

Mandatory Water Systems Classification

Mandatory water system classification is coming. A new form of classifying potable water systems in B.C. and the mandatory certification of their operators will be a reality in the near future. Anyone knowledgeable in the operation of water and wastewater systems knows the importance of training and certification of operators. The Environmental Operators Certification Program along with the B.C. Water and Waste Association have long been proponents of mandatory facility classification and operator certification for water systems throughout the province. The EOCP provided the means for the province to institute mandatory wastewater treatment classification and certification in 1993.

The EOCP and the BCWWA have been in discussions with three provincial ministries outlining the benefits that mandatory water classification and certification would bring to the public and to operators in the water supply field. Indications from the ministries have been positive that we will move forward significantly in 1999. The EOCP will provide the expertise for classifying the systems and certifying the operators, while the BCWWA will provide the operator training. Stay tuned!



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Environmental Operators Certification Program

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

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

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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 1,300 active members.



Design and Layout by: Olive Design

Printed on Recycled Paper

Editor's Notes

With this issue of the Digest, operators are reminded of the upcoming BCWWA Conference and the UBC Operators Workshop. Also, each May is election time for the Board, so please fill in and mail your ballot once you receive it. Keep up to date on the Program with information from the most recent Board Meeting.

As mentioned on the cover, the big news is the anticipated mandatory classification of water systems and the mandatory certification of these system operators. Discussions are now underway for some method of adopting a mandatory method similar to the mandatory wastewater treatment already in place. There are approximately 2,000 water systems in B.C.

The EOC has new web page and email addresses, in order to make it easier to locate online information. As well the web page is providing more information for the operator to view and download.

There is the usual word game puzzle and certification quiz to test yourself. The EOC now has Program jackets available for ordering. Telephone the Board Office for information on ordering.

Once again, information on operators, plant profiles, questions or comments on the Certification Program are welcome.

1998/1999 BOARD OF DIRECTORS

Joe McGowan - Chairman
Bill Hyslop - Industrial Waste
Bernie Taekema - Facilities Classification
Kevin Ramsay - Education Liaison
Leo Albrecht - CEU Assessment/Exam Coordinator
Don Gare - Digest Editor
Eric Jackson - Treasurer
Al Lane - Secretary
Dave McLean - BCWWA Liaison

Chairman's Report



The Certification Program is growing at a rate faster than at any time in its history. Over the past 3 years, we have certified 1,500 operators and have recently granted certificate number 3,000 to **Ben Cruz** of Prince George. It has been five years now since the Ministry of Environment instituted a program of mandatory cer-

tification in Class II and above wastewater treatment facilities and things are running smoothly. Unless an operator is certified, it is almost impossible to find employment in the more complex municipal WWT facilities, and there is increasing interest from the operators responsible for operation of pulp mill wastewater treatment systems to get into the program.

Discussions are heating up with 3 provincial ministries, who are discussing the possibility of considering a future requirement for the mandatory certification of water distribution and water treatment operators. A lot is happening in this area with key players exploring the best ways to provide training opportunities necessary to certification of operators in Class I and above water facilities. To assist with this effort the Board is revamping the facility classification form to give more credit to the complexity of water distribution systems as versus the old way of classifying a system based primarily on population served.

There are many small water and wastewater systems in the province, both private and municipal that do not quite meet all of the criteria for a Class I system and operators of those systems are in many cases not able to meet the criteria of the program for Level I. To address this inequity, the Program is moving to create examinations and a classification system for small

systems. These certifications would be specific to very small systems only. An operator who holds a small systems certificate would only progress to a Level I if he/she could meet all of the Level I criteria and pass the examination. To address the needs of the pulp mill operators, the Program is developing examinations targeted at industrial wastewater treatment processes.

Your Board of Directors continues to be strong and enthusiastic with an exceptional amount of work being shouldered by all of the Directors. We are fortunate that the Program continues to attract superior people who are dedicated and have a strong belief in ensuring that only the highest quality operators are certified to work in water and wastewater systems. These Directors put in a lot of time and effort and are the strength of the program. Not enough can be said about the work of our office personnel, who are the first line of contact with member operators and who greatly assist the Directors with their many duties. Their contribution is greatly appreciated.

The program is one of the few in North America that operates without government assistance and is in sound financial shape. Dues for 1999 will remain at the same level as they were in 1996, and there is no indication that they will rise in the near future. To assist in the development of new operators, the Program offers two \$500 scholarships to second year students in the Okanagan College Water Quality course.

As with every progressive organization, we have an internet site where you can view the Digest and download the Program's application and classification forms. In the past, the internet address was not obvious to those not in the know. To that end, we have a new address and you can now contact us at: www.eocp.org.


Check it out!

Joe McGowan - *Chairman, EOC*

Certifications About to be Lapsed May 31/99


The following people have not paid their annual dues since 1996. If they wish to remain in the program and keep their certificates valid, they must pay their annual dues from 1997, a total of \$135.00 by May 31, 1999.

CERT. NO.	NAME	CITY	CERT. NO.	NAME	CITY
848	Alsop, Tim	Abbotsford, B.C.	1332	Langlois, Dan	
1110	Anderson, Randy	Chemainus, B.C.	1561	Larabie, Michael	Terrace, B.C.
434	Angerhofer, Alvin	Milbank, SD, USA	1604	Laurie, Kenneth	Garden Bay, B.C.
1560	Ballack, Rawle	Vancouver, B.C.	1395	Leclair, Edward	B.C.
1262	Beck, William	Peachland, B.C.	1502	Lindemann, James	North Delta, B.C.
1626	Bhatti, Avtar	Prince George, B.C.	1540	MacGillivray, Kenneth	Abbotsford, B.C.
493	Billey, William	Peachland, B.C.	1326	Marshall, Doug	Victoria, B.C.
1169	Blow, William	Merritt, B.C.	1554	Metcalf, Kenneth	
963	Bond, William	Prince George, B.C.	840	Moll, Wesley	Invermere, B.C.
1345	Bradburn, Eric	Harrison Hot Springs, B.C.	887	Moore, John	Kelowna, B.C.
1267	Bradley, Jason	Burnaby, B.C.	1548	Nakamoto, Edward	Burnaby, B.C.
1371	Broughton, Darren	Coquitlam, B.C.	113	Pike, John	Nanaimo, B.C.
1526	Cameron, Allan	Qualicum Beach, B.C.	1588	Podarunok, Wayne	Fort Nelson, B.C.
1279	Chambers, Barry	Sechelt, B.C.	1557	Praught, Sylvia	Surrey, B.C.
793	Comin, Barry		1541	Reddecopp, Vernon	Abbotsford, B.C.
396	Cowans, Randall	Maple Ridge, B.C.	1627	Reumayr, Alfred	New Westminster, B.C.
382	Creed, Kim		1098	Reynolds, John	Whistler, B.C.
518	Cullum, Carl		1356	Richardson, Gary	Nanaimo, B.C.
1586	Dhillon, Norm	Vancouver, B.C.	1164	Riddoch, Gordon	
187	Dumaresq, Fernand	La Baie, Quebec	1047	Schnell, Wayne	Valemount, B.C.
1542	Easton, Dave	North Vancouver, B.C.	1516	Shaffer, Doris	
1248	Fetherstonhaugh, Lyall	Whistler, B.C.	1590	Soares, Joe	
371	Fitzgerald, James	Port Coquitlam, B.C.	1573	Suveges, Darwin	Langley, B.C.
769	Glover, Dale	Montrose, B.C.	1221	Thickett, Dave	Kemano, B.C.
1578	Goble, Dave	Garden Bay, B.C.	1168	Thompson, Matt	Chase, B.C.
770	Gore, Glen	Chilliwack, B.C.	1545	Tilton, Michael	Burnaby, B.C.
1285	Gray, Terry	Surrey, B.C.	97	Wallace, Bruce	B.C.
1497	Guenette, Christian	Val Belair, Quebec	1494	Warnock, Miles	Vancouver, B.C.
1513	Hayner, William	Duncan, B.C.	1619	Wocknitz, Shaun	Nanose, B.C.
919	Johnson, Ken	Chilliwack, B.C.	381	Wolf, Heinz	Delta, B.C.



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The Story Behind the "Fire Plug"

FROM FIREFIGHTING LORE, BY W. FRED CONWAY

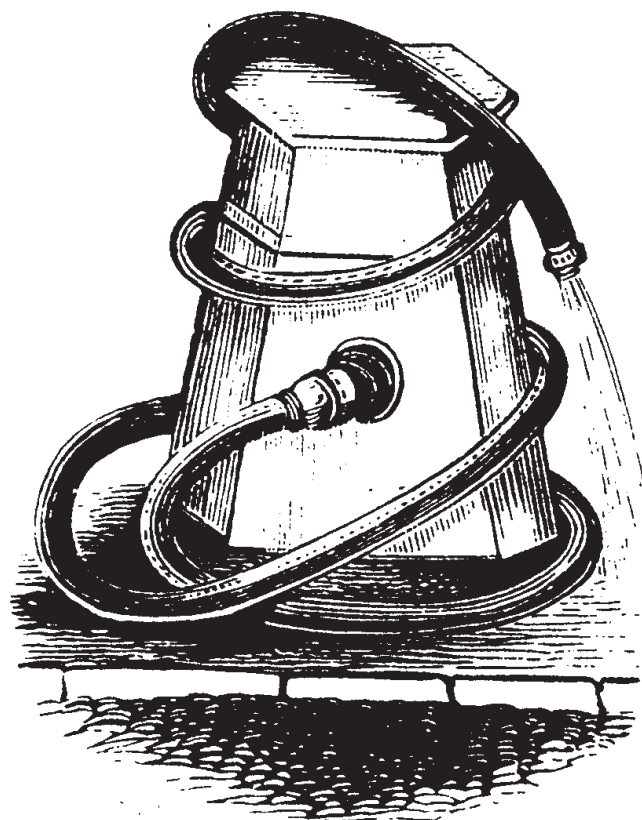
"Catch the plug!" the engine company officer shouts, and the fire engine stops momentarily at a fire hydrant as a fireman leaps off and wraps the end of the hose around the hydrant. The engine immediately proceeds to the fire, trailing a long snake of hose that falls from the bed of the truck, where it has been neatly folded.

That fire plug will soon be supplying hundreds of gallons of water each minute to fight a nearby fire. But what about the "plug"? What is it, and how did it get its name?

The fire hydrant or plug is, in fact, a huge water faucet. It is connected to a water main buried several feet under the ground - deep enough so that the water doesn't freeze on the coldest day of winter. The valve stem at the top goes all the way down to the underground water main and opens the valve, letting water into the plug. Even in sub-zero weather, as long as the water is flowing, it will not freeze.

The term "fire plug" harkens all the way back to about 1800 when the very first water mains in cities, such as New York and Philadelphia, were made of hollowed-out logs, with their tapered ends fitted together end to end.

To obtain water for firefighting from one of these crude mains, firemen dug down to the log, drilled a hole, and then kept their fire engine tanks full with the water that squirted out. After the fire was out, they - you guessed it - stopped up the hole with a wooden plug! And to this day - two hundred years later - a fire hydrant is more often than not, referred to, by firemen and the public alike, as a fire plug.



A hydrant or "plug" from the early 1800's

EOCP Award

Beginning in 1999, the EOCP will provide two annual awards of \$500 each for students who have completed the first year of full-time study in the Water Quality Technology program at the Kelowna Centre of Okanagan University College and who are returning for the third semester of full-time study in that program. Recipients will be permanent residents of British Columbia and preference will be given to students who are intending to become certified operators in a water or a wastewater facility classified by the EOCP. Selection of the award recipients will be based on a combination of academic achievement and financial need, with emphasis on financial need.

1999 Certification Board Elections

This year's Nominating Committee members are Al Lane and Norm Gobbi from Prince George.

There are four positions on the Board to be filled by two operators, one government representative, and one industry consultant. The Nominating Committee is pleased to present the following slate of candidates:

Operators: Don Gare
Dave McLean

Government Representative: Joe McGowan

Industry Consultant: Bill Hyslop

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 April 6, 1999 by mail to:

EOCP Nominating Committee

101 - 224 West 8th Ave., Vancouver, B.C. V5Y 1N5
or by fax to: 604.874.4794

Ballots will be mailed to operators on April 16, 1999. Completed ballots shall be mailed to:

EOCP

101 - 224 West 8th Ave., Vancouver, B.C. V5Y 1N5
The deadline for receipt of ballots is May 14, 1999.

www.eocp.org



The EOCP has a new email and web page address. To find the web page, type in www.eocp.org. The EOCP has had a web page since 1995 and has made some changes recently. The Digest newsletter is now available for downloading in .pdf format, which allows for viewing, saving and printing the Digest as the printed copy appeared. Also available for downloading are the Exam Application Form and the Program Guide. The Board Office email address is: eocp@eocp.org.

The Digest newsletter as viewed in .pdf format and read on-line.

PERSONAL PROFILE



Leo Albrecht - City of Kamloops, Chief Operator

Leo grew up in Dortmund, West Germany, and immigrated to Canada in September 1965. After several job placements as a journeyman jeweller, taxi driver and truck driver in Vancouver, he moved to Kamloops in April 1975 where he was hired by the City of Kamloops as a truck driver. In 1979, Leo became

a Utility Maintenance Operator, working as a Pump Mechanic Assistant, Hydrant Maintenance Man and Shift Duty Attendant. In 1983, the Wastewater Treatment Lagoon Operator position became available which became a new challenge. Leo took several correspondence courses to enhance his knowledge in wastewater treatment and other wastewater and water utilities operations.

In 1985, the City of Kamloops lagoon system underwent major upgrading and was classified as a Class III Wastewater Treatment Facility. Leo became a Wastewater Treatment Technician and spent the following 3 years building an environmental laboratory within the treatment facility that is one of the finest municipal owned laboratories in B.C. today. Leo spent 13 years as the Chief Operator at the WWTP, training new staff and administering to the plant and laboratory operation.

In 1987, Leo was awarded the *Vic Terry Award* as Operator of the Year, and in 1990 he was elected to the E.O.C.P. Board and shortly thereafter a member of The Operator Education Committee of the B.C.W.W.A. successfully combining certification and education efforts for operators in B.C. and the Yukon. Since then, he has participated in many operator workshops throughout B.C. and the Yukon as the work shop coordinator and instructor for all 3 levels of wastewater treatment courses.

In 1995, Leo gave up his job as Wastewater Treatment Technician and became Utility Chief Operator becoming more responsible for other aspects of operations for all utilities within the City of Kamloops. He is currently certified at Level III in water distribution and wastewater collection and at Level IV in wastewater treatment.

Leo has been married to Nancy for 31 years with one daughter and one granddaughter. In his spare time, Leo loves to fly fish with self-tied flies, ski and ice fish.



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New Northern Operators

As more sophisticated water and wastewater systems are being built on reserves in northern B.C., it was recognized by the Gitksan-Wet'suwet'en Education Society that it would be beneficial for people to be trained to run these new systems as well as existing systems in an environmentally sound and efficient manner. Under the direction of **Margery McRae, Audrey Woods** and **Jill Holland** developed a curriculum which would fill the needs of the communities and the participants as well as giving them recognized certification in a variety of areas so they can confidently apply for work with municipalities and institutions. The Operations and Maintenance Training Program which was completed by 16 participants in December 1998 was designed to enhance and expand maintenance workers skills, safety and qualifications through a series of courses, workshops and practical experience.

Sixty percent of classroom time was allocated to water and wastewater courses. Arnold DeEllion was hired by Hazelton First Nations Education Centre to deliver California State University, Office of Water Programs courses which included Water Distribution, Wastewater Collection, Water Treatment Plant Operations and Wastewater Treatment Plant Operations. Arnold was a very thorough and popular instructor who helped the men to upgrade their math skills and instruct them to the point there was an 82% success rate in the CSU courses . . . quite an achievement for many of the participants who had been out of school for many years.

Nine of the participants gained certification from the Environmental Operators Certification Program in Water Distribution, seven as OIT's and two as Class I Operators. Four were certified in Wastewater Collection, one OIT and three as Class I Operators. We are still waiting for the results of the other exams in Water Treatment and Wastewater Treatment Plant Operations. A thank you to the EOCP for overseeing the examinations, and especially to **Barb Striegler** at the EOCP office.



Training Program Students

Some of the other courses included in the program were Fire Hydrant Maintenance, Boiler and Refrigerator Safety, Road Maintenance, Landscape Design and Administrative courses. The participants also took the 'Train the Trainer' course from Vancouver Community College to enable them to give workshops in their communities on home maintenance. Practical experience has been gained in their local communities.

The graduates of this program included **Cecil Alfred Sr.** and **Clayton Michell** from Moricetown; **Gary Michell** from Hagwilget; **Jerry Morrison, Floyd Moore** and **Richard Morrison** from Gitanmaax; **Aaron Wesley** and **Kevin Sampare** from Glen Vowell; **Charlie Hillis** and **Lloyd Muldon** from Kispiox; **Bruce Schell** and **Brian Marshall** from Hazelton; **Leonard Bryant** and **Bob Howard** from Gitsegukla; and **Allen Morrison** and **Billy Wong** from Gitwangak. All these communities are in northwestern B.C.

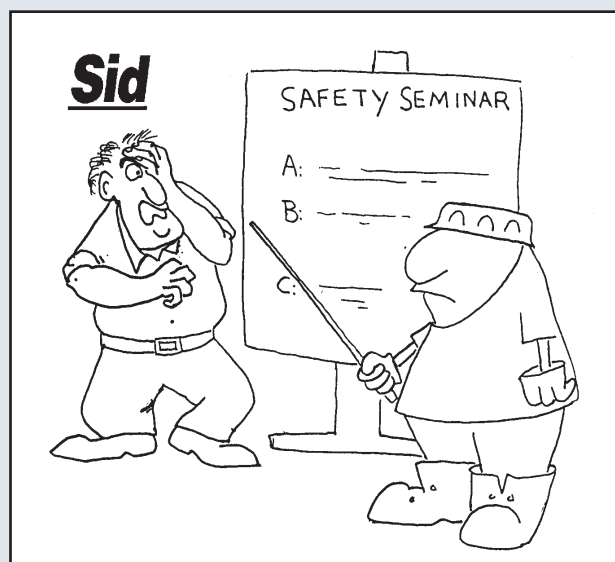
Jill Holland,
*Coordinator, Operations and Maintenance Training
Gitksan-Wet'suwet'en Education Society
Hazelton, B.C.*

THINK SAFETY

NATURAL GAS SAFETY

The accidental release of natural gas can be encountered in several different situations. An underground utility locating service may fail to properly locate all natural gas facilities prior to a scheduled excavation, resulting in damage to natural gas mains or services. Natural gas may leak from a service or main due to corrosion and accumulate in a meter vault or plated excavation. Special care must be taken when dealing with the release of natural gas. Below a list of safety tips to follow if you encounter a natural gas release.

1. The main element of natural gas is methane, which has a specific gravity of 0.58 (specific gravity of air is 1.0). This means it is lighter than air and will diffuse rapidly when it escapes in an open area.
2. Natural gas is very explosive with a lower explosive limit (LEL) of five percent concentration.
3. Natural gas is not toxic, but it can force the oxygen from a confined area and cause an oxygen deficient atmosphere.
4. If a natural gas leak is detected, eliminate all ignition sources (ie. running vehicles, open flames etc.), secure and vacate the area, contact your local natural gas supplier, do not operate gas valves yourself, and do not cover the area with a plate or vault lid.
5. Report all damaged or pulled natural gas mains or services to your local natural gas supplier immediately, even if a leak is not detected.



BOARD BUSINESS BRIEFS

Recent business from the February 1, 1999 Board of Directors Meeting in Vancouver.

- The Treasurer's Report for January 1, 1998 to December 31, 1998 showed revenues of \$122,109.66 and expenses of \$116,694.16 with a difference of \$5,415.50. The Treasurer reported that the two \$500.00 annual EOCP awards have been set-up with the OUC in Kelowna.
- A committee comprising of Board of Directors, Gare, McGowan and Taekema reported to the Board on the development of Industrial Wastewater Treatment Exams, I to IV. The committee advertised for a RFP and received four submitted proposals. The proposal from Banyan Services was deemed to be the most comprehensive and afforded the best value. The Board passed a motion that Banyan Services be awarded the contract for development of the industrial wastewater treatment exams, levels I to IV.
- The Chairman reported on recent discussions concerning mandatory water supply classification and certification. Joint meetings have been held with the EOCP, the BCWWA and the Ministries of Environment, Health and Municipal Affairs. He also thanked Director Lane for his work revising facility classification applications.
- The EOCP has chosen jackets that operators can now order through the Board Office. The jackets will have an embroidered EOCP logo.
- As of November 1998, the Board of Directors and office staff are covered by liability insurance.
- Director Taekema reported that almost all municipal and regional district wastewater facilities have completed the facility reclassification applications. About 50% of the wastewater treatment facility classifications have been upgraded since 1993.
- The Board passed a motion that small water systems and small wastewater systems exams be developed. There will be one exam for small water systems. There will be two small wastewater system exams - lagoon treatment and mechanical treatment. The criteria for operators to qualify to write these exams will include a grade 10 education and a minimum of 6 months (104 hours) experience. The maximum population for the small systems is 500 people.
- Nominations for the Vic Terry Award will be received at the Board Office up to April 1, 1999.
- Other business from the February 1 Board Meeting are mentioned elsewhere in the newsletter.



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Word Games Answers

1
**RUG
SWEPT**

1. Swept under the Rug

2
KJUSTK

2. Just in Case

3
SEASON
SEASON
SEASON
SEASON

3. Four Seasons

4
**man
board**

4. Man Overboard

5
E
K
A
M

5. Make Up

6
DO12"OR

6. A Foot in the Door

7
T RN

7. No U Turn

8
lips
lips

8. Tulips

9
eiln pu

9. Line Up in Alphabetical Order

10
PETS A

10. A Step Backward

11
PHD
MA
BA

0

11. 3 Degrees Above Zero

12
POPIGKE

12. Pig in a Poke

13
**MACBETH
WORDS**

13. A Play on Words

14
myself/I'm

14. I'm Beside Myself

15
**PAID
I'M
WORKED**

15. I'm Overworked and Underpaid


16
NOON

16. High Noon

There were more than two dozen correct replies for both the Word Games puzzles and the Anagrams.

The lucky winners from the correct replies for the Word Games were: **Brenda Kondas, Fort Nelson; Kim De Crane, Port Alice; Mark Christianson, Sidney;** the Anagrams winners were **Graeme Faris, Courtenay; Larry Smith, Prince George;** and the **Public Works Staff** from *Sicamous*.

1. Land Coast - **Scotland**
2. Rent Again - **Argentina**
3. Ma an Pa - **Panama**
4. Rat Up Log - **Portugal**
5. It Ate Ten Suds - **United States**
6. Row Any - **Norway**
7. My Anger - **Germany**
8. Mice Ox - **Mexico**
9. Dial Than - **Thailand**
10. Laced In - **Iceland**
11. Moon Race - **Cameroon**
12. Lizards Went - **Switzerland**
13. We Send - **Sweden**
14. Tail Auras - **Australia**
15. Am Oil Cub - **Columbia**
16. Main Oar - **Romania**
17. Fan Gains Hat - **Afghanistan**
18. Lazed An New - **New Zealand**
19. Lend Air - **Ireland**
20. Airs Us - **Russia**
21. Time Van - **Vietnam**
22. Its Aura - **Austria**
23. And Glen - **England**
24. Cacti Soar - **Costa Rica**

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More Word Games!

**WIN
A CAP OR
A MUG!**

Time to put on your thinking hat. Decipher each box to a common word or expression. The answer to the box on the right is "Blood is thicker than water". The three replies with the most correct answers will each win a cap or a coffee cup - your choice. Mail or fax (250.847.4155) your answers to the Editor by May 1, 1999.

**BLOOD
WATER**

1

**TOR
TOE**

2

ERIF

3

CAST
CAST
CAST
CAST

4

**hiway ruin
ruin**

5

H O S
Y T
R L E

6

**STAND
I**

7

U SIR

8

TIOGME

9

GET GET •

10

WHEATHER

11

**mind
matter**

12

PAY PAY

13

ALL WORLD

14

NO WAYS IT WAYS

15

**Fairy
Wolf
Duckling**

16

MAUD

CERTIFICATION QUIZ

WATER

1. The most important use of chlorine in water treatment is as a(n):
 - a/ aid to coagulation.
 - b/ algaecide.
 - c/ disinfectant.
 - d/ oxidant for iron and manganese.
2. The free chlorine residual in water is the amount of:
 - a/ chlorine in water.
 - b/ chlorine applied as measured in milligrams per liter.
 - c/ chlorine in raw water as it comes from the stream, reservoir, or well.
 - d/ uncombined chlorine that remains in the water after the chlorine has been applied and allowed to react.
3. Hydrant valve-seat leakage should be checked:
 - a/ only when the hydrant is disassembled.
 - b/ visually.
 - c/ with a listening device.
 - d/ with a pressure gauge.
4. A rotating disc is found in certain:
 - a/ centrifugal pumps.
 - b/ gate valves.
 - c/ water meters.
 - d/ none of the above.
5. Which of the following characteristics of water is a chemical characteristic?
 - a/ alkalinity
 - b/ bacteria
 - c/ suspended colloidal matter
 - d/ turbidity

WASTEWATER

6. If primary treatment can be expected to remove 30% of BOD and secondary treatment can remove 85% of BOD, then the expected BOD removal will be:
 - a/ 95%
 - b/ 89.5%
 - c/ 77.5%
 - d/ 72%
7. Weirs are most often used to measure flows in:
 - a/ treatment plant headworks
 - b/ open channels
 - c/ pipelines
8. What types of wastes generally are prohibited from discharge to wastewater treatment plants?
 - a/ anaerobic
 - b/ organic
 - c/ corrosives with a pH lower than 5.0
 - d/ all of the above
9. Which of the following is not a basic backflow prevention device?
 - a/ corporation stop
 - b/ double check-valve assembly
 - c/ reduced pressure principal device
 - d/ none of the above
10. Bar screens must be cleaned frequently to prevent (choose the most correct answer)
 - a/ excess head loss.
 - b/ dissolved oxygen depletion
 - c/ solids from settling.

See page 14 for the answers.

Plant Profile: Sewerage Systems in B.C. in 1916

Here is a different plant profile, in fact many plant profiles . . .

*The following information is from the book **Water Works and Sewerage Systems of Canada**, compiled by the Commission of Conservation Canada and printed in 1916. Thanks to Norm Gobbi, Chief Operator at the Prince George Wastewater Treatment Plant for submitting this information.*

Chilliwack - 3 miles of combined street and domestic sewage is treated in filters and separators, cost of sewers and disposal plant, \$35,000.

Clayburn - 1/2 mile of sewers for domestic sewage only, sewage treated in septic tank, cost of sewers, \$2,300, cost of disposal plant - \$700

Cranbrook - 7 1/2 miles of sewers carrying domestic sewage only, sewage treated by filtration, cost of sewers, \$98,000, cost of disposal plant \$19,000.

Fernie - 7 3/4 miles of sewers carrying domestic sewage and street drainage separately; sewage treated in septic tank, cost of sewers, \$87,000, cost of disposal plant, \$7,372.

Kamloops - 6 miles of sewers for domestic sewage only, sewage treated in septic tanks; total cost of sewers and disposal plant \$60,000.

Kelowna - Partly sewered; 1 mile of sewers for domestic sewage only; sewage treated in Imhoff tank and filter; cost of sewers, \$79,000, cost of disposal plant, \$17,000.

Ladysmith - 10 miles of sewers for domestic sewage only, with 10 in. outlets into Oyster Harbour, cost of sewers - \$65,000.

Nanaimo - 10 1/2 miles of sewers for domestic sewage only, with three 12 in. outlets into harbour, cost of sewers - \$50,000.

Nelson - 9 1/2 miles of combined street and domestic sewers, with 8 in. to 18 in. outlets into Kootenay River, cost of sewers - \$50,000.

New Westminster - 49 1/2 miles of sewers, part carrying combined street drainage and domestic sewage, part carrying these separately; 12 in. to 36 in. outlets into Fraser River; cost of sewers - \$400,000; extensions and improvements to sewerage system, amounting to \$575,000 underway.

North Vancouver - 30 miles of sewers carrying street drainage and domestic sewage separately, with 24 in. outlets into Burrard Inlet; cost of sewers - \$435,000.

Prince Rupert - Part of city temporarily sewered; 5 miles for domestic sewage only, with outlet into the Pacific Ocean; cost of sewers - \$40,000.

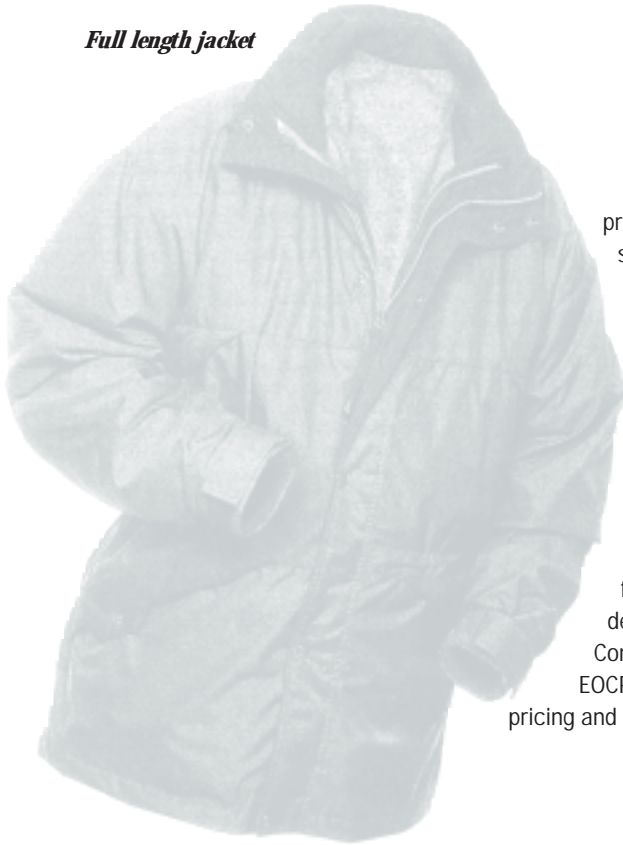
Revelstoke - 9 miles of combined street and domestic sewers with 18 in. outlets into Columbia and Illecillewaet Rivers; cost of sewers - \$112,000.

Vancouver - 200 miles of sewers, the greater part carrying combined street and domestic sewage, with outlets into the Pacific. They range from 6 in. to 84 in. circular section and horseshoe section equivalent to 10 1/4 ft. circular, the material used being vitrified pipe, cement pipe, concrete, with or without brick or vitrified tile lining. Approximate cost of sewers - \$4,500,000.

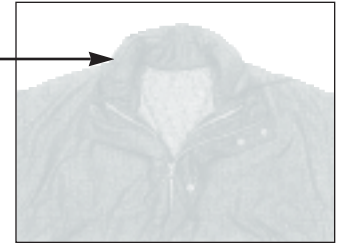
Vernon - 7 miles of sewers for domestic sewage only; sewage treated in septic tanks and filters; cost of sewers - \$94,500; cost of disposal plant - \$39,500; storm drainage recently installed, cost - \$58,000.

Victoria - Total of 110 miles of sewers for domestic sewage only, of which the larger ones may be divided as follows: 2 3/4 miles of 2 ft. x 3 ft. to 2 3/4 ft. x 4 1/4 ft. egg-shaped, brick and concrete; 2 1/2 miles of 27 in. to 36 in. concrete, 1 1/2 miles of 20 in. to 24 in. vitrified pipe; 133 feet of 36 in. steel pipe. The outlets discharge into the Pacific, cost of sewers - \$2,000,000.

Full length jacket



forest green collar and pocket trim



The EOCP can now take orders for program jackets. The jackets come in two styles - Bomber and Full Length. Both styles have an outer jacket and inner removable jacket, which can be worn separately - in reality, three jackets in one. The outer jacket is waterproof coated and is charcoal in colour with green trim. The EOCP logo is stitched on the jacket.

Sizes range from 36" (S) to 56" (XXXXXL). The jackets can also be ordered in Tall and Ladies sizes. The price for each jacket starts at \$150 depending on style and size.

Contact Barb or Terry at the EOCP office in Vancouver for pricing and ordering.

Bomber style jacket



Directors Al Lane, Eric Jackson, Bernie Taekema, Joe McGowan, Leo Albrecht and Bill Hyslop.

CERTIFICATION QUIZ ANSWERS from page 12 - 1.c 2.d 3.c 4.c 5.a 6.b 7.b 8.c 9.a 10.a

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EMPLOYMENT OPPORTUNITY:

**Fraser Valley Regional District
 Wastewater Treatment Plant Operator II**

The Fraser Valley Regional District will be receiving applications for the position of Wastewater Treatment Plant Operator II at its J.A.M.E.S. Pollution Control Centre, 5959 Gladwin Road, Abbotsford, B.C.

The incumbent will assist in the operation and maintenance of a secondary wastewater treatment plant and ancillary works to ensure that the final effluent meets the required pollution control standards.

The incumbent will be required to work a split week-end shift and be available for stand-by duties.

The incumbent will also be required to hold a minimum Class II Certification in Wastewater Treatment, a Chlorine Handlers Certificate and a valid B.C. Driver's Licence, 4 years experience at a Class II or higher facility, High School Diploma, G.E.C. or equivalent.

The wage rate for this position is \$20.18 per hour (pay grade 21, 1998) as per the FVRD-CUPE Collective Agreement 1996-1998.

Job description available upon request.

Interested candidates are invited to submit their resumes no later than 4:30 p.m. Wednesday, March 31, 1999 to: Suzanne Gresham, Manager of Administrations, Fraser Valley Regional District, 8430 Cessna Drive, Chilliwack, B.C. V2P 7K4, 604.702.5032
 Fax: 604.792.9684.



UPCOMING EVENTS

BCWWA SPRING CALENDAR 1999

- **BCWWA Annual Conference - Vernon** April 25 - 28, 1999
- **BCWWA UBC Operators School - UBC, Vancouver** May 16 - 21, 1999
- **EOCP Annual General Meeting - UBC, Vancouver** May 17, 1999

For information on the Conference or UBC School, please contact the BCWWA Office: Phone: (604) 540.0111 Fax: (604) 540.4077

- **Wastewater Biology -** Pennsylvania State Courses - Vancouver, May 10 - May 13.
The MicroLife, Activated Sludge, Settleability Problems
Nitrification, Sludge Dewatering, BOC & Metabolism

For Information: Mr. Ron Smith: Phone (905) 312-7604 Fax (905) 545-2314

FACILITY CLASSIFICATIONS

The table below shows the number and type of facilities that have been classified by the EOCP to January 1999. The greatest number of classifications is in the wastewater treatment category which includes both the voluntary and mandatory classification. Wastewater treatment is the only category that mandatory classification affects. The water distribution, water treatment and wastewater collection categories are all voluntary classifications. If you would like to have your facilities classified, please contact the EOCP office in Vancouver.

Class	I	II	III	IV	Totals
WD	79	28	12	16	135
WT	5	17	3	3	28
WWC	35	41	9	16	101
WWT	120	77	12	14	223
Totals	239	163	36	49	487