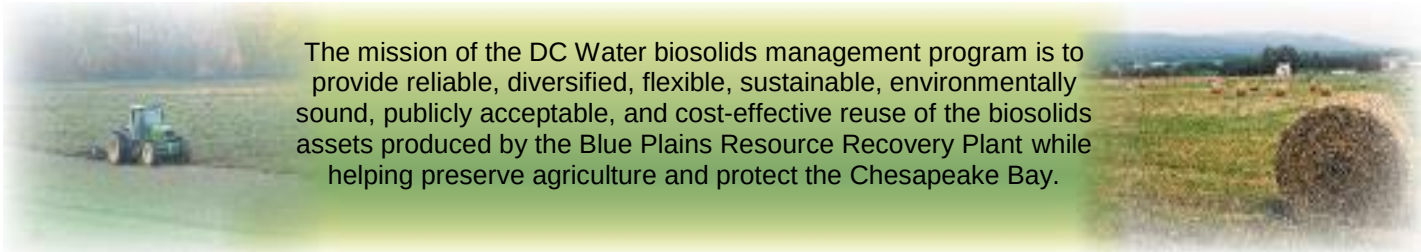
March, 2016

Biosolids Resource Recovery Monthly Report

DC Water

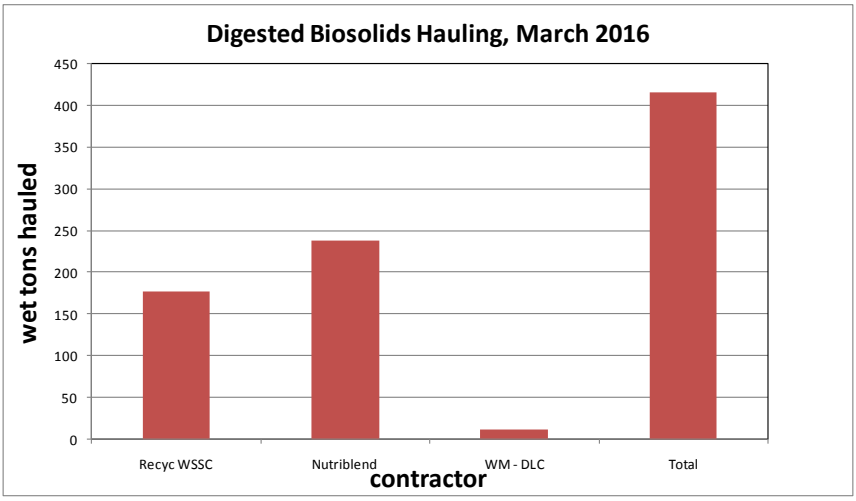
Resource Recovery Division
5000 Overlook Avenue SW
Washington, DC 20032
202-787-4329; 202-787-4226 (fax)
cpeot@dcwater.com

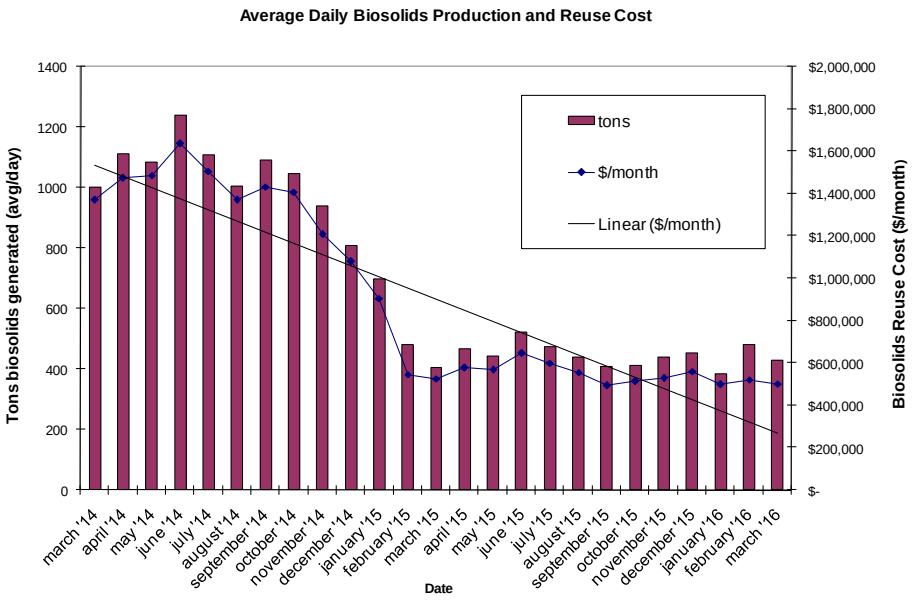


The mission of the DC Water biosolids management program is to provide reliable, diversified, flexible, sustainable, environmentally sound, publicly acceptable, and cost-effective reuse of the biosolids assets produced by the Blue Plains Resource Recovery Plant while helping preserve agriculture and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

March 2016 Resource Recovery Report

In March, biosolids hauling averaged 416 wet tons per day (wtpd). The graph below shows the total hauling by contractor for the month of March. The average percent solids for the digested material was 32.7%. In March, staff began sending biosolids to a Waste Management landfill in VA for use as daily cover. This is a pilot program designed to demonstrate to the state that this is a suitable material for daily cover. It will run for 6 months at a price that is less than either of our other contracts. This will give DC Water a vital winter time option, if extended, that can take all our material in witner months if so desired. At the end of March the Cumberland County storage pad had approximately 20,000 tons (~25,000 tons capacity), Cedarville lagoon had approximately 0 tons of Blue Plains biosolids (~30,000 tons capacity), Goochland pad had 3394 tons, and Fauquier lagoon had 9230 tons (~15,000 tons capacity).

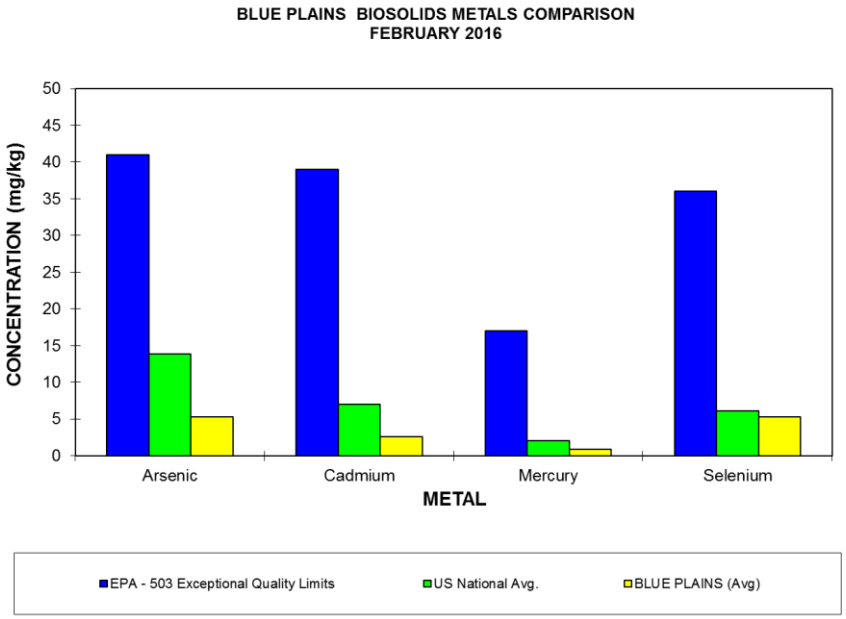


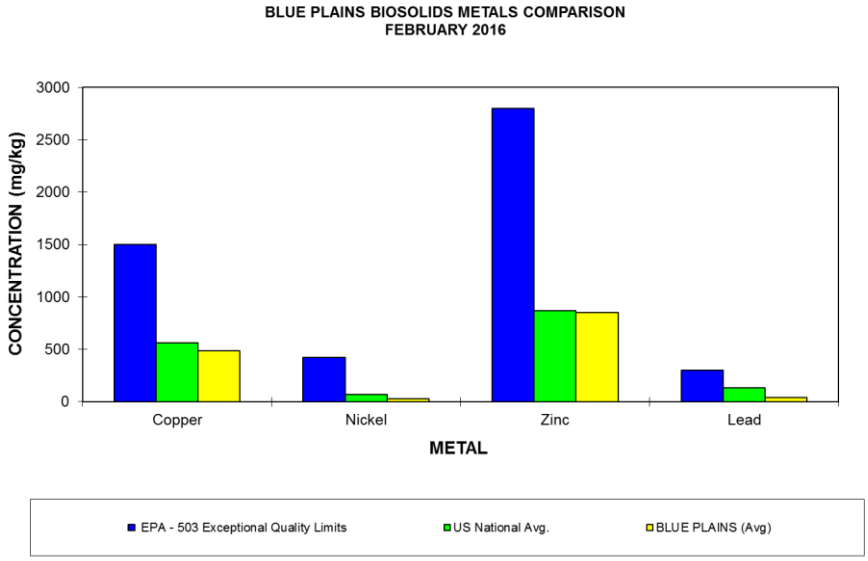


Please note the drop in biosolids management costs (second graph below, right vertical axis) due to the reduction in solids production since digesters came on line, and also due to the drop in fuel costs. In March, diesel prices averaged $2.25/gallon and with the contractual fuel surcharge the weighted average biosolids reuse cost in March for the three contracts was $38.82/wet ton.

Product Quality

The graph below show the EPA regulated heavy metals in the Blue Plains biosolids for the month of February 2016. As can be seen in the graphs, the Blue Plains levels are considerably below the regulated exceptional quality limits and the national average.





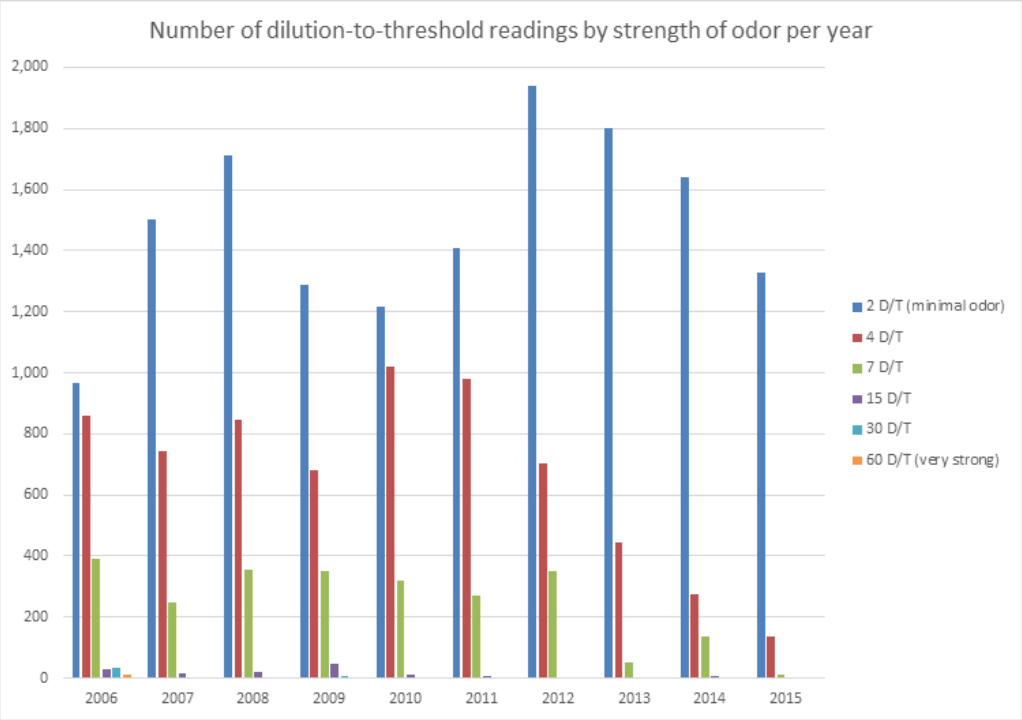
Environmental Benefits

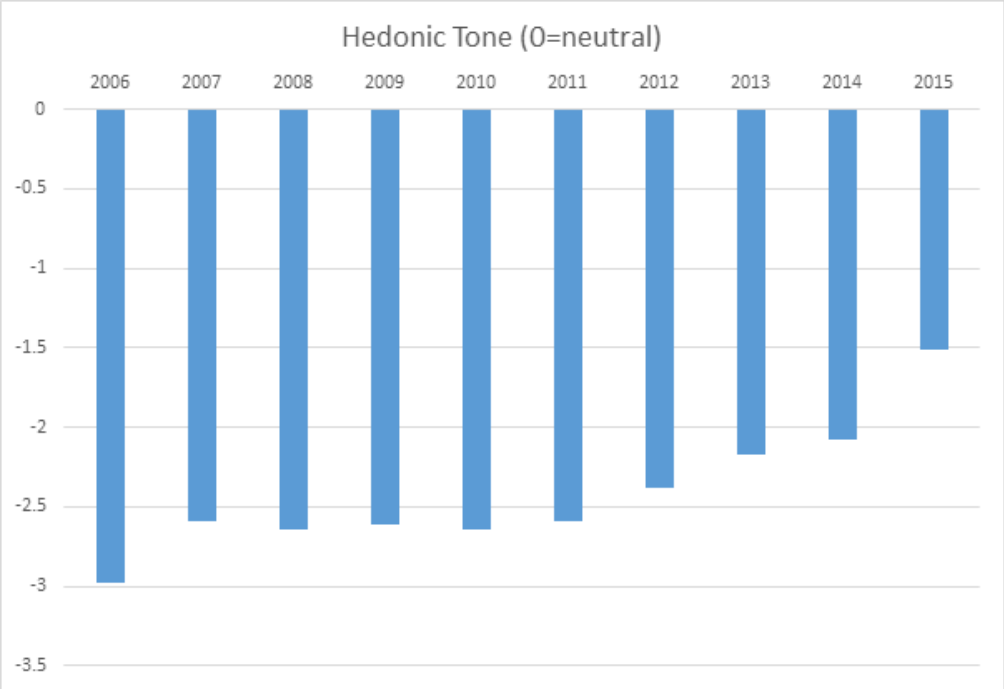
The quantity land applied in February coming directly from the plant and from storage facilities equaled 5141 tons. Taking into account the fuel required to transport biosolids to the field, the net benefit of the land applied material is 327 metric tons CO_2 equivalent avoided emissions. This is equivalent to taking 665,793 car miles off the road in the month of February (assumes 20 mpg, 19.4 lb CO_2 equivalent emissions/gallon gas – EPA estimate). The cumulative total avoided carbon emission since January 2006 is 143,468 metric tons CO_2 equivalent.

Highlights

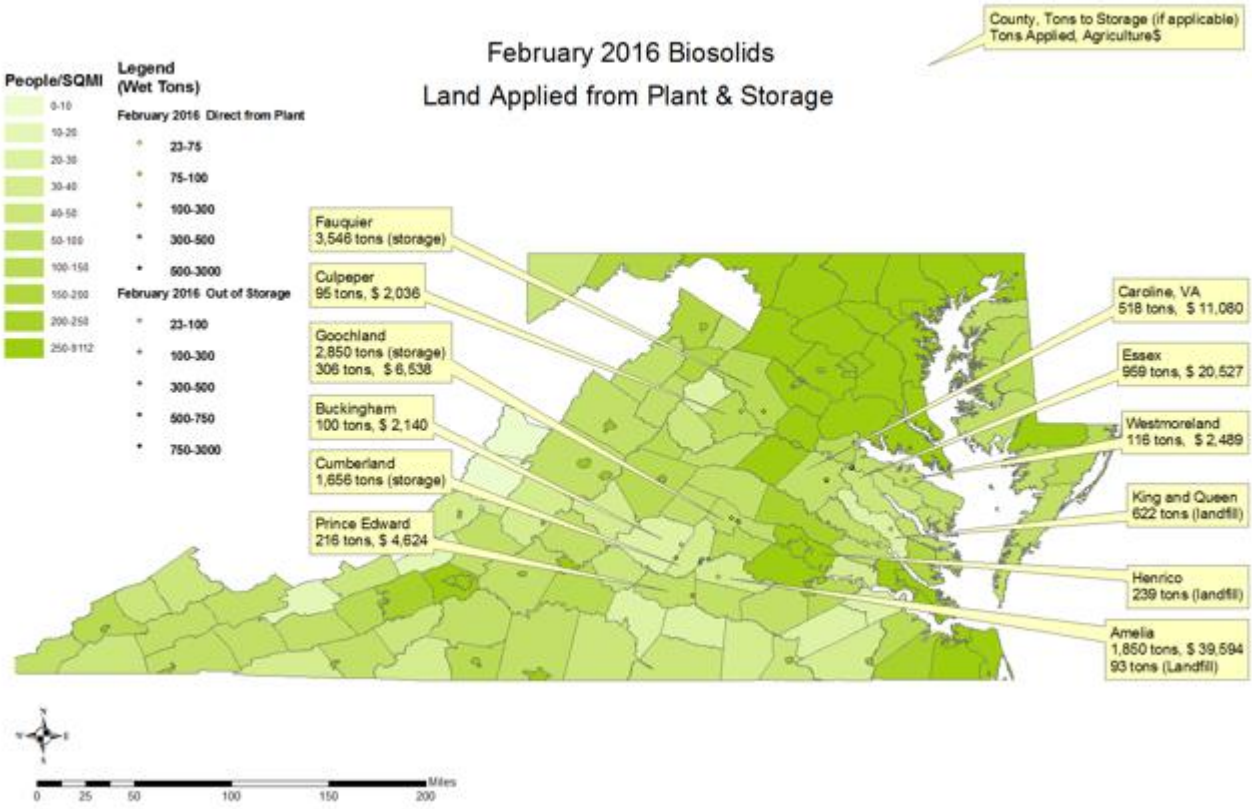
Staff gathered historical odor data for the biosolids reuse program spanning the past ten years. Through that time period, the program evolved from one of inconsistently mixed limed biosolids, to a well mixed limed product, and eventually to our current digested Class A Bloom product. As a result of these changes, we saw drops in odors in the field. Below are two charts describing this odor evolution in terms of odor strength (dilution to threshold) and odor characteristic or quality (hedonic tone). Our inspectors in the field use olfactometers, which are designed to allow for air dilutions and measures the number of dilutions when an odor emerges. A higher D/T means a stronger odor. The inspector also chooses a numeric number to indicate the hedonic tone, or odor quality. A hedonic tone of 10 is an incredibly pleasant odor, a negative 10 is a repulsive odor, and a score of zero is neutral.

The first graph shows that the number of high D/T readings drops over time, eventually to zero for the Bloom product. In addition, the second graph shows a drop in hedonic tone scores, indicating an increase in odor quality. The data shows that the equipment choices made during the design of the digester project significantly improved the quality of the biosolids, beyond mere regulatory requirement.





Biosolids Applications and Agricultural $'s for February 2016


February 2016 Biosolids
Land Applied from Plant & Storage
County, Tons to Storage (if applicable)
Tons Applied, Agriculture$
People/SQMI
0-10
10-20
20-30
30-40
40-50
50-100
100-150
150-200
200-250
250-8112
Legend
(Wet Tons)
February 2016 Direct from Plant
23-75
75-100
100-300
300-500
500-3000
February 2016 Out of Storage
23-100
100-300
300-500
500-750
750-3000
Fauquier
3,546 tons (storage)
Culpeper
95 tons, $ 2,036
Goochland
2,850 tons (storage)
306 tons, $ 6,538
Buckingham
100 tons, $ 2,140
Cumberland
1,656 tons (storage)
Prince Edward
216 tons, $ 4,624
Caroline, VA
518 tons, $ 11,080
Essex
959 tons, $ 20,527
Westmoreland
116 tons, $ 2,489
King and Queen
622 tons (landfill)
Henrico
239 tons (landfill)
Amelia
1,850 tons, $ 39,594
93 tons (Landfill)
N
E
S
0
25
50
100
150
200
Miles