey, MS, Current</li> </ol> <p><b>SUNY Stonybrook</b></p> <ol style="list-style-type: none"> <li>1. Paula Rose, PhD, Current</li> </ol> <p><b>Illinois Institute of Technology</b></p> <ol style="list-style-type: none"> <li>1. Andrew Shaw, PhD, current</li> </ol> <p><b>University of Innsbruck</b></p> <ol style="list-style-type: none"> <li>1. Monika Platter, MS</li> <li>2. Michael Schön, PhD</li> <li>3. Phimphaka Phothilangka, PhD</li> <li>4. Norbert Weissenbacher, PhD</li> <li>5. Sabine Podmirseg, PhD</li> </ol> <p><b>Columbia University</b></p>	<p><b>Howard University</b></p> <ol style="list-style-type: none"> <li>1. Simon Baidoo, MS</li> <li>2. Michelle Samuel, MS</li> <li>3. Laetitia Mulamula, MS</li> <li>4. Mayo Awobamise, MS</li> <li>5. Abdul Mancell, MS., Current</li> <li>6. Norman Dockett, MS., Current</li> </ol> <p><b>University of Maryland</b></p> <ol style="list-style-type: none"> <li>1. Jason North - MS 2002</li> <li>2. Tibenja Angele Kwimi, MS 2004</li> <li>3. Susanna Arisphe, MS 2005</li> <li>4. Kweku Sekyiamah, MS 2005</li> <li>5. Prawat Sahakij, PhD 2008</li> <li>6. Natasha Andrade, MS 2009</li> <li>7. Sirapong Vilalai, PhD 2008</li> <li>8. Di Deng, MS 2009</li> <li>9. Christine Bevacqua, MS 2010</li> <li>10. Eakalak Intarakosit, PhD 2010</li> <li>11. Ampun Janpengpen, PhD 2010</li> <li>12. Michael Pennino, PhD., Current</li> <li>13. Katherine Davis Ziombra, MS., Current</li> <li>14. Meghann Niesen, MS., Current</li> <li>15. Melinda Forsyth, MS., Current</li> <li>16. Chalida Utapao, PhD, Current</li> <li>17. Jeurgen Seufert, MS, Current</li> </ol> <p><b>Virginia Military Institute</b></p> <ol style="list-style-type: none"> <li>1. Jeff Sparks – Ph.D. work</li> <li>2. Karen Bill – MS, 2010</li> <li>3. Mark Miller – MS, 2010</li> </ol> <p><b>University of Cincinnati</b></p> <ol style="list-style-type: none"> <li>1. Michael Parsons, MS</li> </ol> <p><b>Bucknell University</b></p> <ol style="list-style-type: none"> <li>1. Gordon Arajuo, MS</li> <li>2. Nicholas Maas, MS</li> <li>3. Douglas Yarosz, MS</li> </ol> <p><b>Hungarian Academy of Sciences</b></p> <ol style="list-style-type: none"> <li>1. Anita Szabo, PhD</li> </ol> <p><b>University of Waterloo</b></p> <ol style="list-style-type: none"> <li>1. Jonathan Musser, MS</li> <li>2. Daniela Conidi, MS Current</li> </ol> <p><b>Wilfrid Laurier University</b></p> <ol style="list-style-type: none"> <li>1. Rebecca Gilmore, MS</li> </ol>
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1. Hujie Lu, MS

Ghent University

1. Ahmed Omari, PhD, current

2. Jose Porro, PhD, current

## Map of Blue Plains Biosolids Applications and Agricultural \$'s for September 2010

