

Biosolids Reuse Monthly Report

NUTRIENTS and CARBON RECYCLING

FARMING

Provides carbon and nutrients valued at \$300.00 per acre.

SILVICULTURE

Increases yield and improves understorey.

RECLAMATION

Restoring sites to their natural state and providing wildlife habitats.

URBAN RESTORATION

Grow trees and reduce runoff.



BLUE PLAINS SERVICE AREA
DC Water receives and treats wastewater collected from the District of Columbia sewer system and from the Maryland and Virginia suburbs. On an average day, more than 300 million gallons of raw sewage flow into the Blue Plains Advanced Wastewater Treatment Plant from area jurisdictions.

BLUE PLAINS
water • nutrients • carbon • energy



GREEN ENERGY BIORENEWABLES

POWER FROM THE PEOPLE


THERMAL HYDROLYSIS PROCESS (THP) AND DIGESTION FACILITY

DC Water will be the first in North America to use thermal hydrolysis for wastewater treatment. When completed, this facility will be the largest plant of its kind in the world.

GREEN BENEFITS:

- Produce combined heat and power, generating 13 MW of electricity
- Save DC Water \$10 million annually cutting grid demand by a third (DC Water is the largest consumer of electricity in the District)
- Reduce carbon emissions by approximately 50,000 metric tons of CO₂e per year.
- Reduce trucking by 1.7 million miles per year.
- Save \$10 million in biosolids trucking costs
- Produce Class A biosolids to grow trees, sequester carbon and reduce runoff.

dcwater.com/biosolids

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THERMAL HYDROLYSIS PROCESS (THP) AND DIGESTION FACILITY

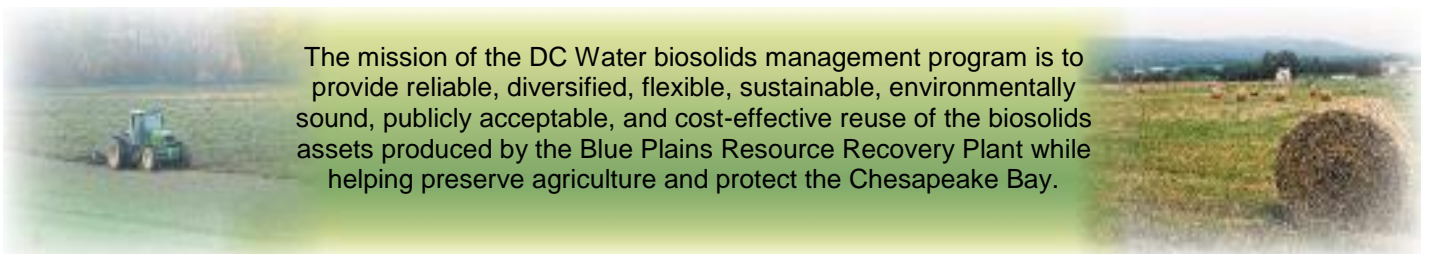
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DC Water

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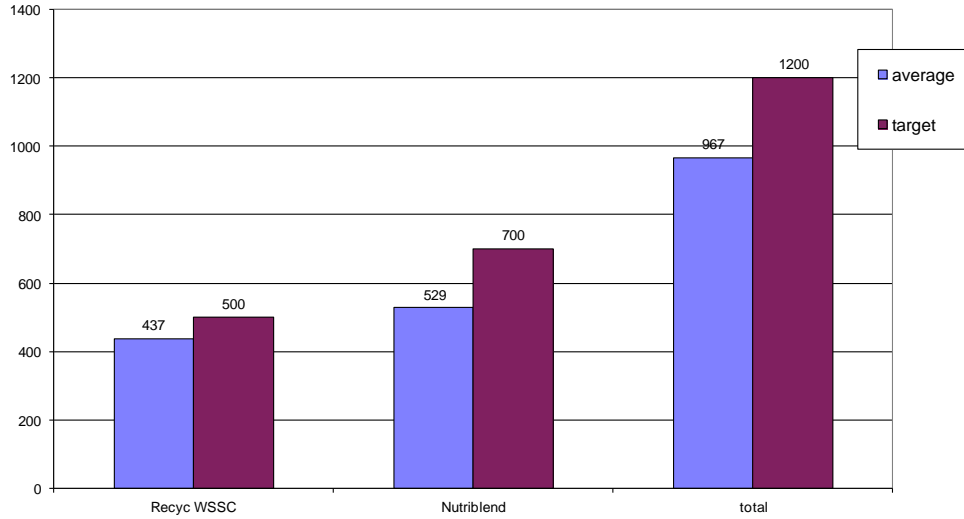


The mission of the DC Water biosolids management program is to provide reliable, diversified, flexible, sustainable, environmentally sound, publicly acceptable, and cost-effective reuse of the biosolids assets produced by the Blue Plains Resource Recovery Plant while helping preserve agriculture and protect the Chesapeake Bay.

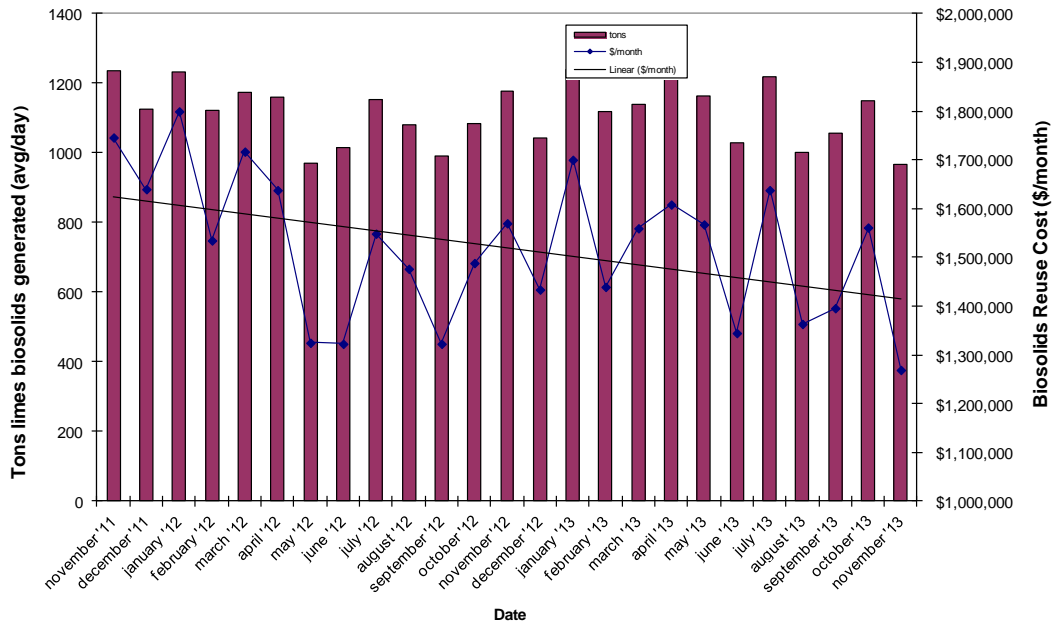
November 2013 Biosolids Division Report

In November, biosolids hauling averaged 967 wet tons per day. The graph below shows the hauling by contractor for the month of November. Average % solids for the unlimed cake was 27.6%. Average lime dose for the month was 19.0%. At the end of November the Cumberland County storage pad had 5396 tons (~25,000 tons capacity), and the Cedarville lagoon was emptied (~30,000 tons capacity).

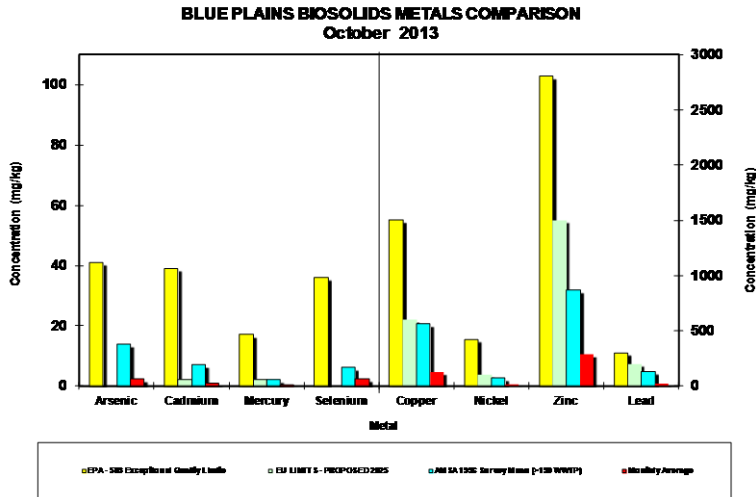
Average Daily Hauling by Contractor for November 2013



Average Daily Biosolids Production and Reuse Cost



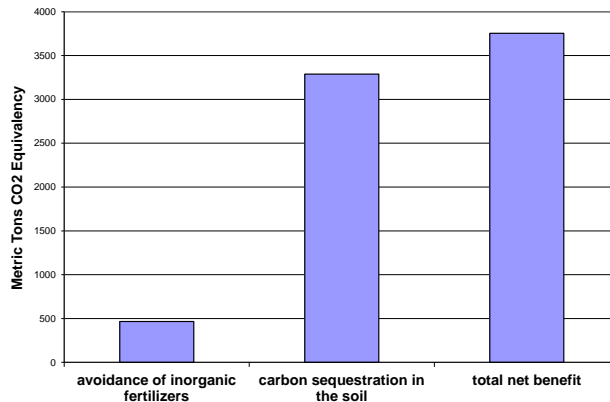
The graphs below show the EPA regulated heavy metals in the Blue Plains biosolids for the month of October 2013. As can be seen in the graphs, the Blue Plains levels are considerably below the regulated exceptional quality limits, the national average levels surveyed in 1996, and the European Union (EU) 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.



Environmental Benefits

The quantity land applied in September coming directly from the plant and from storage facilities equaled 37381 tons. Taking into account the fuel required to transport biosolids to the field, the net benefit of the land applied material is 3753 metric tons CO₂ equivalent avoided emissions. This is equivalent to taking 7,645,939 car miles off the road in the month of September (assumes 20 mpg, 19.4 lb CO₂ equivalent emissions/gallon gas – EPA estimate). The cumulative total avoided carbon emission since December, 2006 is 110,737 metric tons CO₂ equivalent.

**DCWater Biosolids Recycling Program
Greenhouse Gas Balance Benefits
September 2013 Totals**



November Highlights

Staff participated in an annual third-party audit for the biosolids reuse program, as part of DC Water's National Biosolids Partnership (NBP) membership obligation. The auditor (DEKRA) spent three days onsite. In addition, staff brought the auditor to the Stafford Airport reclamation project, and to a forestry site in King William County. DC Water "passed" the audit and will retain the NBP Biosolids Management Plan (BMP) certification. The auditor found three minor non-conformances, which staff is addressing in a Corrective Action Plan. The non-conformances are as follows:

Minor Nonconformance JS/13-01/11 NBP BMP Element 11 requires the organization to require its contractors to establish and maintain emergency preparedness and response plans and procedures. Contractor personnel at the King William County silviculture site were not aware of procedures to take in the event of an emergency, such as a forest fire. The contractor's emergency plans were not effectively established at this site.

Minor Nonconformance JS/13-02/16 NBP BMP Element 16 requires the organization to establish and maintain an internal audit program to periodically analyze its BMP and to determine whether it is effectively meeting its biosolids management policy, program requirements, and program goals and objectives. The only internal audit conducted in the past year did not make any observation or conclusion about the biosolids policy or program goals and objectives.

Minor Nonconformance JS/13-03/17 NBP BMP Element 17 requires the organization's management to, review the BMP and its performance relative to policy commitments, goals, objectives, and established performance measures and to document the management review. Biosolids Workgroup meetings are used effectively as part of the management review process, however higher level reviews of policy and program performance with DC Water senior management are not recorded.

The auditor also identified some program strengths. He was impressed with our position on biosolids as a resource rather than a waste, and was pleased to hear that WEF has also adopted (at DC Water's urging and support) this same stance. WEF is now referring to wastewater treatment plants as water resource recovery facilities. The strengths identified by the auditor are listed below:

- An excellent initiative is in place to consider wastewater and biosolids as resources as part of the agency's resource recovery programs.
- Seeing biosolids as a valuable product, rather than a byproduct, is leading to a more business-like approach to biosolids disposition.

The auditor found that all open non-conformances from past audits were corrected and closed, and that the DC Water BMP is improving through the use of a systematic approach to managing their biosolids activities. The following improvement outcomes within the past two years were confirmed.

