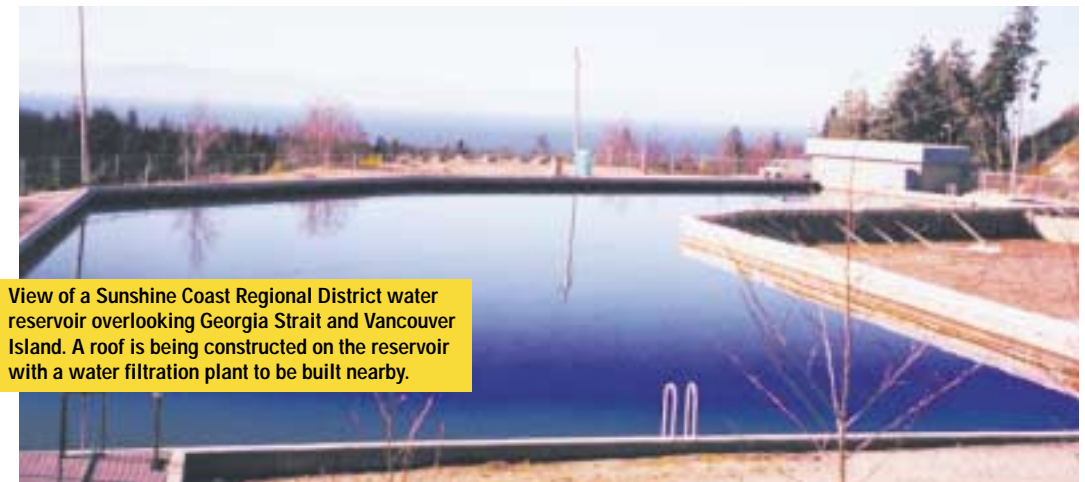


BRITISH COLUMBIA OPERATORS DIGEST

A NEWSLETTER FOR WATER
AND WASTEWATER OPERATORS

MARCH 2002 • NUMBER 104

New Water Treatment Plants



View of a Sunshine Coast Regional District water reservoir overlooking Georgia Strait and Vancouver Island. A roof is being constructed on the reservoir with a water filtration plant to be built nearby.

Nearly two years after the Walkerton, Ontario tragedy, the Walkerton Inquiry released its "Part One Report". (On the web at: www.walkertoninquiry.com) More recently in B.C., the Drinking Water Protection Review Panel issued its final report with twenty recommendations regarding the Drinking Water Protection Act. (<http://wlapwww.gov.bc.ca/wat/wq/dw/index.html>). The publicity surrounding Walkerton and to a lesser degree, the Drinking Water Protection Act in B.C., has raised public awareness concerning drinking water.

What effects this will have on B.C. water operators is unclear, but there will be changes that will affect the operator and his or her job.

With the public increasingly questioning the quality of drinking water, there will be more stringent water quality regulations that water purveyors will have to meet. The EOCB has seen an increase in water treatment plant classifications the past six months. Some large water filtration plants are now in the design stage and one is under construction. The Fraser Valley Regional District is constructing a 55 million litre per day plant near Abbotsford. The City of Kamloops will soon start construction on a membrane filtration plant, while the Sunshine Coast Regional District is in the early stages planning a 20 million litre per day filtration plant in Sechelt. Other filtration plants are planned for Telkwa and Port Edward.

Although these new water plants may not be a direct result of the Walkerton tragedy, a trend towards increased treatment of drinking water is definitely happening in B.C. and will continue in the future.

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Environmental Operators Certification Program

The BC Operators Digest is the official newsletter of the Program. Submissions for publication in the Digest are welcome and may be sent to the Editor:

Don Gare
Box 2293
Sechelt, BC V0N 3A0
Phone: 604 740-5695
e-mail: dgare@eocp.org

Changes of address, annual dues, exam applications, as well as general inquiries about the program should be addressed to:

Environmental Operators Certification Program
219 – 3823 Henning Drive
Burnaby, B.C. V5C 6P3

Phone: 604 874-4784
Fax: 604 874-4794
Toll Free: 1-866-552-3627
email: eocp@eocp.org
Web: www.eocp.org

Ms. Barbara Striegler, Executive Assistant
Ms. Terry Thrun, Office Assistant

Business card sized advertisement space is available at \$50.00 per issue or \$175.00 for four issues. GST and PST included. For other sized advertisements, please contact the Editor.

The Environmental Operators Certification Program is a charter member of the Association of Boards of Certification, and is a Registered Society with over 1,800 active members.

2001/2002 BOARD OF DIRECTORS

- Joe McGowan** – Chairman
- Bill Hyslop** – Industrial Waste
- Bernie Taekema** – Facilities Classification
- Kevin Ramsay** – BCWWA Liaison
- Leo Albrecht** – CEU Assessment
- Don Gare** – Digest Editor
- Eric Jackson** – Treasurer
- Al Lane** – Secretary



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Elections

2002 CERTIFICATION BOARD ELECTIONS

This year's Nominating Committee members are Don Gare and Bill Hyslop. There are six positions on the Board to be filled by four operators, one government representative and one educational representative. The following candidates have been nominated:

- Operators:** (Two years) Leo Albrecht
Eric Jackson
Al Lane
- (One year) Kevin McLuskey

Government Representative: Bernie Taekema
Educational Representative: Kevin Ramsay

The Nominating Committee invites further nominations from the membership. Each nomination shall be supported by a minimum of three (3) certified operators and shall be submitted no later than March 28, 2002 by mail to:

EOPC Nominating Committee
219 – 3823 Henning Drive,
Burnaby, B.C. V5C 6P3
Or by fax to (604) 874-4794

Ballots with instructions will be mailed to operators on April 12, 2002. The deadline for the receipt of ballots is May 10, 2002.

Norm Staff

The water and wastewater industry recently lost a most respected friend. Norm Staff passed away on January 18th, 2002 after a courageous and dignified battle with cancer. All of us are extremely saddened by this news, as Norm was a friend to all.

Norm managed the water system for the City of Coquitlam for most of his career. The staff who worked with Norm considered him a friend, as he always treated everyone with respect, care and understanding. Norm was an expert in his job, and made a point of passing his knowledge on to others.

In addition to Norm's regular work, he contributed a monumental amount of time and effort to the BC Water and Waste Association. Since the late '70's, Norm was an extremely active member of the Operator Education Committee. The great success of the UBC Annual Workshop is a direct result of Norm's hard work, as Norm chaired this event for 9 years. In recognition of Norm's dedication and commitment to the water and wastewater industry, Norm received the BCWWA Personal Recognition Award in 1999. Norm also received the EOPC Vic Terry Award in 1993, recognizing his support for the Environmental Operators in British Columbia.

For anyone who knew Norm, they would all say that Norm was one of the nicest guys you could ever meet. His antics at the Annual Workshop were always a source of entertainment. Norm's patience, industry knowledge, and smile will be missed. Please take a moment to remember a great friend.

Board Business Briefs

- Recent business from the EOCP Board Meeting held at the EOCP Office in Burnaby on February 4, 2002. Directors present: Joe McGowan (Chair), Eric Jackson, Bill Hyslop, Kevin Ramsay, Leo Albrecht, Al Lane, Bernie Taekema and Don Gare.
- Treasurer's Report**
Eric Jackson, Treasurer presented a financial yearly comparison report, monthly income and expense reports, and net worth report as follows:

Revenue:	\$ 213,312.16
Expenses:	\$ 194,569.08
Difference:	\$ 18,743.08
Bank Balance:	\$ 18,150.43
Money Market Investments:	\$ 76,345.34
Mutual Funds:	\$ 14,479.29
Total Assets:	\$ 108,975.06

- It was suggested that the EOCP write a letter to the Ministry of Health to thank them for the \$20,000 grant, which was used to assist the EOCP with operating costs and manpower to facilitate certification of small water system operators in B.C.
- Kevin Ramsay reported that the BCWWA is expending time and money to redevelop their core courses to update them and improve the training material. Other provincial organizations are interested in purchasing training material from BCWWA.
- BCWWA is researching the prospect of purchasing office space. This may be an opportunity for the EOCP to consider as well; with possible savings through the shared use of common office equipment, board room and temporary staff. The Board Chair will continue discussions with BCWWA, and will contact the Directors for input and consideration of any options.
- The BCWWA Annual Conference will be in Whistler in April, and in Penticton in 2003. The Board approved holding a Board meeting at the Annual Conference and to continue with the EOCP Annual General Meeting at the UBC Operators Symposium in May.
- Leo Albrecht reported a large increase in Small Water System courses put on by the BCWWA.
- Bernie Taekema reported that facility applications are being processed for new water and wastewater facilities. The Ministry of Health (Penticton Region) have made the classification of water facilities mandatory by September 2002 and the certification of the operators of these facilities mandatory through the operating permits by Dec. 2002.
- Eric Jackson reported on his attendance at the ABC Annual Conference in San Antonio. Eric met with several representatives of ABC regarding the large cost to the EOCP for exam marking done by ABC. One issue is the payment in US funds, which the EOCP will request to pay in Cdn. funds. Other options will be explored, which includes developing and marking our own exams. There was discussion as to the benefits of remaining a member of ABC. Questions raised included whether there is value in attending the annual conference and whether we should look at having an EOCP Director on the ABC Board. Eric will follow up with additional information.
- The request to certify landfill operators will be tabled until they approach the EOCP with a plan for us to consider.
- The Board approved authorization to purchase a replacement photocopier, with a maximum value of \$2,000.
- Al Lane will review the exam formula sheets to address a concern raised by an operator. Bill Hyslop will provide a summary sheet for the Small Water System exam.
- The Board discussed the resignation of Board Director Dan Skidmore. Dan is moving to Alberta where he has accepted a position. The Board approved that the vacancy will be filled by a one year term during the regular Board election in May.



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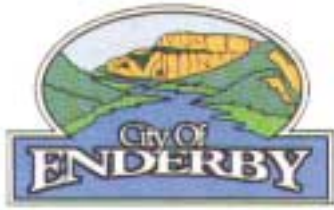
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PLANT PROFILE: City of Enderby Water Treatment Plant

The City of Enderby is located in the beautiful North Okanagan with a population of 3,200 residents. The central location between Vernon and Salmon Arm allows easy access to various leisure activities that include swimming, golfing and camping during the summer months and in winter skiing, ice fishing and snowmobiling.

The city provides services for 3,200+ residents with 1,300+ water and sewer connections. The primary drinking water supply is provided by the Shuswap River with secondary sources coming from Shuswap Well located near the river and Brash Creek.

ENDERBY WATER SYSTEM OVERVIEW

- Treatment plant online 1997
- Class II Water Treatment Facility/Class III Water Distribution System
- 1300+ services
- Fresh water sources Brash Creek, Shuswap Well and Shuswap River
- Brash Creek and Shuswap Well supply capacity 3820 m3/day (Approx 1 M gal/day)
- Peak flows of 3500 m3/day (0.92 M gallon/day)
- Typical Summer Avg. 110 m3/hr (29,062 gal/hr), Typical Winter 70 m3/hr (18494 gal/hr).
- 2 Reservoirs total capacity of 2,400 m3 (634,000 gallons)
- Yearly Avg. Consumption 728,643 m3/yr (192 M gal/yr)
- 3 booster stations
- 4 pressure zones

Brash Creek and Shuswap Well water receive treatment by gas chlorine disinfection, however the piping is in place to feed this water in the future to the W.T.P for U.V treatment.

WATER TREATMENT PLANT OVERVIEW

- High rate filtration (total detention time 20.3 minutes)
- Intake, transfer pumps and well located at Shuswap River provide primary settling for W.T.P.
- Inline Static mixer: where PAC, pre-chlorination, soda ash and alum can be applied.
- Influent Mixing Chamber: coagulation and flocculation takes place.
- Up Flow Clarifier (based on principal of contact flocculation) where the floc is captured in the media.
- Polishing Filter (2 parallel): dual media filter (sand and anthracite).
- Hydraulic loading Roughing filter 9.92 USGPM/ft² and Polishing filter 3.6 USGPM/ft² per side
- Contact Chamber: post-chlorination is applied



Water treatment plant building designed as a railway station.

- Wet Well: where two 60 HP pumps move the water to reservoirs.
- Total Plant Supply Capacity 3,850 m3/day
- Total Hydraulic Capacity 12,000 m3/day
- Filter Backwash cycle uses 72 m3 (1,538 USGPM @ 15-22 psi)
- Rinse to Waste 13.2 m3

W.T.P. PROCESS DESCRIPTION

Plant is fully automatic. Facility consists of three major sections:

1. Raw Water Feed (Shuswap River)

- Raw water intake chamber and screens
- Raw water pumps
- Static Mixer
- Chemical Feed Units (PAC, Soda Ash, Pre-Chlorine & Alum)
- Inlet Valve
- Flocculation chamber

2. Adsorption Clarifier

- Clarifier (upflow roughing filter) non-buoyant media.
- Air Scour system
- Flush System

3. Filter Operation including Water Effluent

- Filter: dual-media (inverted sand/anthracite bed)
- Air Scour system
- Backwash system
- Rinse to Waste system (de-chlorination using SO₂)

CLARIFIER (UPFLOW ROUGHING FILTER)

Clarifier is an upflow, solids contact, roughing filter that operates on the principle of absorption. The primary function of the clarifier is to reduce the solids loading applied to the filter and extend filter runs.

- Water enters the plant through a flow meter, rate of flow valve, static mixer then isolating valve.
- Water and chemicals are mixed in the static mixer when it then enters the flocculation chamber.
- Water is forced/displaced by raw water; up the media bed from the flocculation chamber into the media where contact flocculation occurs, the granular media retains the floc.
- When the media becomes saturated with flocculated particles, the pressure differential loss of head switch closes the butterfly transfer valves and starts a backwash and air scour (12" of head loss).

OPERATION

Media Saturation

- Measured by pressure differential loss of head switch 12" of water column, enters backwash cycle
 1. Transfer valves close and blowers turn on assisted by an air scour. Fluidizes the bed until air and water reach the flood probes.
 2. Blower off and media settles
 3. Blower on
 4. Rinsed with raw water
 5. Transfer valves open

The air scour use 21.2 m³ (5,601 gal) to clean the clarifier and under normal condition runs 1/day.

POLISHING FILTER (DUAL-MEDIA)

Polishing filters are a dual-media filter (*silica sand and anthracite*) and operates on gravity. Water is gravity feed through the media into an underdrain (*slotted laterals*) system surrounded by gravel then continues to an external manifold where it enters the contact chamber.

OPERATION

Effluent filter water is controlled by a level control valve, which maintains filter level at a set point above the filter bed. After a period dependent on incoming water quality (*turbidity*), the filter becomes saturated (*removed solids*) and a backwash is needed.

1. Backwash is initiated by the loss of head switch (*automatic*)
 - 600 mm (0.9 psi) water column
2. During backwash cycle, raw water is throttled by normal plant flow.
 - Controlled by low flow pilot and solenoid control valve. At this time transfer valve (1 or 2) being backwashed is closed
3. Filter air scour (*automatic position*)
 - Filter is lowered through waste valve until low-level probe is out of the water.



Backwash control valves



Filtered water pumps

4. Air Scour
 - Prior to finishing air scour blower turns off and backwash is started
5. During backwash: water from distribution system is routed back up the underdrain system and fluidizes the media
 - Controlled by backwash rate of flow and solenoid valves (1266 GPM)
6. Backwash water is carried over wastewater trough and de-chlorinated.
 - Controlled by panel mounted backwash timer
7. Before filter is in service, rinse to waste effluent is directed to waste. The purpose of the rinse to waste is to flush the media before going back online.
 - Controlled by rinse to waste timer

The backwash cycle use 72 m³ and the Rinse to waste 13.2 m³ for a total 85.2m³ (22509 gal). Under normal condition will backwash 1 filter/day.

ALARMS

Main alarm conditions will shut down affected components in the plant until reset.

- High Turbidity Alarm ➡ Plant stop
- Clarifier Flood ➡ Raw water off, Treated water on
- Low Filter ➡ Treated water off, Raw water on

Continued...

W.T.P SYSTEM PERFORMANCE

Raw Water			Filtered Water					Waste Water				
pH	Temp	Turbidity	pH	Temp	Turbidity	Cl2 Total	Cl2 Free	pH	Temp	D.O.	Cl2 Total	Cl2 Free
-log H+	Celsius	NTU	-log H+	Celsius	NTU	mg/l	mg/l	-log H+	Celsius	mg/l	mg/l	mg/l
8.33	12.4	2.53	8.23	12.7	0.39	0.93	0.78	7.4	11.9	7.8	0.01	0.00

*All numbers based on yearly average

FUTURE UPGRADES

We are currently at stage one of four system upgrades, the overall process of providing a multi-barrier protection of the potable water systems and protect the public health for the next twenty years. Stage 2 of the upgrade process is slated to start 2002 includes:

Stage 2

- Improve Shuswap intake to reduce sand.
- Upgrade backwash piping to use clearwell water instead of high-pressurized distribution water (this will eliminate using reservoir water during high demands and provide energy savings to the city).
- Change primary disinfection to Ultra Violet light while using chlorine as a secondary disinfection barrier against possible regrowth. The other two water sources Brash Creek and Shuswap Well will be rerouted to the W.T.P to use U.V. This will give a four-log reduction in giardia and cryptospridium.
- Additional 60 Hp distribution pump (pumping from clearwell to distribution system and reservoirs).

Stage 3

- 2nd Water treatment plant, additional production capacity 4300 m3/day (8000 m3/day total).
- Additional U.V systems.
- Expansion of the clearwell by 206 m3 .



Shuswap River intake

Stage 4

- 3rd Water treatment plant.
- Building expansion (already constructed with tear away walls).
- 4th distribution pump.
- Additional backwash/wastewater settling tank.

—Thanks to Kevin McLuskey, Water Quality Technician and Alf Soros, Public Works Superintendent.



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Aqua Zoom Inspection – Manholes & Sewers

Bayani (Ben) Cruz – BC Rail Trade Waste Treatment Plant Operator

Ben was born, raised, and educated in Manila, Philippines. His early work experiences include automotive mechanic at Ford Philippines, aircraft maintenance crew for Philippine Airlines – a job that gave him the opportunity to service the British Airways supersonic Concorde aircraft on its maiden flight across the Pacific in 1975.

In 1976, due to his skills and education, Ben arrived in Calgary as an independent immigrant where he worked as a locomotive mechanic for CP Rail until 1980. He then moved to Squamish as a Machinist for BC Rail, and due to a poor economy in the early 80s, Ben exercised his seniority and was transferred to the BC Rail Locomotive Shop in Prince George, where he worked as a Machinist until 1997. “I’m getting bored with machine shop work, and I need some challenge,” said Ben when he won the bid for the operator position at the BC Rail Trade Waste Treatment Plant in Prince George in 1997. In 1998, he became the first certified wastewater treatment plant operator of BC Rail.

“I like this job because it provides continuing challenges,” confirmed Ben on his current job. To keep up with the challenges, Ben regularly attends the University of Northern British Columbia and takes courses in hazardous waste management, environmental impact assessment, and chemistry. Ben also

enjoys hosting visitors to the BC Rail Treatment Plant, including participants in BCWWA workshops and UNBC students. This is an opportunity for Ben to introduce UNBC students to the EOCP program. Ben holds MWWT Level II and IWWT Level III operator certifications from EOCP. Ben is the first operator to attain a Level III in Industrial Wastewater Treatment.

In his spare time, Ben meticulously and tenderly restores MG cars and he is a member of the Jaguar and MG Club (Vancouver Chapter). He has completed the restoration of three MGs, and has been a back-to-back winner of the Best Improved Car Club trophy. A golfer and a vintner (enjoys Merlot, Shiraz, and Barolo), Ben has been married to wife Linda for thirty-eight years, and he is the father of three children and three grandchildren.

—Thanks to Al Lane



Ben Cruz (left) receiving his IWWT Level III certificate from EOCP Director Al Lane

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Rob Peebles – Whistler Utilities Operator

Rob was hired into the Utilities Department at the Resort Municipality of Whistler in July 1998 as a millwright. This department consists of a Class III Water Distribution System and a Class IV Wastewater Collection System. Rob came to Whistler with many skills including draftsman, Fourth class steam engineer and interprovincially ticketed millwright.

Shortly after being hired, his title was changed to Utilities Operator and he began to collect CEU's, experience and wrote the EOCP certification exams. Today Rob is one of four Level IV Water Distribution System operators in the province and is the only operator with Level IV Wastewater Collection System certification. Rob is a member in good standing of the EOCP, BCWWA, CPWA, APWA, AWWA and the Association of Boards of Certification (ABC).

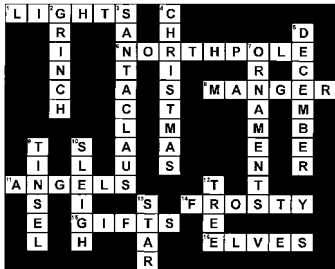
As chief operator, Rob is responsible for the safe and efficient delivery of high quality drinking water, plus collection of wastewater to the treatment plant. Most of his time is spent on the daily delegation of the work load, supervision and training of three utility operators (two Level I operators and one Level II operator) plus three graduates of the water technology diploma



course at Okanagan University College in Kelowna. Assuming the foreman's duties in his absence, meetings with contractors and engineers, commissioning and take over of capital improvements and daily paperwork use up any extra time.

WORD GAME ANSWERS FROM LAST ISSUE

Winners for the last issue of the Word Games (Christmas Crossword Puzzle) were Cid McLean, City of Penticton Advanced WWT Plant; Bob Edmondson, Country Side Mobile Manor, Salmon Arm; and Jerry Simmons, Village of Slocan. Cid was a winner last issue as well, way to go Cid! Another hat is on the way.





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NEW MEMBERS AND UPGRADES

Congratulations to the following new operators and those operators who have upgraded their certification level.
November 1, 2001 to January 31, 2002

CERT. NO.	NAME	CITY	CERT. NO.	NAME	CITY
3744	Abercrombie, Murray	SWS	3567	Delawski, Mike	WD I
3197	Adams, Robert	WD II	3837	Dewell, Rod	SWS
3856	Alexander, Vernon	WD I	2098	Dillabough, Darrell	MWWT I
3731	Allbright, Don	SWS	1714	Douglas, James	SWS
3406	Allingham, Jack	WD II	1280	Dove, Alan	WD II
3708	Allingham, Ted	WD I	3824	Dowsett, Chris	WD I
2039	Andrew, Art	SWS	3794	Ellis, Philip	WD I
1947	Armstrong, Timothy	WWC I	3783	Eustache, Frank	SWS
3299	Atwood, Paul	SWS	3763	Evans, Robert	SWS
3807	Bachewich, Ronald	OIT WD	3754	Ferreira, Eric	SWS
3791	Baker, Richard	SWS	3228	Flamond, Terry	WD II
3842	Barnett, Nick	SWS	3813	Forsyth, Will	SWS
3835	Barrett, William	SWS	3259	Gardener, Dave	SWS
3812	Bastien, Nelson	SWS	3795	Gibson, Ken	WD I
3828	Battersby, Blake	SWS	3784	Gilfillan, Michael	SWS
3829	Battersby, Bryn	SWS	3796	Gillis, Clifford	WD I
3770	Bazzard, Charles	SWS	3844	Gore, Lee	OIT WD
3823	Beaton, Kenneth	WD I	3792	Goss, William	SWS
3759	Beaudet, Jean	SWS	3464	Grant, James	OIT WD
3760	Bergman, Benjamin	SWS	3734	Grasswick, James	SWS
3454	Bernier, Ed	WWC I	3855	Gray, James	OIT WWT
1764	Bevilacqua, Mario	WD I	3755	Gustafson, Neil	SWS
3846	Black, Shane	WWC I	3845	Hachey, Arthur	OIT WD
3846	Black, Shane	WD I	3764	Haime, Robert	SWS
3847	Blakeman, John	WD I	3165	Halladay, Steven	WD II
3616	Bloski, Marvin	WWC I	556	Halle, Claude	WT II
3745	Boulding, James	SWS	3797	Hamblin, Stephen	WD I
3848	Boyle, Laine	WD I	3746	Harder, Leon	SWS
3810	Brayden, Charles	WWC I	3227	Hardy, James	WD II
1941	Brown, Christopher	SWS	3772	Hodson, Brooke	SWS
3781	Bryan, Jeff	SWS	3831	Holman, George	SWS
3849	Buizer, Travis	WD I	3832	Holmes, Dean	SWS
3761	Bullis, Mike	SWS	3586	Holtom, Malcolm	WWC I
3387	Burtniak, Darryl	MWWT II	875	Imrie, Mike	WD II
3732	Burton, Gary	SWS	3838	Irwin, James	SWS
3726	Butler, Michael	WD I	3773	Jacques, Alain	SWS
3815	Castagna, Marco	WD I	3747	Jarvie, Darrell	SWS
1994	Cave, Gregory	WWC II	3785	Jensen, Ronald	SWS
3830	Chambers, Fred	SWS	3735	Johnson, Terence	SWS
3782	Colclough, Donald	SWS	3611	Jorgensen, Bruce	WT I
3733	Coleman, Greg	SWS	3736	Kahama, Nelson	SWS
3808	Coles, Todd	WT I	1244	Kamstra, Stuart	WWC II
3771	Courtenay, Peter	SWS	3739	Kashmark, Darin	SWS
3850	Crowther, Kelly	WD I	3740	Kashmark, Randall	SWS
3762	Davies, Roy	SWS	3765	King, Fredrick	SWS
3836	Davies, Vernon	SWS	3821	Kish, Frank	OIT WD
3809	Delaire, Raymond	MWWT I	3774	Knighton, Alfred	SWS

Continued...

NEW MEMBERS AND UPGRADES (Continued)

CERT. NO.	NAME		CITY	CERT. NO.	NAME		CITY
3226	Krause, Brian	WD II	<i>Kelowna, BC</i>	3885	Roblin, Dave	MWWT I	<i>Lytton, BC</i>
376	Kruger, Allan	SWS	<i>Pender Island, BC</i>	3750	Rolfe, Neal	SWS	<i>Campbell River, BC</i>
3820	Kryzanowski, Terry	WWC I	<i>Prince George, BC</i>	1293	Rowley, Shawn	SWS	<i>Whistler, BC</i>
3110	Kuzman, Michael	SWS	<i>Port Renfrew, BC</i>	3756	Ryan, Lloyd	SWS	<i>Lund, BC</i>
3798	Lamming, Dean	WD I	<i>McBride, BC</i>	3834	Saario, Sam	SWS	<i>Atlin, BC</i>
3799	Lapointe, Mike	WD I	<i>Logan Lake, BC</i>	2030	Sabbas, Louie	WWC I	<i>Tofino, BC</i>
3766	Laronde, Leslie	SWS	<i>North Saanich, BC</i>	3803	Salamandyk, Earl	WD I	<i>Grand Forks, BC</i>
1298	Lee, Derek	WWC II	<i>Abbotsford, BC</i>	3851	Salisbury, Ken	WD I	<i>Westbank, BC</i>
3775	Leigh, Donald	SWS	<i>Bowen Island, BC</i>	3841	Sands, Sheldon	SWS	<i>Atlin, BC</i>
3780	Letchford, Thomas	SWS	<i>Tofino, BC</i>	3542	Schenderling, Paul	WD II	<i>Langley, BC</i>
1482	Lister, Allan	SWS	<i>Penticton, BC</i>	1730	Schimek, Peter	SWS	<i>Pemberton, BC</i>
3839	MacPheat, Douglas	SWS	<i>Ross River, Yukon</i>	3804	Schmidt, Ernest	WD I	<i>Oyama, BC</i>
3562	Manahan, Kelly	SWS	<i>Fort Fraser, BC</i>	3817	Schroeder, Sigmund	WD I	<i>Abbotsford, BC</i>
1505	Mandryk, Bob	WWC I	<i>Kelowna, BC</i>	3557	Schwemler, David	WD I	<i>Wells, BC</i>
1428	Marceniuk, Wayne	WD II	<i>Peachland, BC</i>	3852	Senger, Thomas	WD I	<i>Kelowna, BC</i>
234	Martin, Greg	WD I	<i>Kimberley, BC</i>	3805	Shafer, Gerald	WD I	<i>Delta, BC</i>
3236	Maude, David	SWS	<i>Sidney, BC</i>	1667	Skidmore, Dan	MWWT II	<i>Calgary, Alberta</i>
3768	Maund, William	SWS	<i>Mayne Island, BC</i>	3816	Smith, Dave	WD I	<i>Prince George, BC</i>
1744	McDonald, Charlie	WD I	<i>Saltspring Island, BC</i>	3787	Smith, Randall	SWS	<i>Greenwood, BC</i>
3800	McDonald, Christian	WD	<i>Pemberton, BC</i>	3788	Smith, Timmons	SWS	<i>Armstrong, BC</i>
3800	McDonald, Christian	SWS	<i>Pemberton, BC</i>	3806	Sopow, Trent	WD I	<i>Summerland, BC</i>
3786	McIlveen, Robert	SWS	<i>Westbank, BC</i>	3247	Spears, Mark	WD I	<i>Tofino, BC</i>
3767	McKay, Andrew	SWS	<i>Mayne Island, BC</i>	3827	Spitale, Joe	WD I	<i>North Vancouver, BC</i>
3801	McKenzie, Neil	WD I	<i>Kelowna, BC</i>	3106	St. Luke, Riley	WWC II	<i>Nanaimo, BC</i>
3833	Mease, Ralph	SWS	<i>Mayo, Yukon</i>	3822	Steinson, Dustin	OIT WD	<i>Burnaby, BC</i>
2008	Miller, Gordie	WD II	<i>Kamloops, BC</i>	3789	Stewart, Bill	SWS	<i>Christina Lake, BC</i>
3825	Minyard, Jeffrey	WD I	<i>Coquitlam, BC</i>	3457	Stoker, Real	WWC I	<i>Whitehorse, YT</i>
3819	Moorhouse, Gordon	WD I	<i>Abbotsford, BC</i>	1733	Suhan, Barry	WWC II	<i>Nanaimo, BC</i>
3840	Moulton, Wayne	SWS	<i>Carcross, Yukon</i>	3684	Taber, Jason	WD I	<i>Armstrong, BC</i>
1718	Murphy, Michael	SWS	<i>Pitt Meadows, BC</i>	3738	Tarnoff, Richard	SWS	<i>Hedley, BC</i>
3748	Murray, Fraser	SWS	<i>Port McNeill, BC</i>	3751	Taylor, Thomas	SWS	<i>La Conner, WA - US</i>
3223	Nadasde, Wayne	WD II	<i>Winfield, BC</i>	1617	Thorburn, Brian	WT I	<i>Port Hardy, BC</i>
1549	Nicholls, Paul	SWS	<i>Port Coquitlam, BC</i>	3853	Tresoor, William	WD I	<i>Kelowna, BC</i>
1421	Nixon, William	WD I	<i>Kelowna, BC</i>	3793	Turcotte, Randy	SWS	<i>Fraser Lake, BC</i>
3049	Nordick, Allen	WD II	<i>Kamloops, BC</i>	3777	Van Herwaarden,	SWS	<i>Qualicum Beach, BC</i>
3776	Norman, William	SWS	<i>Qualicum Beach, BC</i>	3769	Vikander, Thomas	SWS	<i>Salt Spring Island, BC</i>
3008	Okert, Allan	MWWT II	<i>Coquitlam, BC</i>	3757	Waldron, Mel	SWS	<i>Powell River, BC</i>
3818	Ouellette, Marc	WD I	<i>Prince George, BC</i>	3778	Wallace, Erle	SWS	<i>Qualicum Beach, BC</i>
3802	Ough, Jason	WD I	<i>Kelowna, BC</i>	3752	Ward, Gord	SWS	<i>Port Alice, BC</i>
3325	Pedersen, Erik	WD II	<i>Taylor, BC</i>	3758	Watson, Rojer	SWS	<i>Lund, BC</i>
3811	Poitras, Terry	WWC I	<i>Abbotsford, BC</i>	3742	Webster, Frederick	SWS	<i>Fort Fraser, BC</i>
3826	Porterfield, Sarah	WD I	<i>Vancouver, BC</i>	3790	Weller, Alan	SWS	<i>Winfield, BC</i>
3503	Purcell, Grant	WD I	<i>Delta, BC</i>	3753	White, Ivan	SWS	<i>Courtenay, BC</i>
3389	Ralph, James	WD I	<i>Port Hardy, BC</i>	3814	Williams, Henry	SWS	<i>Squamish, BC</i>
3741	Reed, George	SWS	<i>Burns Lake, BC</i>	3854	Winter, Wolf	MWWT I	<i>Vancouver, BC</i>
977	Regush, Patrick	WD II	<i>Prince Rupert, BC</i>	3779	Woodhouse, William	SWS	<i>Black Creek, BC</i>
3737	Ricciuti, Daniel	SWS	<i>Summerland, BC</i>	3743	Young, Gordon	SWS	<i>Granisle, BC</i>
3749	Richter, Philip	SWS	<i>Blind Channel, BC</i>				

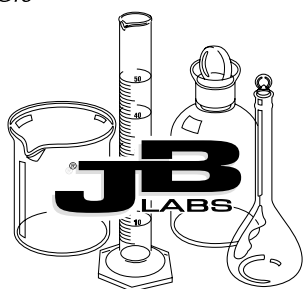
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UPCOMING EVENTS

BCWWA Calendar 2002

Kamloops

March 11 – 15 Environmental Lab Procedures
 April 8 – 9 Confined Space Entry
 April 8 – 12 Water Distribution Level I
 April 8 – 12 Wastewater Collection Level I
 April 8 – 12 Wastewater Treatment Level I
 April 8 – 12 Pump Operation & Maintenance
 April 8 – 12 Water Treatment Level I
 April 8 – 12 Chlorine Handling

Vancouver – UBC

May 13 – 14 Small Water Systems
 May 15 PRV Maintenance (Surrey)
 May 15 – 17 Water Quality for Distribution Operators
 May 16 – 17 Supervisory Skills for Operators
 May 16 – 17 Confined Space Entry (GVRD)
 May 16 – 17 Applied Computer Skills for Operators
 May 13 – 17 Water Distribution Level I
 May 13 – 17 Water Distribution Level III
 May 13 – 17 Wastewater Collection Level II
 May 13 – 17 Chlorine Handling
 May 13 – 17 Wastewater Treatment Level II/III
 May 13 – 17 Cross Connection Control

Cranbrook

May 27 – 31 Water Treatment Level I
 May 27 – 31 Water Distribution Level II
 May 27 – 31 Wastewater Collection Level I

Fort Nelson

June 3 – 7 Water Treatment Level I
 June 3 – 7 Water Distribution Level II

Trail

June 5 – 7 Water Quality for Distribution Operators

Penticton

June 10 – 12 Water Quality for Distribution Operators

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