

Biosolids Reuse Monthly Report

NUTRIENTS and CARBON RECYCLING

FARMING

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

SILVICULTURE

Increases yield and improves undergrowth.

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

GREEN ENERGY BIORENEWABLES

POWER FROM THE PEOPLE

THERMAL HYDROLYSIS PROCESS (THP) AND DIGESTION FACILITY

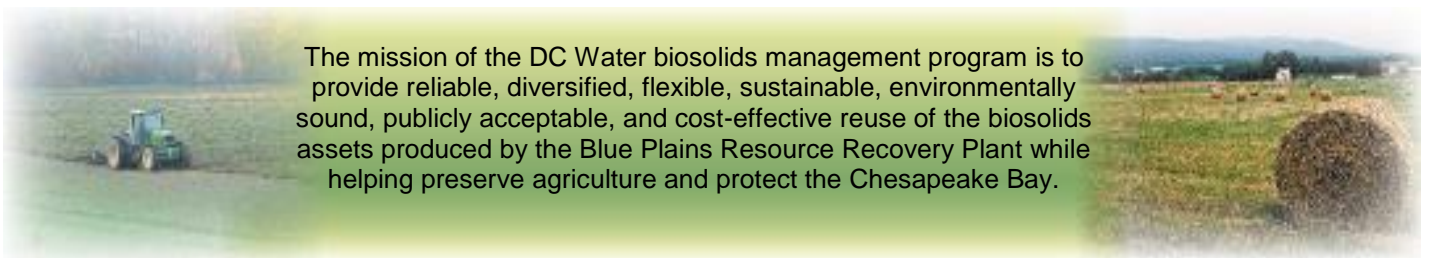
DC Water will be the first in North America to use thermal hydrolysis for wastewater treatment. When completed, this facility will be the largest plant of its kind in the world.

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.

DC Water

Resource Recovery Division
 5000 Overlook Avenue SW
 Washington, DC 20032
 202-787-4329; 202-787-4226 (fax)
 cpot@dcwater.com

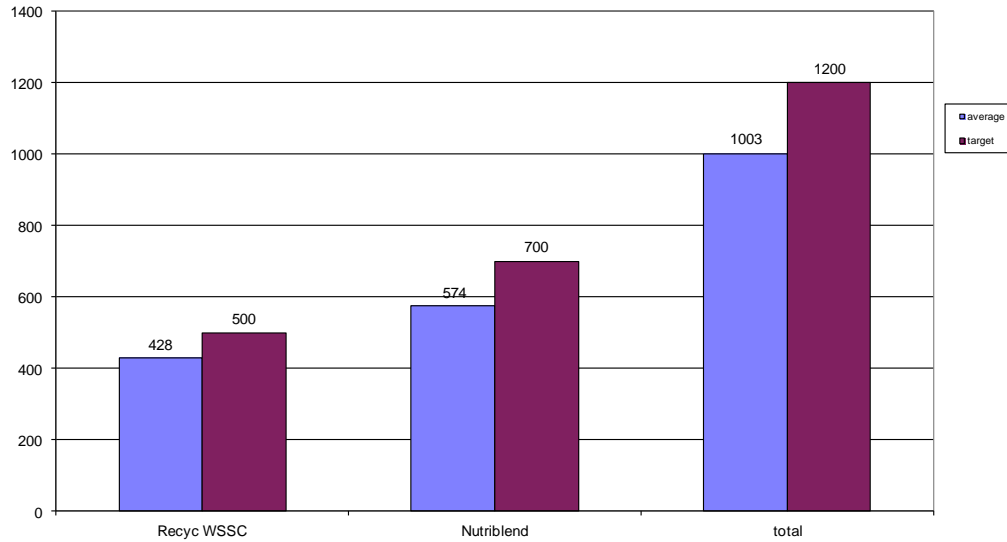


The mission of the DC Water biosolids management program is to provide reliable, diversified, flexible, sustainable, environmentally sound, publicly acceptable, and cost-effective reuse of the biosolids assets produced by the Blue Plains Resource Recovery Plant while helping preserve agriculture and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

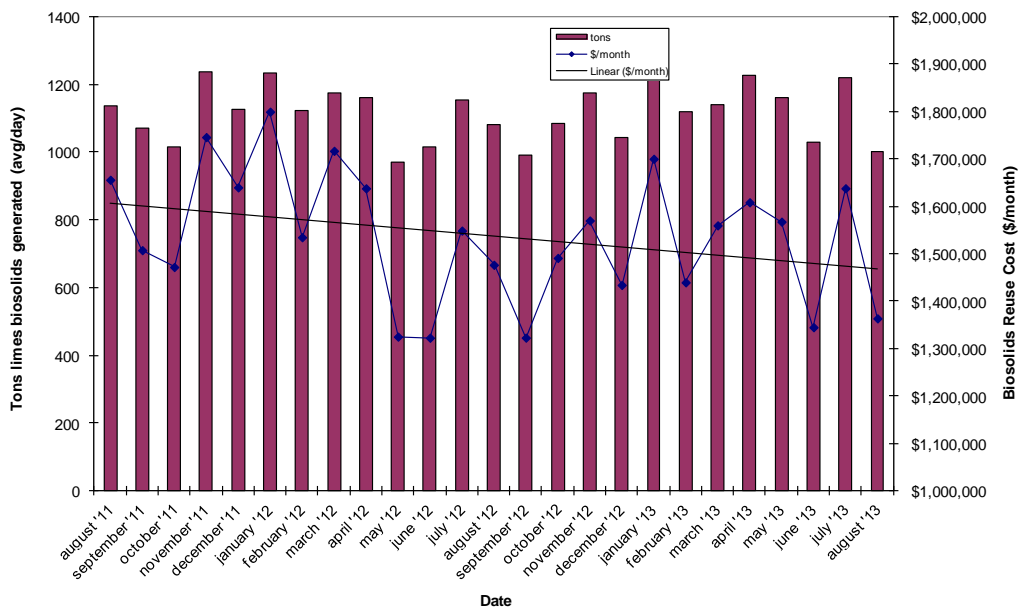
August 2013 Biosolids Division Report

In August, biosolids hauling averaged 1003 wet tons per day. The graph below shows the hauling by contractor for the month of August. Average % solids for the unlimed cake was 26.5%. Average lime dose for the month was 21.7%. Nutriblend took 428 tons of biosolids to the Spottsylvania County compost facility. At the end of July the Cumberland County storage pad had 800 tons (~25,000 tons capacity), and the Cedarville lagoon was emptied (~30,000 tons capacity).

Average Daily Hauling by Contractor for August 2013

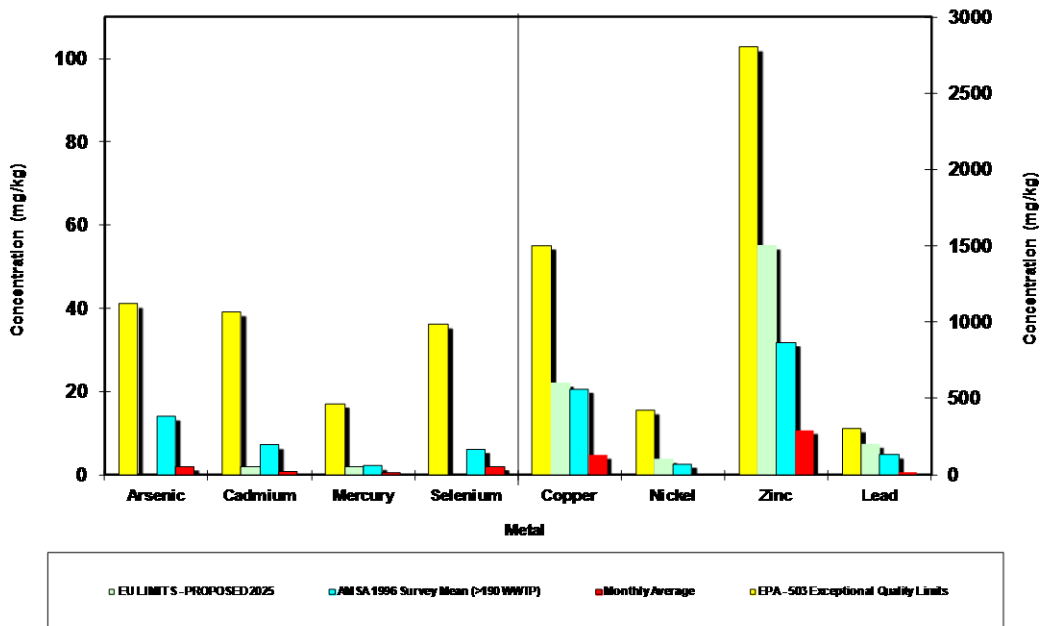


Average Daily Biosolids Production and Reuse Cost



The graphs below show the EPA regulated heavy metals in the Blue Plains biosolids for the month of July 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.

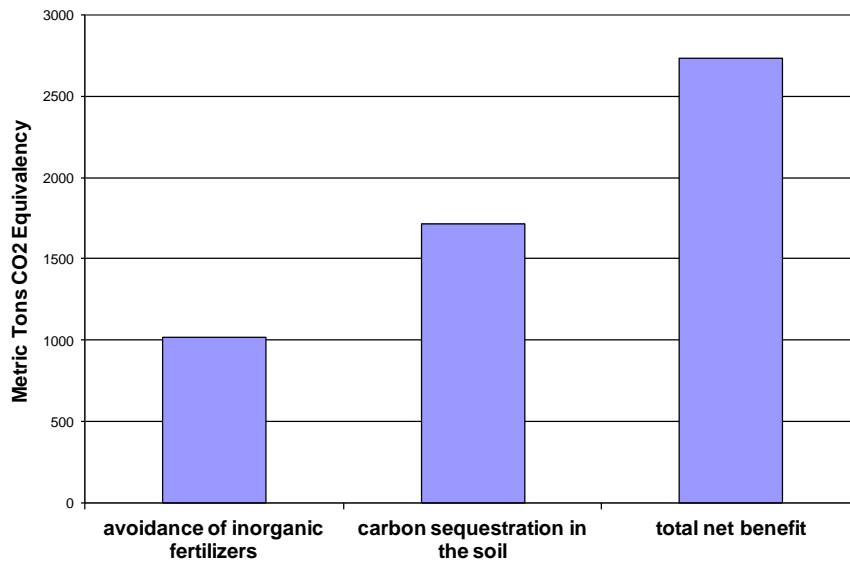
**BLUE PLAINS BIOSOLIDS METALS COMPARISON
JULY 2013**



Environmental Benefits

The quantity land applied in July coming directly from the plant and from storage facilities equaled 31,118 tons. Taking into account the fuel required to transport biosolids to the field, the net benefit of the land applied material is 2713 metric tons CO₂ equivalent avoided emissions. This is equivalent to taking 5,573,200 car miles off the road in the month of July (assumes 20 mpg, 19.4 lb CO₂ equivalent emissions/gallon gas – EPA estimate). The cumulative total avoided carbon emission since December, 2006 is 189,505 metric tons CO₂ equivalent.

DCWater Biosolids Recycling Program Greenhouse Gas Balance Benefits July 2013 Totals



August Highlights

Staff coordinated a small-scale biosolids blending demonstration with Va Tech and a Virginia soil blender. This demonstration is the first step in building a relationship with blenders to make products for DC Water's use in the service area for tree planting, restoration, and green infrastructure. Bioretention soil is a big market for blenders, so with the assistance of Va Tech researchers, we are developing mixes for this purpose. A full-scale demonstration will occur after the start of Class A biosolids production.

Staff attended a roundtable discussion at the Johnson foundation, in Racine, WI, to discuss with other water and energy professionals the water/energy nexus, and how we can promote the "utility of the future" with an eye toward water and energy conservation, and carbon footprint reduction. The two-day event stimulated much discussion, and forged alliances in unlikely camps to help ensure that we can accomplish this in the current political and regulatory climate.

Staff gave a tour to US Department of Energy staff who came to learn about our progress toward green energy production and energy conservation. The group saw the digester construction site and toured the research lab, where they learned of the anammox research, which could reduce our energy and methanol use (and reduce our carbon footprint). There appears to be potential for partnerships on research funds. One DoE staffer was very interested in putting together a proposal for a fuel cell demonstration, which would produce both power and hydrogen for potential use in vehicles.

Staff attended a regulatory planning meeting at the Stafford County Airport where later this month we will bring biosolids for a Va Tech-led restoration effort. Ten years ago, Blue Plains biosolids were used to raise the pH and grow grass on a site that the airport had excavated for construction for the runways. During the excavation, a vein of pyrite, with high sulfur content and very low pH, was excavated and spread all over the 300+ acre site, preventing the growth of grass. The Blue Plains lime-stabilized biosolids buffered the pH and allowed for growth, thus preventing the low pH sediments from leaving the site. Ten years on, the pHs are dropping again and a second application needs to occur. Va Tech designed an application rate that will use approximately 7,000 wet tons of biosolids.

Map of Blue Plains Biosolids Applications and Agricultural \$'s for July 2013

