



## Department of the Environment

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# NPDES Discharge Permits and Drinking Water Issues

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**Potomac Drinking Water Source Protection Partnership**

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# Stream Use Designations in Maryland

- Use I- water contact recreation and protection of warmwater aquatic life
- Use IP- same + use as a public water supply
- Use II- estuarine aquatic life and shellfish harvesting
- Use IIP- same + use as a public water supply
- Use III- growth and propagation of self-sustaining trout population
- Use IIIP- same + use as a public water supply
- Use IV- recreational trout waters
- Use IVP- same + use as a public water supply
- ***Note- all waters upstream of a drinking water intake are classified as "P", no matter how far upstream. There is no specific distance for how far upstream a WWTP discharge must be above a drinking water intake, or for any maximum % treated wastewater which is acceptable at a drinking water intake. The closest now is probably the Fort Meade WTP intake, which is ~2 miles downstream of the Dorsey Run WWTP outfall.***



# NPDES Permit Limits

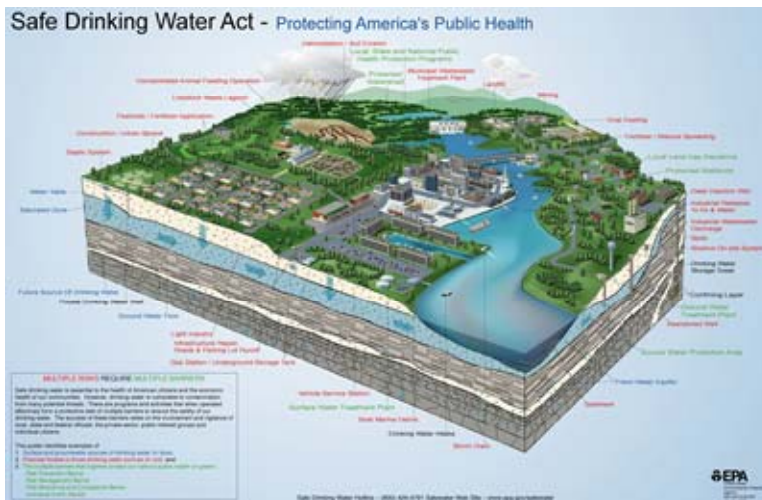
- All municipal NPDES permits regulate the following-
  - BOD<sub>5</sub>- 30 mg/l or less to protect downstream dissolved oxygen
  - Suspended solids – 30 mg/l or less by regulation for secondary treatment, and to meet downstream turbidity standards
  - E. coli- maximum of 126 MPN/100 ml monthly geometric mean
  - Dissolved oxygen- 5.0 mg/l minimum at any time
  - pH- 6.5 – 8.5
  - Total residual chlorine- non-detectable
- In addition, the following are regulated in some permits-
  - Ammonia- if necessary, to prevent toxicity and downstream dissolved oxygen impairment
  - Total nitrogen and phosphorus- for all WWTPs in the Chesapeake Bay watershed with design capacity of 0.5 MGD or more + smaller WWTPs, if necessary to prevent local impairments
  - Priority pollutants- if available data shows that the WWTP effluent is close to or exceeds the instream water quality criteria (WWTPs 1.0 MGD or larger must do a minimum of 3 priority pollutant scans during each 5 year permit cycle).





## Water Quality Criteria- Difference between Water Designated as a Public Drinking Water Supply and Waters Which Are Not

- **Very little!**
- **Bacteriological, dissolved oxygen, temperature, pH, turbidity, and color criteria all the same irregardless.**
- **Toxic substance criteria include human health for consumption of drinking water + organisms if the water is designated as a public water supply, but only organisms if it is not. This is usually the Safe Drinking Water Maximum Contaminant Level.**





# Water Reuse in Maryland

- **Currently, Maryland allows reclaimed water reuse in restricted public access areas including farms, forested land, and gulf course with buffer zones, adequate pretreatment, and suitable soils. Check with Dr. Tien at (410)537-3662.**
- **MDE's Water Reuse Committee is working on regulations relating to water reuse, including-**
  - **Industrial uses including cooling water, parts washing and cleaning, equipment operations, and other mechanical processes**
  - **Commercial uses including laundries, car washes, snow-making, air conditioning and closed loop cooling, window washing and pressure cleaning**
  - **Residential lawn irrigation**
  - **Other uses approved by MDE (Phase II- expected spring 2010)**



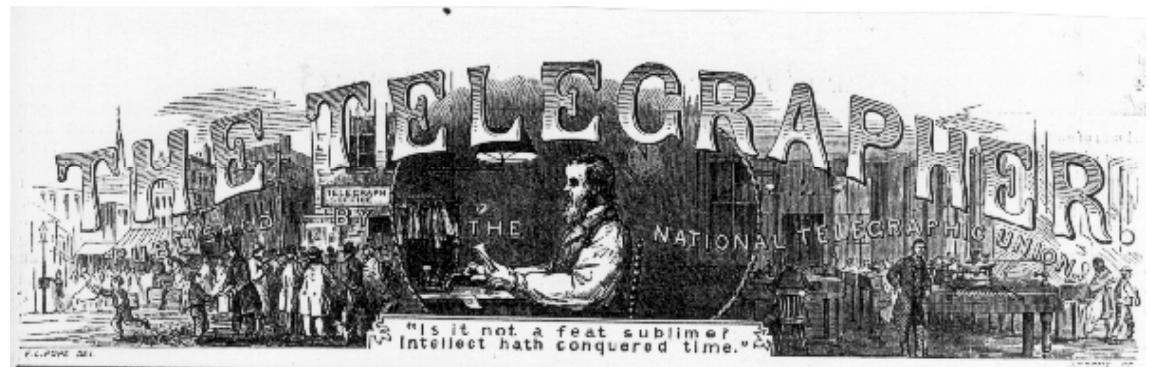
## Wastewater Treatment Plants in Potomac Watershed in Maryland Upstream of Little Falls

- There are 18 'Major' WWTPs (design capacity of 0.5 MGD or greater) and 65 'Minor' WWTPs- Georges Creek, Celanese, Cumberland, Hagerstown, MCI, Conococheague, Winebrenner, Thurmont, Westminster, Emmitsburg, Taneytown, Ft. Detrick, Frederick, Ballenger Creek (McKinney), Brunswick, Seneca, Damascus, and Poolesville.
- The combined flow at the 18 'Majors' is ~65 MGD. At the 65 'Minors', it's only ~3.5 MGD.



# Spills, Bypasses, or Upsets from WWTPs Upstream of Drinking Water Intakes

- NPDES permits require that if such an incident occurs, “the permittee must report...via telephone as soon as practicable...after the permittee becomes aware of the event.”
- MDE Compliance Program has a Duty Officer available 24/7 for such calls. He/she will contact the Drinking Water Duty officer. There is then a network and protocol set up for the downstream water supply contact system.





# Future Concern – One that Goes by Many Names and Acronyms



**EDCs** – Endocrine disrupting compounds

**PPCPs** – Pharmaceuticals and personal care products

**Organic Compounds**

**Emerging contaminants**

These include pharmaceuticals, personal care products, pesticides, flame retardants, plasticizers, etc. There are over 90,000 synthetic chemicals in the environment. Concerns date back to the 1950s (Rachael Carson), 1980s- Great Lake Study, and 1990s- “Our Stolen Future”.



- Effects on male fish, birds, and other animals clearly observed.
  - Effects on humans ???
  - Fortunately, it appears that the Enhanced Nutrient Removal (ENR) being installed at all Major WWTPs in the Chesapeake Bay watershed remove a significant % of many of these compounds.
  - How this may affect NPDES permits-
    - May add monitoring for a number of compounds which show up consistently and in high enough concentrations to cause concern.
- May add a requirement for some kind of E-screen using MCF7 human cell line, or Yeast Estrogen Screen (YES)

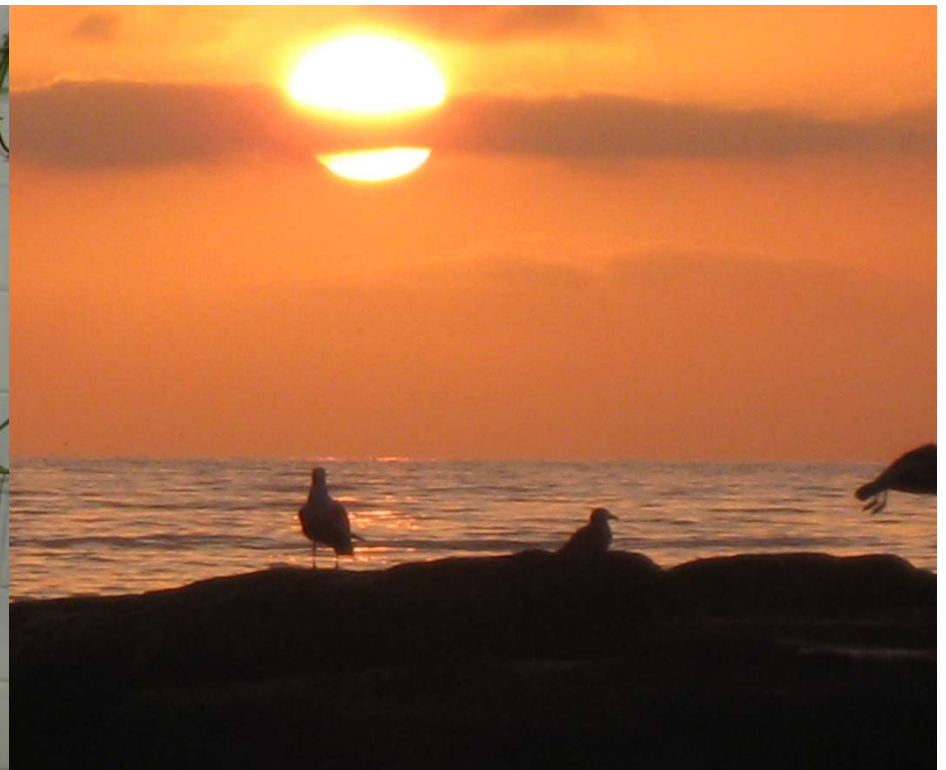






# Maryland Department of the Environment

## Questions? Comments?



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