

SYMPOSIUM
DISINFECTION AND DISINFECTION BYPRODUCTS
Stage 2 DBPR and LT2ESWTR
Sponsored by the Vermont Agency of Natural Resources

WHEN: Thursday November 1, 2007

WHERE: The Pavilion Building at 109 State Street Montpelier, Vermont

TOPICS: The Stage 2 Disinfection and Disinfection Byproducts Rule and Long Term 2 Enhanced Surface Water Treatment Rule will be implemented over the next year or two depending on system population. Water systems will need to achieve simultaneous compliance in reducing disinfection byproducts yet insuring any microbial threat has been fully addressed. In order to obtain compliance, systems may be considering alternative primary disinfectants and other secondary disinfectants besides free chlorine. This symposium will examine recent research on the need for primary and secondary disinfection in the multi-barrier approach to providing safe water and the extent of primary disinfection procedures required to reduce the microbial threat to meet standards. In addition, the advantages and disadvantages of alternative secondary disinfectants will be presented. Current and future regulations affecting Vermont Water Systems will be presented. Ample time is available for each speaker and on any related topic after the session. The symposium is at no charge and 5 training contact hours (TCHs) will be awarded towards operator certification for attendance. Lunch is NOT provided; however, lunch is available nearby at the State House cafeteria. If you have questions, please call Laura LaFleur at 802 241-3403.

Disinfection & Disinfection Byproducts Symposium
Registration Form

Complete Form and return by October 24, 2007 to: Laura LaFleur
Agency of Natural Resources
Department of Environmental Conservation
Water Supply Division
103 South Main Street
Waterbury, VT 05671-0403
Fax No.: 802 241-3284
Telephone No.: 802 241-3403

Name: _____ Operator Certification # _____

Name _____ Operator Certification # _____

Water System Name and WSID # _____
Contact Phone Number _____

AGENDA

Topic	Time	Speaker
General comments	8:00 AM to 8:10 AM	ANR Representative (TBA)
Welcoming Address	8:10 AM to 8:30 AM	George Crombie, ANR Secretary
Waterborne microorganisms and disease: The need for disinfection.	8:30 AM to 9:00 AM	Dr Christian Chauret, Ph. D
Development of S2D/DBP Rule	9:00 AM to 9:30 AM	Tom Grubbs, EPA
Alternative Primary Disinfectants: Advantages and Disadvantages	9:45 AM to 10:45 AM	Dr. Don Gates, Ph. D A founding member of The Chlorine Dioxide Panel of the American Chemistry Council
Alternative Secondary Disinfectants: Advantages and Disadvantages	10:45 AM to 11:45 AM	Dr. Jeffrey K. Griffiths, MD MPH&TM; Director, Global Health Dept of Public Health and Family Medicine Associate Professor of Public Health, Medicine, Nutrition, and Civil and Environmental Engineering Tufts University School of Medicine
Questions and Answers	11:45 AM to 12 Noon	
Relative hazards associated with disinfectant byproducts arising from alternate methods of disinfection”.	1:00 PM to 2:00 PM	Dr Richard Bull, MoBull Consulting
Evaluating Options Using the Simultaneous Compliance Manual – St Johnsbury, VT”	2:00 PM to 3:00 PM	Robert Dufresne, PE; President Dufresne & Associates, PC
Reducing DBP’s - A Case Study Cambridge Mass Water Treatment and Distribution System	3:00 PM to 3:30 PM	Ed Dowling, Laboratory Director and Operator, Cambridge Mass
Round Table Summary, Questions and Answers, and Wrap up	3:30 PM to 4:00 PM	

SPEAKERS

George Crombie was appointed by Governor Jim Douglas as Secretary of Natural Resources for the State of Vermont. Mr. Crombie previously served as the Undersecretary of Environmental Affairs in Massachusetts. He has also served on the Adjunct Faculty at Northeastern University in Boston and taught Environmental Policy. Secretary Crombie has a Bachelors Degree from the University of New Hampshire and a Masters of Public Administration from Northeastern University. He is the national recipient of the Charles Walter Nichols award for his contributions in the environmental field and the Gold Leaf Award by the International Society of Arboriculture. He was also chosen as one of the top ten public works directors in the United States and Canada.

Secretary Crombie studied solid waste and recycling operations in Slovakia and the Czech Republic on a Jennings Randolph Fellowship and is on the Board of Directors of the American Public Works Association representing APWA on environmental issues in the United States and Canada.

Dr. Christian Chauret, Ph. D, is Associate Professor of Microbiology at Indiana University in Kokomo Indiana. Dr. Christian Chauret is an Associate Professor of Microbiology in Biological and Physical Sciences at Indiana University Kokomo. He came to Indiana University Kokomo from his native Canada in 1996. He has a Ph.D. in microbiology from the University of Waterloo (Canada). Dr. Chauret is an environmental microbiologist, who has worked for more than 18 years in water, soil, and groundwater microbiology. Since 1994, he has studied the inactivation of the protozoan parasites *Cryptosporidium* and *Giardia* in natural water, drinking water, and wastewater. He has also studied the association between microbial indicators and protozoan parasites, as well as the distribution of *Aeromonas hydrophila* in drinking water distribution systems. He is currently involved in several projects related to disinfection efficacy in distribution systems as well as the environmental fate of *E. coli* O157:H7 in watersheds. Dr. Chauret's research has been funded by the American Water Works Association Research Foundation, the U.S. EPA, the American Chemistry Council, the Chlorine Chemistry Council, and Indiana University. He is a member of the American Water Works Association, the American Society for Microbiology, and the Indiana Branch of the American Society for Microbiology, in which he currently serves as secretary treasurer.

Thomas Grubbs is the Rule Manager/Rule Team Leader responsible for development of drinking water rules by coordinating the efforts of an EPA multidisciplinary team in developing rules that cost-effectively protect public health. Tom is also responsible for ensuring rules are consistent with recommendations developed by a federal advisory committee. Tom was responsible for regulatory language in developing rule language that is enforceable yet protective of public health, and consistent with the underlying economic, health, and technical analyses. Tom also served in a critical developer of technical guidance for rule implementation responsible for writing, editing, or directing the development of technical guidance manuals to support the implementation of rules, with audiences that include public water systems, State regulators, and consulting engineers. Tom is a member of AWWA Research Foundation Project Advisory Committee member providing technical and editorial review for AWWARF projects/publications. Thomas is a co-author of "Control of Drinking Water Pathogens and Disinfection Byproducts," in *Drinking Water Regulations and Health*, Frederick W. Pontius, ed., Wiley Interscience, 2003. Tom is a registered professional engineer and has degrees from the US Military Academy (West Point) and Georgia Tech.

Dr. Don Gates, Ph. D, has over 20 years of experience with chlorine dioxide (ClO₂) in the drinking water field. His interests and expertise have centered primarily on training personnel in correct laboratory and full-scale methods of ClO₂ generation, analytical methods, treatment applications and regulatory impact of this alternative disinfectant for drinking water. Much of this knowledge and background can be found in Volume II of AWWA's Disinfection Series, "*The Handbook on Chlorine Dioxide*." (Gates, 1998). For ten years prior to publication of AWWA's Handbook, he provided technical and regulatory support to the Rio Linda and Vulcan Chemical Companies of Sacramento, California, in the US and Canada's drinking water disinfection arena. As a member of the FACA Technical Committee for Stage 1 M/MDBP Negotiated Rulemaking for

reauthorization of SDWA, he was able to contribute comments to USEPA for ClO₂ Guidance Manual support. Since 1997, he has provided consulting services to numerous professional water engineering, research and production firms, large municipalities, regulatory agencies and trade associations in a variety of technical activities surrounding ClO₂.

Dr. Jeffrey K. Griffiths, MD (Bio not available at the time - Dr. Griffiths was abroad at the time of this writing)

Richard J. Bull, Ph. D., has been involved in research in toxicology 33 years and has been most heavily involved with human health affects associated with drinking water. He has published extensively on halogenated solvents and byproducts of the disinfection of drinking water. Dr Bull has completed research focused on the metabolism of haloacetic acids and the mechanisms by which hepatic cancer is induced. Dr Bull served as the Director of the Toxicology and Microbiology Division at EPA. He now engages in occasional work as a consultant through MoBull Consulting and serves on the U.S. Environmental Protection Agency's Scientific Advisory Board, as a member and/or chair of several NRC committees, as an advisor to national and international agencies related to contaminants in drinking water, and on several NRC working groups. He has authored or co-authored 114 peer-reviewed publications, numerous reviews and several book chapters and two books related to the toxicology of disinfection by-products.

Edward Dowling serves as the laboratory manager at the Cambridge Water Department at 250 Fresh Pond Parkway in Cambridge, Massachusetts. Ed has 25 years experience managing public drinking water facilities as well as managing private analytical and production laboratories and has 15 years experience managing operations in the city's 24 MGD water purification plant. He graduated from Montpelier High School and attended Johnson State College in Johnson, Vermont and graduated with a BS degree in Environmental Science in 1978.

Robert Dufresne, PE, has a civil engineering degree from Norwich University and a Master of Science from University of Wisconsin in Civil and Environmental engineering. His master's thesis included an investigation of die off rates of salmonella typhosa bacteria. RED is a professional engineer registered in most New England States. RED has previously designed water treatment facilities in New Hampshire, Massachusetts, Rhode Island, and Vermont. RED was the process design engineer and project manger for seven Vermont Water Treatment Facilities including the Barre and Montpelier Water Treatment Facilities. RED has design experience with disinfection using most types of primary disinfectants including free chlorine, monochloramine, chlorine dioxide, ultraviolet light, and ozone. RED has design experience in precursor reduction using many types of water treatment systems and oxidation and adsorption alternatives including potassium permanganate, chlorine dioxide, ozone, powered and granulated activated carbon. RED is the founder and president of Dufresne & Associates and is a current member of AWWA, NEWWA, and is a past member of the NEWWA Filtration Committee.