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THA Further Refines Wastewater Plan to meet Chesapeake Bay Requirements

- New Plan is Half the Cost of a Previous Plan**
- Short Term Credit Purchase with Potential Long Term Credit Production**

(HARRISBURG, PA) At their January 25 monthly public meeting, the Board of The Harrisburg Authority (THA) approved a preliminary design for upgrade of the Harrisburg Advanced Wastewater Treatment Facility (AWTF) to meet new regulatory standards and continue to provide wastewater treatment services into the future. The approved concept was adopted after a careful review of alternate approaches to minimize the overall cost to the ratepayers of the AWTF's service area, which includes the City of Harrisburg, the Townships of Lower Paxton, Susquehanna and Swatara, and the Boroughs of Paxtang, Penbrook and Steelton. The alternates considered (1) replacement of worn out AWTF equipment and (2) upgrades necessary to meet more stringent ammonia discharge limits mandated by the Pennsylvania Department of Environmental Protection (DEP). Ammonia is toxic to aquatic life and DEP has set the more stringent standard to protect the waters of the Susquehanna River, which the AWTF discharges into.

The selected alternative represents an optimized version of the strategy previously selected by THA in 2009 for its cost-saving potential. The strategy involves treating ammonia waste in a reactor separate from the main treatment process in order to grow a seed population of ammonia treating microorganisms. This seed is then introduced into the main treatment process to improve the ammonia treatment performance of the mainstream. This approach is referred to as sidestream treatment/bioaugmentation.

One of the key issues addressed by the Board was whether to incur additional capital and operating cost for nitrogen removal or to purchase nitrogen credits. Ammonia treatment alone only converts ammonia to a less toxic form of nitrogen, but it does not remove it. AWTF nitrogen discharges represent a nutrient load on the Chesapeake Bay that when too high damages the Bay ecology. Because of this damage and its far-reaching effects, DEP has mandated, as part of its Chesapeake Bay Tributary Strategy (CBTS), that the nitrogen must be reduced or offsetting credits be purchased. Purchasing nitrogen credits involves paying someone else to reduce nitrogen discharges in comparable amounts. Generally, buying or selling credits is seen as a cost-effective way to meet Pennsylvania's commitment to reduce polluting nutrient loads on the Chesapeake Bay. Whether an entity should be a buyer, seller, or just reduce their nutrient discharges by their fair share is a highly site- and situation-specific issue. In the case of the AWTF, the Board concluded that the added capital and operating costs to remove nitrogen at the facility were substantially lower than the cost to purchase credits.

The estimates for the construction cost of new facilities included in the preliminary design are: \$9.4 million for replacement of aged equipment, \$18.0 million for treating ammonia to meet new regulatory standards, and \$6.3 million for nitrogen removal. **The total construction cost of \$33.7 million represents roughly one-half the cost of the conventional facilities that were proposed for the AWTF just 4 years ago. The overall cost for nitrogen removal, including both capital and operating cost, ranges from \$1 to \$3 per pound, depending on how many nitrogen credits the AWTF were to sell. The current market cost for nitrogen credits is \$3 to over \$10 per pound.**

Detailed design is proceeding with the goal of obtaining DEP approval, obtaining financing, and beginning construction in the third quarter of 2012, with start up in the second quarter of 2014. After start-up, including credit sales, the upgrade will reduce nitrogen discharges to the Chesapeake by over 800,000 pounds annually, representing over 15% of the total reduction goal of the Department's CBTS for municipal point sources in Pennsylvania's Chesapeake watershed.

AWTF Upgrade – Present Values

\$000's	"Build All"	"Build Some, Trade Some"			"Trade All"	Replacement*
	2007 Project	2009 Act 537	"InNitri @ 100%"	"RRST"	"RRST-CR" (Aged Equip + NH3 Removal)	(Aged Equip Only)
Estimated Capital Cost	\$ 63,250	\$ 30,250	\$ 35,450	\$ 33,650	\$27,400	\$ 9,400
Other Project Costs (18%)	\$ 11,350	\$ 5,450	\$ 6,400	\$ 6,100	\$ 4,900	\$ 1,700
Amount Financed	\$ 74,500	\$ 35,700	\$ 41,850	\$ 39,750	\$ 32,300	\$ 11,100
Non-Replacement Capital Cost				\$ 24,250	\$ 18,000	
Annual Debt Service -- 20 yrs @5.0%	\$ 5,978	\$ 2,865	\$ 3,358	\$ 3,190	\$ 2,592	\$ 891
Additional Operating Costs	\$ 3,929	\$ 2,231	\$ 1,415	\$ 1,495	\$ 1,102	
N Credit Purchase (Sale) lbs	(232,000)	150,000	(112,000)	(213,000)	218,000	
Cost per lb N	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	
N Credit Purchase (Sale) Cost	\$ (696)	\$ 450	\$ (336)	\$ (639)	\$ 654	
Additional Annual Cost	\$ 9,212	\$ 5,545	\$ 4,437	\$ 4,046	\$ 4,348	\$ 979
Present Worth (Cost) 3.0% Discount	(\$122,606)	(\$75,581)	(\$57,903)	(\$52,485)	(\$58,425)	(\$11,100)

*Replacement of aged equipment only will not comply with the Ammonia limits of the NPDES Permit and is for information purposes only. (Note added by THA for clarity)