Anne Arundel County

Customer Update

Spring 2004

DEPARTMENT OF PUBLIC WORKS

Voluntary Compliance to the Biological Nutrient Removal Program (BNR)

Our Commitment to the Chesapeake Bay

Recent discussion by the Chesapeake Bay Foundation (CBF) of the status of Maryland's Biological Nutrient Removal Program and the health of the Chesapeake Bay, offers an opportunity for Anne Arundel County to share our vision regarding the current and future status of wastewater plant operations relative to the Chesapeake Bay and its tributaries.

Anne Arundel County is proud of its efforts to protect the Chesapeake Bay through environmentally sensitive treatment of wastewater. The Biological Nutrient Removal (BNR) program began in the mid-1980s as one of the original initiatives of the *1983 Chesapeake Bay Agreement.* One of the major goals is to reduce nutrients that contribute to the decline of the Bay and its tributaries through a cost-sharing program to fund BNR of nitrogen and chemical phosphorus from all wastewater treatment plants that are point sources discharging into the Bay. This voluntary program has been highly effective.

Anne Arundel County operates six major Water Reclamation Facilities (WRFs) referred to by the state as Publicly Owned Treatment Works (POTWs) and has signed agreements to reduce nitrogen discharged to the Bay and its tributaries to 8mg/l (milligrams per liter) from April 1 to October 31 of each year. Our plants are already meeting these standards at current day plant flows.

In 2002, Governor Glendening signed an executive order to develop and implement an Enhanced Nutrient Removal (ENR) policy to further reduce nutrients, specifically nitrogen and phosphorus, discharged from POTWs. In line with the *Chesapeake 2000 Agreement*, this policy called for a further nutrient load reduction to 3 mg/l for nitrogen and 0.3 mg/l for phosphorus.

Anne Arundel County has fulfilled previous voluntary agreements with Maryland Department of the Environment (MDE), supports the ENR policy, and looks forward to supplemental agreements based on the ENR "limit of technology" goal of 3 mg/l total nitrogen annually. Anne Arundel County is already planning capital improvements and operational changes necessary for our facilities to meet the ENR nutrient limits. However, the enormous costs associated with installing "limit of technology" infrastructure required to meet these goals, dictates that we prioritize the installation of BNR at the facilities that will return the greatest and most immediate benefits to the Bay.

The state is currently operating under the Maryland Interim Nutrient Cap Strategy. This strategy caps the pounds of nitrogen from each respective WRF at a limit based on calendar year 2000 flows and effluent concentration of 8 mg/l. This means the facilities will have to perform at better than 8mg/l by the time they achieve the maximum flow levels for which they were designed.

Of the County owned facilities, our Patuxent WRF will be able to meet Maryland Interim Nutrient Cap Strategy requirements at its rated capacity without any operational modifications or capital improvements. Annapolis WRF and Broadneck WRF will require minor capital improvements; Maryland City WRF and Broadwater WRF will require moderate capital improvements and Cox Creek WRF will require major capital improvements including additional and expanded infrastructure.

The Annapolis WRF currently does better than the goal of 8mg/l on a seasonal basis as designed. During the current plant expansion from 10 million gallons per day (MGD) to 13 MGD, the biological process has been enhanced to meet 5 mg/l on an average annual basis. In the time it will

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take to get to a flow of 13 MGD, the plant will be able to achieve better than 5mg/l nitrogen. To increase this reliability, capabilities have been provided in the expansion design to add additional components to meet the "limit of technology" 3mg/l as the need requires. The county is continuing, on a voluntary basis to reduce nitrogen output at our facilities, including Annapolis. Beyond the current expansion improvements, the cost to get the Annapolis WRF within range of "limit of technology" will require an additional estimated $10.7 million in construction costs.

Although Cox Creek WRF utilizes an older style treatment process, tremendous strides have been made in reducing nutrients discharged to the Bay. Prior to current nitrogen upgrades, the plant discharged 18mg/l of nitrogen, which equates to 1,670 pounds per day based on a flow of 11 MGD. Today, it achieves seasonal reductions of 8 mg/l which equates to 700 pounds per day of nitrogen discharge. This is a 58% reduction. Achieving close to "limit of technology" levels at Cox Creek WRF will be difficult and very expensive. Estimated costs to reach the "Interim Cap Strategy" levels are $12.5 million and to reach "limit of technology" are $30 million. This brings into question the cost effectiveness per pound of nitrogen removal.

Anne Arundel County commends the Chesapeake Bay Foundation (CBF) for their efforts and shares their vision for a cleaner Chesapeake Bay. We applaud their acknowledgement that federal grants are needed to supplement state grants to fund the ENR strategy in an acceptable time frame. However, we cannot support the CBF call for permit limits in Maryland. Of the 66 major POTWs in Maryland, all 66 voluntarily participate in the BNR program. These 66 POTWs face a variety of challenges as they attempt to meet "Interim Cap Strategy" levels and anticipate "limit of technology" goals. To force a one size fits all permitting program would only frustrate these efforts. Costs versus results should be considered before spending valuable resources in non-cost effective BNR/ENR installations when grant dollars can be more effectively spent and result in greater nutrient reduction in another POTW.

While the media has focused attention on Maryland POTWs, nutrient discharges have been reduced 50% since 1985 from this source, despite population growth. These POTWs are on an irreversible and voluntary track to compliance without regulatory programs. Anne Arundel County remains a leader and is committed to achieving the goals of the Chesapeake Bay program relative to our point sources on a voluntary basis. Looking at the bigger picture and allowing tradeoffs between newer plants, which can readily meet the goals may be more beneficial to the Chesapeake Bay in the long run. This will likely lead to better results achieved in a most cost-effective manner. Eventually, as additional BNR installations are added and fine tuned, POTWs will account for an increasingly smaller percentage of the overall nutrient loading to the Chesapeake Bay.

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Helpful Telephone Numbers for The Department of Public Works

24-hour EMERGENCY service for water and wastewater; solid waste (after 3:30 p.m.) ...

410-222-8400
South County... 410-451-4118

After 3:30 p.m., weekends and holiday EMERGENCY Service for stormdrains, roads, traffic lights/signs...

410-222-6120

For weekday EMERGENCIES (between 7:00 a.m. and 3:30 p.m.) involving stormdrains, roads, or traffic lights/signs, please call the appropriate district office. If you do not know what district to call, please call any of these Customer Relations numbers...

Customer Relations...	410-222-7582
General Information...	410-222-7500
Billing Information...	410-222-1144
Bulk Item Trash Service, Recycling Information, Trash Collection...	410-222-6100
Northern Roads District...	410-222-6120
Southern Roads District...	410-222-1933
Central Roads District... Crownsville Yard...	410-222-7940
Central Roads District... Odenton Yard...	410-222-6126

During snow emergencies (4" or more) customers in all roads districts please call... 410-222-4040

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