

**PENNSYLVANIA SOLID WASTE
RESOURCE RECOVERY DEVELOPMENT GRANT (ACT 198)**

QUARTERLY REPORT – JANUARY 1 TO MARCH 31, 2011

General Summary

Food waste collections through the winter months were anticipated to be lower, and results reflected our predictions. With collection of yard and garden waste coming to a halt for the season, weights returned to first quarter 2010 levels. An additional 21 properties opted out of the program in the quarter. Discussions continued regarding the expansion of commercial food waste.

Detailed Description

Project Development: A horizontal grinder was ordered in the quarter with funding from a Section 902 grant. The horizontal grinder will allow the processing of combined food scraps, green waste and garden debris and woodchips from the Borough's shade tree maintenance program into a homogeneous product for composting.

Public Education: There were no specific Public Education efforts in the fourth quarter.

Equipment: The option of converting the organic waste truck to tip rear-load dumpsters was abandoned as plans are being developed for larger-scale collection of food waste from downtown dumpster locations and a rear-load dumpster system would be infeasible due to a lack of maneuvering room at dumpster locations.

Land Associated Costs: Land dedicated to the program is based on the construction of three compost tests (actively turned and static food waste/leaf windrows and a combined food waste/green waste/leaf windrow) and the need to store finished food waste compost.

Testing and Evaluation:

- **Participation:** Residential curbside collection was made available to 649 residential addresses in the Borough. The table below summarizes the collection data for all properties included in the initial mailings and those still holding collection carts.

CURBSIDE RECAP - Through March 31, 2011				% of Mailing	% of carts Outstanding
	Tuesday	Thursday	Combined		
Properties in mailing	331	318	649	100%	
Vacant	11	13	24	4%	
Pre-program Opt Outs	21	19	40	6%	
Opt Outs	22	14	36	6%	
Cart Count	277	272	549	85%	100%
Have cart but never participated	40	29	69	11%	13%
Participated at least once	237	243	480	74%	87%
Participated at least 25% of collections	166	138	304	47%	55%
Participated at least 50% of collections	129	110	239	37%	44%
Participated in at least 75% of collections	77	61	138	21%	25%
Participated in 100% of collections	1	0	1	0.15%	0.2%

- **Weight:** In the first quarter of 2011, almost 64,000 pounds of combined food waste and green waste was diverted to the Yard Waste Recycling Facility. While it is impossible to segregate yard and garden debris from food scraps collected, the lack of green waste for the first two months gives us a reasonable estimate of 15,500 pounds of food scraps per month for the first quarter.
- **Collection costs:** In the first quarter of 2011, Borough staff dedicated 164 regular hours and two overtime hours to the collection and handling of food waste. This total includes data collection, which is an avoidable cost in an ongoing food waste collection program, and does not include time for turning of the compost windrows. This labor cost the Borough \$6,735.14 including wages and benefits. Avoided tipping fees at the CCSWA Transfer Station totaled \$2,233.
- **Compost:** Three windrows of compost were actively managed in the fourth quarter:
 - **Static food/leaf waste**– The static compost windrow built through April 1 of 2010 and was turned twice each week with a loader bucket when other windrows were turned with the compost windrow turner at the Yard Waste Recycling Facility. The activity is clearly slower than the pre-mixed windrow turned with the windrow turner. When mature, a sample of the compost will be analyzed at the PSU lab.
 - **Pre-mixed food/leaf waste** – The second batch of food waste/leaf compost was analyzed at the PSU Agricultural Analytical Lab. A copy of the report is attached.
 - **Mixed food/green/leaf waste:** This windrow was constructed throughout the calendar quarter. The typical yard waste season ended in early December and feed stocks returned to primarily food waste and leaves, similar to the initial weeks of collection in January, 2010. This windrow will be composted and tested when mature.

If you have any questions or concerns regarding SAP #4100042796, please feel free to contact me by phone at 814-278-4713, or by email at eholmes@statecollegepa.us.



Analysis Report For:				Copy To:		
Ed Holmes Borough of State College 330 Osmond Street State College PA 16801						
LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C04803	Food Waste 2	1/25/2011				Centre

COMPOST ANALYSIS REPORT

Compost Test 2A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	7.7	—
Soluble Salts (1:5 w:w)	3.06 mmhos/cm	—
Solids	43.2 %	—
Moisture	56.8 %	—
Organic Matter	28.6 %	66.2 %
Total Nitrogen (N)	0.9 %	2.0 %
Organic Nitrogen ¹	0.9 %	2.0 %
Ammonium N (NH ₄ -N)	46.7 mg/kg	108.1 mg/kg
	<i>or</i>	<i>or</i>
	0.0047 %	0.0108 %
Carbon (C)	17.6 %	40.7 %
Carbon:Nitrogen (C:N) Ratio	20.00	20.00
Phosphorus (as P ₂ O ₅) ²	0.22 %	0.52 %
Potassium (as K ₂ O) ²	0.38 %	0.89 %
Calcium (Ca)	2.60 %	6.00 %
Magnesium (Mg)	0.22 %	0.50 %
Sulfur (S)	0.09 %	0.22 %
Sodium (Na)	411 mg/kg	950 mg/kg
Aluminum (Al)	1123 mg/kg	2598 mg/kg
Iron (Fe)	2108 mg/kg	4967 mg/kg
Manganese (Mn)	460 mg/kg	1064 mg/kg

¹ See comments on back of report.

² To convert phosphorus as (P₂O₅) into elemental phosphorus (P), divide by 2.29. To convert potassium as (K₂O) into elemental potassium (K), divide by 1.20.



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COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	1.4 mg/kg	3.3 mg/kg	3050B + 6010
Cadmium (Cd)	1.5 mg/kg	3.5 mg/kg	3050B + 6010
Copper (Cu)	11.5 mg/kg	26.7 mg/kg	3050B + 6010
Lead (Pb)	4.1 mg/kg	9.5 mg/kg	3050B + 6010
Mercury (Hg)	0.02 mg/kg	0.05 mg/kg	7473
Molybdenum (Mo)	< 0.6 mg/kg	< 1.5 mg/kg	3050B + 6010
Nickel (Ni)	2.5 mg/kg	5.8 mg/kg	3050B + 6010
Selenium (Se)	< 0.6 mg/kg	< 1.5 mg/kg	3050B + 6010
Zinc (Zn)	33.6 mg/kg	77.6 mg/kg	3050B + 6010