

Ohio EPA/AWWA Technology Committee
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EMERGING TECHNOLOGY - A STATE'S PERMITTING PERSPECTIVE



A historical perspective to emerging technology

- Conventional treatment can meet the demands of the regulations and operations.
- Just build it bigger
- Go find a better source
- This is how we have always done it
- The operations are too sophisticated



Aging Water Plants and Distribution Systems

- Water Systems built as WPA projects in the 1940's
- Plants designed for the depression era
- Water mains reaching their life expectancy
- Elevated Tanks were not designed for water quality but quantity only
- Regulatory concerns of today were not concerns when the plants and distribution systems were constructed



Emerging Contaminants

- Harmful algal blooms
- Pharmaceuticals
- Personal care products
- Cryptosporidium
- Legionella
- Viruses
- Disinfection Byproducts
- Hexavalent Chrome



New Regulations

- SWTR → IESWTR → LT1 → LT2
- GWR
- Arsenic MCL from 50 ug/l to 10 ug/l
- TTHM → DDBP1 → DDBP2
- Pb/Cu → Revised Pb/Cu → Revision to the Revised Pb/Cu



Source Water Quality and Quantity Issues

- Arsenic problems resulting from avoiding Nitrate and bacteria issues
- Lake Erie algal issues
- Nutrient Loading
- Competing interest for the Water Resource



Viability

- Wide range of water quality conditions and operational challenges
- Ensuring the proper correlation between the complexity of the technology and the required expertise of the operator?
- We cannot be 100% dependent on automation to monitor and determine if required inactivation is being achieved.



Operability

We need to have well defined and simple operating protocols for performing routine maintenance (such as sensor maintenance and calibration, cleaning lamp sleeves), troubleshooting operational issues, making adjustments, even obtaining and installing replacement parts.



Sustainability

- Not only for the months and years after it is installed, but also after 10, 20 or more years of utilization.
- Our water utilities cannot be 100 % dependent on a single vendor for the long term maintenance of proprietary technology.



Contingency

- States will also require contingencies for when the technology fails or is out of service for both routine and non routine circumstances? Redundancy has to be considered



Cost

- States and water utilities need to have good information on the full cost of the technology including purchasing, installing, operating, monitoring, maintaining and replacing parts/systems when they exceed their useful life?
- Where to spend the money expansion or improved treatment



Consumer Demands

- Softening
- Iron Removal
- Contaminant Free Water
- Cheap Water
- Water for watering lawns
- Fire protection
- No Taste and Odor issues



Residual Disposal

- Discharge Standards
- Injection Standards
- Land Application limitations
- Landfill limitations



Conclusion

- There are many considerations beyond the efficacy of the treatment that have to be considered before technology is employed particularly at our smaller public water systems. I don't think it is insurmountable but we have to approach this with eyes wide open.



QUESTIONS

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