

BCWWA 2008 Annual Conference & Trade Show TECHNICAL PROGRAM

The technical program for the BCWWA Annual Conference is shaping up nicely. We received 156 excellent abstracts, authored by people from British Columbia and around the world, from which we agonizingly selected the papers you see below! The sessions were carefully selected to ensure that there would be a wide variety of topics that should appeal to every taste. For the last few years the biggest complaint that we received was that there were so many interesting papers that delegates had a tough time choosing which session to attend. We were appropriately flattered and have attempted a repeat performance again this year!

The interesting and informative papers that are presented each year are the backbone of the Conference and I would like to personally thank every author who submitted an abstract this year, for without your papers there would be no Conference. This "**Technical Program**" has been prepared for the Conference and I urge you to review it carefully. There will almost certainly be changes as there are every year if a presenter should be unable to attend for any reason but the core of the Conference should be essentially as shown. The unsung heroes of this and every Conference are those who prepare backup papers for use if for any reason a presenter should be unable to give their paper. A void in a session is a major concern to all and our backup presenters deserve a vote of thanks as they are our insurance policy.

The program has been especially challenging this year as we have "taken over" Monday morning and have expanded the number of technical sessions to 28. A very special "**Thank You!**" to all the moderators who have stepped forward to cover off all the additional sessions that we have lined up for you for this year's Conference!

I look forward to seeing you all in Whistler!

Tim Forty, Technical Chair for the 2008 BCWWA Conference.

Log on to the BCWWA website, at: http://www.bcwwa.org/annual_conference/index.php to obtain the most current information about the Conference.

After the Conference you will be able to download pdf versions of all the presentations directly from the BCWWA website.

Monday, April 28, 2008
Morning
Concurrent Sessions

Session 1: Rainbow Theatre

Drinking Water Treatment: Policy and Practice

Moderator: Anthony Greville, Klearwater
Equipment & Technologies

- 8:20 – 8:55 am *Interior Health - Policy on Filtration and Deferral of Filtration* – Elizabeth Sigalet, Interior Health and Dr Paul Hasselback, Interior Health
- 9:00 – 9:35 am *Zero Wastewater Discharge - Summerland Water Treatment Plant* – Steve Brubacher, Urban Systems and Greg Mealing, District of Summerland
- 9:40 – 10:15 am *Post Commissioning Plant Optimization - Kamloops Centre for Water Quality Strives for 99.99% Recovery in 2008* – David P. Teasdale, City of Kamloops and Peter Coxon, Urban Systems
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *Lessons Learned from Membrane Retrofit of the 115 ML/d City of Thunder Bay Bare Point WTP* – Joe Gemin, Earth Tech
- 11:15 – 11: 50 am *Ballasted Flocculation Versus High Rate DAF Pilot Testing for the City of Swift Current*– Simon Breese, Earth Tech

Session 2: Garibaldi A/B

Wastewater Treatment: Today and Tomorrow

Moderator: Chris Town, Urban-Systems

- 8:20 – 8:55 am *Providing a sustainable environment - a Major WWTP renovation at City of Revelstoke* – Gordon Hall, City of Revelstoke, Stella Chiu, Dayton & Knight
- 9:00 – 9:35 am *Whistler WWTP Upgrade* – Raymond Chin, Stantec
- 9:40 – 10:15 am *Resolving Sludge Handling Odour Issues at the Cameron, MO WWTP* – Trevor Jones, P.Eng., Senior Environmental Engineer, CH2M HILL
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *The next generation of the Biologically Aerated Filters (BAF) technology: Recent developments in carbonaceous pollution removal* – Daniel Lamarre, John Meunier
- 11:15 – 11: 50 am *Mastering MBBR (Moving Bed Biofilm Reactor) process design for carbon and nitrogen abatement* – Robert Lafond, John Meunier

Session 3: Harmony A/B

Small Drinking Water Systems: Today and Tomorrow

Moderator: Brian Thorburn, EPCOR

- 8:20 – 8:55 am *Interior Health - Multiple Barriers of Drinking Water Protection Booklet* – Serge Zibin, Interior Health
- 9:00 – 9:35 am *Planning and Procurement of POE / POU Water Treatment Systems* – Vernon J. Rogers, Sustainable Infrastructure Society and Adam Scheur, Tiger Purification Systems
- 9:40 – 10:15 am *How Far North Can We Take It? Pushing the Limits of Slow Sand Filtration* – Shawn A. Cleary, Humber Institute of Technology and Advanced Learning, Toronto
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *Development of Photochemical Processes for Water Treatment* – Mehrdad Keshmiri, BI Pure Water, UBC
- 11:15 – 11: 50 am *Removal of Emerging Contaminants and Pathogens Using Modified Slow Sand Filtration: An Overview* – Brian Jobb, MS Filter, Newmarket, Ont.

Afternoon SWS Session: Tantalus Room

- 3:50 – 4:25 pm *System Considerations for Dosing Sodium Hypochlorite* – Walter Schajnoha, ProMinent Fluid Controls, Guelph, Ont.

Session 4: Fitzsimmons

Infrastructure Grant Programs, Projects and Financial Sustainability

Moderator: Glen Brown, Ministry of Community Services

- 8:20 – 8:55 am *Infrastructure Grant Programs - What Programs are Out There?* – Darry Kempling, Ministry of Community Services
- 9:00 – 9:35 am *Infrastructure Grant Programs - Improving Your Chances of Success* – Tara Tompkins, Ministry of Community Services
- 9:40 – 10:15 am *Infrastructure Grant Projects: A Look at Approved Innovative Projects and the Types of Projects the Province Wants to Support* – Glen Brown, Ministry of Community Services
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *Municipal Utility Financial Sustainability: The Sine Qua Non of Water Supply* – Ian H. Rose-Innes, Dayton & Knight
- 11:15 – 11: 50 am *How to receive a Return on Investment for your training dollars and create a plan for obtaining higher level of*

operator certification – Valerie Jenkinson,
Nova Quality Training and Consulting and
Colwyn Sunderland, BCWWA Director

Session 5: Spearhead A/B

Drinking Water: Supply

Moderator: Matt Henney, Associated
Engineering

8:20 – 8:55 am *Interior Health Source
Protection Initiative - a role for public health
in watershed management* – J. Ivor Norlin,
Interior Health

9:00 – 9:35 am *Developing a Strategy to
Manage Water Demands in a Growing
Community* – Antigone Dixon-Warren,
Township of Langley and Sibylle Naf, Dayton
& Knight

9:40 – 10:15 am *Solving Problems using
Computations Fluid Dynamics* – Bob
Hawboldt, Associated Engineering

10:15 – 10:35 am *Coffee Break*

10:35 – 11:10 am *Design, Construction and
Repair of Potable Water Reservoirs* – John
Boyle, Dayton & Knight

11:15 – 11: 50 am *Piloting a
New Water Source* – Scott Foster, BI Pure
Water (Canada)

Session 6: Wedgemount A/B

Organic Residuals: Processing and Recycling

Moderator: Chantal Babensee, Metro Vancouver

8:20 – 8:55 am *MicroSludge plus Advanced
Co-generation to Reduce Greenhouse Gas
Emissions from Metro Vancouver's Lulu
Island Wastewater Treatment Plant* – Rob
Stephenson, Paradigm Environmental
Technologies

9:00 – 9:35 am *Upgrading from Nothing to
Class A Biosolids: Sludge Stabilization at the
Dan Region WWTP, Tel Aviv* – Barry
Rabinowitz, CH2M HILL

9:40 – 10:15 am *A Comparison of an Organic
Biofilter and an Inorganic Biofilter for the
Treatment of Residual Odors Emanating
from a Biosolids De-Watering Facility* – Daryl
Letto, Biorem Technologies, Guelph, Ont.

10:15 – 10:35 am *Coffee Break*

10:35 – 11:10 am *Using Biosolids ON the
Landfill? For Leachate Treatment? - That's a
Change!* – Denise Vieira, SYLVIS
Environmental, and Nick Pilfold, SYLVIS
Environmental

11:15 – 11: 50 am *Can't Pass this Gas - Biogas,
Biocovers and Biosolids in a Climate of
Change* – Mike Van Ham, SYLVIS
Environmental

Session 7: Black Tusk

CAWQ Western Symposium: Nutrient Removal and Recovery

Moderator: Deborah J. Roberts, UBCO

8:20 – 8:55 am *Factors affecting the nutrient
solubilization and settleability of sewage
sludge using the microwave-enhanced
advanced oxidation process* – Winnie Chan,
UBC

9:00 – 9:35 am *Recovery of nutrients from
anaerobic sludge using microwave-
enhanced advanced oxidation process* –
Anju Kenge, UBC

9:40 – 10:15 am *Destruction of Fecal Coliforms
Using Microwave Enhanced Advanced
Oxidation Process* – Yang Yu, UBC

10:15 – 10:35 am *Coffee Break*

10:35 – 11:10 am *Struvite – nuisance to valuable
byproduct* – Kazi Parvez Fattah, UBC

11:15 – 11: 50 am *Investigation of nitrous oxide
production from a simultaneous nitrification,
denitrification and phosphorous removal
system* – Ingwei Lo, UBC

Monday, April 28, 2008 **Afternoon** **Concurrent Sessions**

Session 8: Rainbow Theatre

Water Sustainability and Conservation

Moderator: Kim Stephens

1:35 – 2:10 pm *Okanagan Water Supply &
Demand Project: New Baselines for a
Changing Environment* – Anna Warwick
Sears, Okanagan Basin Water Board

2:15 – 2:50 pm *Water Reuse Update - Where
in the World?* - Troy D. Vassos, Novatec

2:50 – 3:10 pm *Coffee Break*

3:10 – 3:45 pm *The Latest Trends in Water
Conservation* – Allan Bronsro, MCIP, Kerr
Wood Leidal and Michelle Revesz, Kerr
Wood Leidal

3:50 – 4:25 pm *Water Efficiency - Is it Woosy,
or is it a Real Source of Water?* – Adam
Pollard, Hetek Solutions, Toronto, Ont. and
Anne Medcof, Hetek Solutions, Toronto, Ont.

Session 9: Garibaldi A/B

Advanced Wastewater Treatment

Moderator: Gerry Stevens, Earth Tech

1:35 – 2:10 pm *ORP in BNR Systems: A Magic Wand?* – Bob Dabkowski, Hach, Loveland, Colorado, USA

2:15 – 2:50 pm *Limit of treatment (LOT) nutrient removal technology in cold climate* - Jan A. Oleszkiewicz, University of Manitoba; Winnipeg, Man.

2:50 – 3:10 pm Coffee Break

3:10 – 3:45 pm *Advanced Control Tools : using a mathematical model to drive a decision support tool for WWTP's operators* – Karim Essemiani, Veolia Water

3:50 – 4:25 pm *New European BNR Technology of Mixed Liquor Vacuum Degassing Debuts for Beijing 2008 Olympics* – Peter Timpany Biogradex Americas, Calgary, Alta.

Session 10: Harmony A/B

Wastewater: *Management and Reuse*

Moderator: Andrew Boyland, Kerr Wood Leidal

1:35 – 2:10 pm *Tearing Down Silos: The Increasing Integration of the Water and Wastewater Disciplines* – Dean Shiskowski, Associated Engineering

2:15 – 2:50 pm *The Implementation of a Liquid Waste Management Plan - Challenges and Successes* - Joanne Harkness, Urban Systems

2:50 – 3:10 pm Coffee Break

3:10 – 3:45 pm *Making Decisions for the Next 50 years – The Capital Regional District Core Area Wastewater Management Program* – Rick Corbett, Associated Engineering

3:50 – 4:25 pm *The Birth of A Town* – Chris Town, Urban Systems

Session 11: Fitzsimmons

Flood Protection: *Can we do it?*

Moderator: Michael Florendo, Delcan

1:35 – 2:10 pm *Flood Emergency Preparedness to 2007 Spring Freshnet for North Fraser Pretrial Centre* – Karen Chan, Stantec

2:15 – 2:50 pm *Staying Dry - Flood Management in the City of Surrey* – Carrie Baron, City of Surrey and Adrian Corlett, Delcan

2:50 – 3:10 pm Coffee Break

3:10 – 3:45 pm *Can the little dutch boy pull his finger out of the dike yet?* – Derk Jan Kevelam, DHV, the Netherlands and Colin Kristiansen, Delcan

3:50 – 4:25 pm *What?! We have to build 1 km of dike in 6 weeks!* – Jim V. Young, City of

Richmond and Mike Maxwell, City of Richmond

Session 12: Spearhead A/B

Emerging Technologies: *The Wow Factor!*

Moderator: Karen Tully, Associated Engineering

1:35 – 2:10 pm *Technological Advances in Wastewater Treatment: An Insight to Electro Contaminant Removal (ECR) Mechanism* – Shubha Sudheendra, FLAGSHIP EcoSystems Pte, Singapore

2:15 – 2:50 pm *Why Wireless Now? - Enabling new measurements using wireless technology* – Steve Brown, Norpac Controls, Burnaby and Andrew Yick, Norpac Controls

2:50 – 3:10 pm Coffee Break

3:10 – 3:45 pm *Solar powered circulator improves treatment efficiency, increases plant capacity and reduces operating costs in the Town of Drayton Valley WWTP* – Martine Pawlowski, H2O Logics, Sherwood Park, Alta.

3:50 – 4:25 pm *Whistler Athletes' Village District Energy System - Heat Extraction from Whistler Wastewater Treatment Plant Effluent* – Neil I. McDonald, Kerr Wood Leidal and William T. Vaughan, DEC Design Mechanical Consultants

Session 13: Wedgemount A/B

Asset Management: *You Want to do What!*

Moderator: David Main, Earth Tech

1:35 – 2:10 pm *Closing the Infrastructure Gap: Auditing for Sewer Systems* – Mike Homenuke, Kerr Wood Leidal

2:15 – 2:50 pm *New ways of looking at old ways of working - Implementing Asset Management at the City of Calgary* – Gareth Lifton, CH2M HILL

2:50 – 3:10 pm Coffee Break

3:10 – 3:45 pm *Leveraging Existing Sewer Model Data* – Chris Macey, UMA and John Charowsky, UMA

3:50 – 4:25 pm *A valve by any other name is not a valve* – Jennifer Crosby, Metro Vancouver

Session 14: Black Tusk

CAWQ Western Symposium: *Modeling*

Moderator: Colleen Chan, UBC

1:35 – 2:10 pm *A simulation-based optimization model of industrial wastewater loading to a riverine environment* – Hua Zhu, University of Regina, Regina, Sask.

2:15 – 2:50 pm *Can mathematical models replace measurements?* – Case study

comparing membrane bioreactors (MBR) and conventional activated sludge systems – Thomas Hug, UBC

2:50 – 3:10 pm Coffee Break

3:10 – 3:45 pm *Recovering Phosphorus from Anaerobic Digester Supernatant through Struvite Precipitation: Model-based Evaluation of the Fluidized Bed UBC MAP Crystallizer* – M. S. Rahaman, UBC

3:50 – 4:25 pm *Sorption and Desorption Behaviors of Polycyclic Aromatic Hydrocarbons on Riverine Sediment and their Environmental Significance* – Yumin Chen, University of Regina, Regina, Sask.

Tuesday, April 29, 2008

Morning

Concurrent Sessions

Session 15: Rainbow Theatre

Drinking Water: Treatment

Moderator: Kelly Bush, Associated Engineering

8:20 – 8:55 am *4-3-2-1-0 The Countdown to meeting the Interior Health's Mandate for Safe and Clean Drinking water* – Anthony Galvan, Siemens Water Technologies, Colorado Springs, CO, USA

9:00 – 9:35 am *An Innovative way to add Water Treatment Chemicals and the Operational Benefits gained from improved efficiencies* – Michael S. Firlotte, Kamloops Centre for Water Quality, and Anthony S. Greville - Klearwater Equipment & Technologies

9:40 – 10:15 am *Use of a Magnetic Ion Exchange Treatment Process for TOC Removal and DBP Reduction* – Barbara Martin, Orica Watercare, Watkins, CO, USA

10:15 – 10:35 am Coffee Break

10:35 – 11:10 am *Is Desalting the Last Resort in a Water Scarce Region?* – Dave Hanson, Kerr Wood Leidal

11:15 – 11:50 am *Modeling irreversible fouling in submerged hollow fiber membrane filtration systems for drinking water treatment* – Echo H. Lin, Metro Vancouver

Session 16: Garibaldi A/B

Decentralized Wastewater Systems

Moderator: Paul O'Callaghan, O2 Environmental

8:20 – 8:55 am *On the change in the nature of wastewater* – Curt Kerns, WetlandsPacific

9:00 – 9:35 am *Three Years into the new Sewerage System Regulation, the Outcome-Based Industry-Focused Approach: What has been learned, what's working & what's not, and where to now?* – Greg Baytalan, Interior Health

9:40 – 10:15 am *Subdivision Regulation Amendments - Consequential Amendments to Support the Sewerage System Regulation* – Glen Brown, Ministry of Community Services

10:15 – 10:35 am Coffee Break

10:35 – 11:10 am *Soil-based nitrification and denitrification: A case study* – Michael Payne, Payne Engineering Geology

11:15 – 11:50 am *Community Wins Opposition to Effluent Discharge to Water* – Huguette Allen, spokesperson, Sugar Lake And Middle Shuswap Stewards

Session 17: Harmony A/B

Water Meters: Balancing Your Water Budget

Moderator: Carolyn Stewart, City of Penticton

8:20 – 8:55 am *Water metering, what are the benefits? - Lessons learned at the District of West Vancouver* – Saleem Mahmood, District of West Vancouver, and Tjaart Van den Berg, Landinfo Technologies

9:00 – 9:35 am *Are you charging enough for your water?* – John Weninger, Urban-Systems

9:40 – 10:15 am *Designing Water Rates to Reflect Cost of Service and Support Water Sustainability* – Karyn Johnson, FCS GROUP, Redmond, WA, USA

10:15 – 10:35 am Coffee Break

10:35 – 11:10 am *The Benefits of Non Mechanical Water Metering Technology to the Water Industry* – Chris Jay, Elster Metering, Toronto, Ont.

11:15 – 11:50 am *Using Best Management Practices to Decrease Revenue Shortfalls due to Inaccurate Meters* – Angela Zapp, Neptune Technology Group

Session 18: Fitzsimmons

SCADA, information systems and security

Moderator: Ron Bowman, Corix Utilities

8:20 – 8:55 am *Doing More with SCADA! How Leveraging Technology Boosts Efficiencies at a Small Vancouver Island Community* – Stephanie Pope, Dayton & Knight, Thomas Todd, District of North Cowichan and Victor KL Wong, Dayton & Knight

9:00 – 9:35 am *Wireless Data Communications for SCADA Systems* – Dan Ehrenreich, Motorola Israel, Tel Aviv, Israel

- 9:40 – 10:15 am *How SCADA Can Help Small Water Treatment Facilities* – Gerson Neiva, Dayton & Knight and Victor K. L. Wong, Dayton & Knight
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *Securing Access to your Water Distribution System* – Jay Morrison, Municipal Solutions
- 11:15 – 11: 50 am *Hacking the Water Supply: Why Cyber Security Matters* – Bryan Singer, Wurldtech Security Technologies

Session 19: Spearhead A/B

Stormwater: Management

Moderator: Poul Rosen, Urban Systems

- 8:20 – 8:55 am *DFO Updated Land Development Guidelines - Stormwater Management* – Crystal Campbell, Kerr Wood Leidal and Melody Farrell, Fisheries and Oceans Canada
- 9:00 – 9:35 am *Advances in the Management and Analysis of Terrain Data for Stormwater Master Drainage Planning* – Jeff Crofton, UMA | AECOM, and Kevin G. Coulton, HSMM | AECOM, Portland OR, USA
- 9:40 – 10:15 am *Decentralized Two-level Risk Management System for Stormwater Flooding under Uncertainties* – Heng Liang Li, University of Regina, Regina, Sask.
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *Stormwater Management: A Tale of Three Cities* – Jason Morse, Romtec Utilities, Roseburg, Ore. USA
- 11:15 – 11: 50 am *Whistler Athletes' Village - Innovative Stormwater Strategy and a LEED ND Pilot Project* – Frank W. Belfry, Kerr Wood Leidal and David Zabil, Kerr Wood Leidal

Session 20: Wedgemount A/B

Extreme Makeover: Pipeline Edition

Moderator: John Boyle, Dayton & Knight

- 8:20 – 8:55 am *Alternative method for opening utility trench* – Mark Brown, Asphalt Zipper, American Fork, Utah, USA
- 9:00 – 9:35 am *Trenchless Technologies for Rehab and New Construction: Calculating and Reducing Carbon Loading.* – Shaun Carroll, North American Society for Trenchless Technology British Columbia Chapter
- 9:40 – 10:15 am *HDD Installation of PVC Segmented Water Pipe in Richmond, BC* – Jim V. Young, City of Richmond, and Preston Creelman, Royal Pipe Systems
- 10:15 – 10:35 am *Coffee Break*

- 10:35 – 11:10 am *Move That Pipe - Utility Strategies for a New Highway Corridor* – Adrian Corlett, Delcan
- 11:15 – 11: 50 am *Closing the Infrastructure Gap: Sewer Remediation* – Karl Mueller, Kerr Wood Leidal

Session 21: Black Tusk

CAWQ Western Symposium: Drinking Water

Moderator: Pierre Bérubé, UBC

- 8:20 – 8:55 am *Making Membranes More Efficient: Mapping Surface Shear in a Full-Scale Submerged Hollow-Fibre Membrane Cassette* – Blair G. Fulton, UBC
- 9:00 – 9:35 am *Bubbles, bubbles, bubbles...how are they related to fouling control in submerged membrane systems?* – Colleen C.V. Chan, UBC
- 9:40 – 10:15 am *Patterns of phenotypic antibiotic resistant Escherichia coli isolates from an agricultural watershed (Elk Creek, British Columbia)* – Rasha Maal-Bared, UBC
- 10:15 – 10:35 am *Coffee Break*
- 10:35 – 11:10 am *Addressing Water Quality Concerns Associated with Disinfection By-Products in Drinking Water Systems for Small and Rural Communities* – Sepideh Jankhah, UBC
- 11:15 – 11: 50 am *Use and Performance of BioSand Filters in Posoltega, Nicaragua* – Jason Vanderzwaag, UBC

Tuesday, April 29, 2008
Afternoon
Concurrent Sessions

Session 22: Rainbow Theatre

Wastewater Treatment: Making it Work!

Moderator: Dave Forgie, Associated Engineering

- 1:35 – 2:10 pm *Innovative Washing/ Compacting Technology for Fine Screening* – Cornelius DeSwardt, Sr., Headworks
- 2:15 – 2:50 pm *MicroSludge Calculator and User Guide: How to Estimate the Effect of Microsludge Pre-Treatment on Residual Sludge for Disposal, Energy Generation, and Greenhouse Gas Emissions* – Rob Stephenson, Paradigm Environmental Technologies
- 2:50 – 3:10 pm *Coffee Break*

- 3:10 – 3:45 pm *Effect of HRT and Temperature on ATAD Odours* – Bonita Parsons, Dayton & Knight
- 3:50 – 4:25 pm *Doing the Right Things At the Capital Regional District's Burgoyne Septage Facility - Salt Spring Island* – Ted Robbins, Capital Regional District and Jan Buermans, J&D Marketing

Session 23: Garibaldi A/B

Water Utilities & Asset Management

Moderator: Paul Dufault, Associated Engineering

- 1:35 – 2:10 pm *CSRD Water Utility Acquisition Strategy* – Doug Dymond, Columbia Shuswap Regional District
- 2:15 – 2:50 pm *An Asset Management Approach for Well Fields* – Jim Bailey, Kleinfelder, Seattle, WA., USA
- 2:50 – 3:10 pm *Coffee Break*
- 3:10 – 3:45 pm *Ensuring safe and sustainable groundwater for Langley's community* – Antigone Dixon-Warren, Township of Langley, and Brad Badelt, Township of Langley
- 3:50 – 4:25 pm *From a Distance: Remote Operations and Support for First Nations Water Systems* – Tami Wetmore, EPCOR Water Services, and Joe Jewell, Port Hardy

Session 24: Harmony A/B

Wastewater Collection: Issues and Solutions

Moderator: Angus English, Earth Tech

- 1:35 – 2:10 pm *The 14 Types of Sewer Hydraulics - Using Scattergraphs to Identify Hydraulic Evil-Doers that Rob Sewer Capacity* – Patrick Stevens, ADS Environmental Service, Huntsville, AL, USA
- 2:15 – 2:50 pm *New Westminster Combined Sewer Overflow Facility - Sustainable Design in Wastewater Infrastructure* - Nathan Koning, Associated Engineering
- 2:50 – 3:10 pm *Coffee Break*
- 3:10 – 3:45 pm *SuperOxygenation of Force Mains to Prevent Corrosion and Eliminate Odour Problems* – Trudy Dowla, Point Four Systems
- 3:50 – 4:25 pm *Imagine a Wastewater Collection System Totally FREE of Hydrogen Sulphide, Near Zero BOD's and reduced FOG's* – Christopher Haley, BioMagic Canada

Session 25: Fitzsimmons

Cross Connection Control: No Mystery here!

Moderator: John Delver, Kerr Wood Leidal

- 1:35 – 2:10 pm *Implementing A Provincial Framework To Facilitate Cross-Connection Control Programs* – Robert Sochowski, Capital Regional District
- 2:15 – 2:50 pm *Demystifying Cross Connection Control* – Carolyn Stewart, City of Penticton
- 2:50 – 3:10 pm *Coffee Break*
- 3:10 – 3:45 pm *The Development of The City of Chilliwack's Cross Connection Control Program* – Brendan Kurtz, City of Chilliwack and Jared Brounstein, City of Chilliwack
- 3:50 – 4:25 pm *Backflow Prevention for Rainwater Collection and Distribution Systems* – Chris Twemlow, City of Vancouver

Session 26: Spearhead A/B

The Wildcard Sessions: From EIS to Water Conservation

Moderator: Peter Coxon, Urban Systems

- 1:35 – 2:10 pm *Hydrogeologic EIS under the MSR - Case Histories* – Daniel Watterson, EBA Engineering and Mike Seymour, The Focus Corporation
- 2:15 – 2:50 pm *Adaptive Management-From Vision to Reality: SFU UniverCity Case Study* – Gabor Vasarhelyi, CH2M HILL
- 2:50 – 3:10 pm *Coffee Break*
- 3:10 – 3:45 pm *How to Assure Success of a Flow Monitoring Program -Interpreting Sewer Flow Data to Better Guide the Sewer Manager* – Paul Mitchell, ADS Environmental Services, Huntington Beach, CA, USA
- 3:50 – 4:25 pm *Municipal Parks: The Missing Piece in the Water Conservation Puzzle* – Neal Klassen, City of Kelowna

Session 27: Wedgemount A/B

Analytical Technologies: How are you measuring that?

Moderator: Branislav Jutric, Dayton & Knight

- 1:35 – 2:10 pm *A survey of associations between p53-family gene expression, p53-like gene coding region variations and haemic neoplasia in Mytilus trossulus. Potentially useful biomarkers for environmental effects monitoring* – Susan Baldwin, UBC
- 2:15 – 2:50 pm *Detection of Enterococci and Fecal Coliform Bacteria in Recreational Water* – Ian Williamson, Greater Vancouver Regional District
- 2:50 – 3:10 pm *Coffee Break*
- 3:10 – 3:45 pm *Understanding and Interpretation of Water analysis* – Venkat Raman, BI Pure Water (Canada)

3:50 – 4:25 pm *Water Quality Modeling of Chilliwack's Water Distribution System in Preparation of the Emergency Chlorination Test* – Werner de Schaetzen, GeoAdvice

Session 28: Black Tusk

CAWQ Western Symposium: Emerging technologies

Moderator: Thomas Hug, UBC

1:35 – 2:10 pm *Investigation of Effects of Dynamic Operational Conditions on Membrane Fouling In a Membrane Enhanced Biological Phosphorus Removal Process* – Syed Zaki Abdullah, UBC

2:15 – 2:50 pm *Roles of Active Oxygen in Photolysis of Polycyclic Aromatic Hydrocarbons in Fulvic Acid-rich Water Phase* – Gongchen Li, Faculty of Engineering, University of Regina, Regina, Sask.

2:50 – 3:10 pm *Coffee Break*

3:10 – 3:45 pm *Charting discharge plumes with an Autonomous Underwater Vehicle –* Alexander Forrest, UBC

3:50 – 4:25 pm *Phytosterol biotransformation during biological wastewater treatment of pulp mill effluents* – Andrea Miskelly, UBC

The Backup Papers (For All Sessions)

I would like to take this opportunity to personally thank the people, whose papers are listed below, who have gone to the trouble of preparing a paper for use as a backup just in case another presenter should be unable to present their paper for any reason. Without their thankless and often unrecognized efforts our Conference would be in disarray in the event of such a cancellation.

Thank you all!

Tim Forty, Technical Chair

- ◆ *In-Tube Non-Contact UV Disinfection System - the little UV treatment train that almost could* – Kenneth Hui, Metro Vancouver
- ◆ *Water Loss Management - We don't have much water leakage - true or false?* – Kingsley Blease, Hetek Solutions, Toronto,

Ont., and Mark Bolton, Hetek Solutions Inc., Toronto, Ont.

- ◆ *Water Loss Reduction Through Pressure Management* – Brad Vernon Clarke, Singer Valve
- ◆ *Looking Under the Hood of Your SBR: One Way to Treat More MGD* – Bob Dabkowski, Hach, Loveland, Colorado, USA
- ◆ *Economical UV Disinfection - Small Wastewater Systems* – Nathan Ward, AquaDiversities, Jasper, Alta.
- ◆ *New C.I. Meter using Floating Ball Technology* – Gareth Price, Sensus Metering Systems, Woodstock Ont.
- ◆ *On-Site Sodium Hypochlorite Generation for Disinfection of Water* – Dom Sacco, BG Controls, and Bill Kelly, Severn Trent Services
- ◆ *Over Sized Water Meters and Non-Revenue Water Loss* – James Fisher, ADS Environmental Services
- ◆ *Dynamic Pressure Control Enhances Water System Operation* – Dan Ehrenreich, Motorola Israel, Tel Aviv, Israel
- ◆ *City of Calgary Stormwater Quality Upgrades WH Canal Catchment Level 1* – Craig Kipkie, Kerr Wood Leidal Associates
- ◆ *Water Quality - A BMP to achieve a better return on capital investment* – Alex Navarro, Advanced Drainage Systems, Cambridge, Ont.
- ◆ *Design Considerations of Modular On-Site Sub-Surface Rain Water Management Technologies* – Stuart Whittling, EMCO Waterworks
- ◆ *Optimizing Nutrient Removal Through Instrumentation* – Bob Dabkowski, Hach, Loveland, Colorado, USA
- ◆ *Lansdowne Sewer Pump Station Retrofit* – Randy Colombo, City of Coquitlam and Mike Carver, City of Coquitlam
- ◆ *Sewer Sociology - The Days of Our (Sewer) Lives* – Patrick Stevens, ADS Environmental Service, Huntsville, AL, USA
- ◆ *Protection from an Accidental Chlorine Release with Dry-Media Scrubbers* – W. Brad M. Stanley, Purafil, Atlanta, GA, USA, and Colin Christie, Purafil, Atlanta, GA, USA
- ◆ *Water and Wastewater Metrication in Canada: the Hard Road Thereto!* – David A. Poole, David A. Poole Consultants
- ◆ *Hydrogeologic Environmental Impact Studies* – Daniel Watterson, EBA Engineering
- ◆ *Water Model Building and Calibration of Abbotsford Water Supply and Distribution System* – Werner de Schaetzen, GeoAdvice