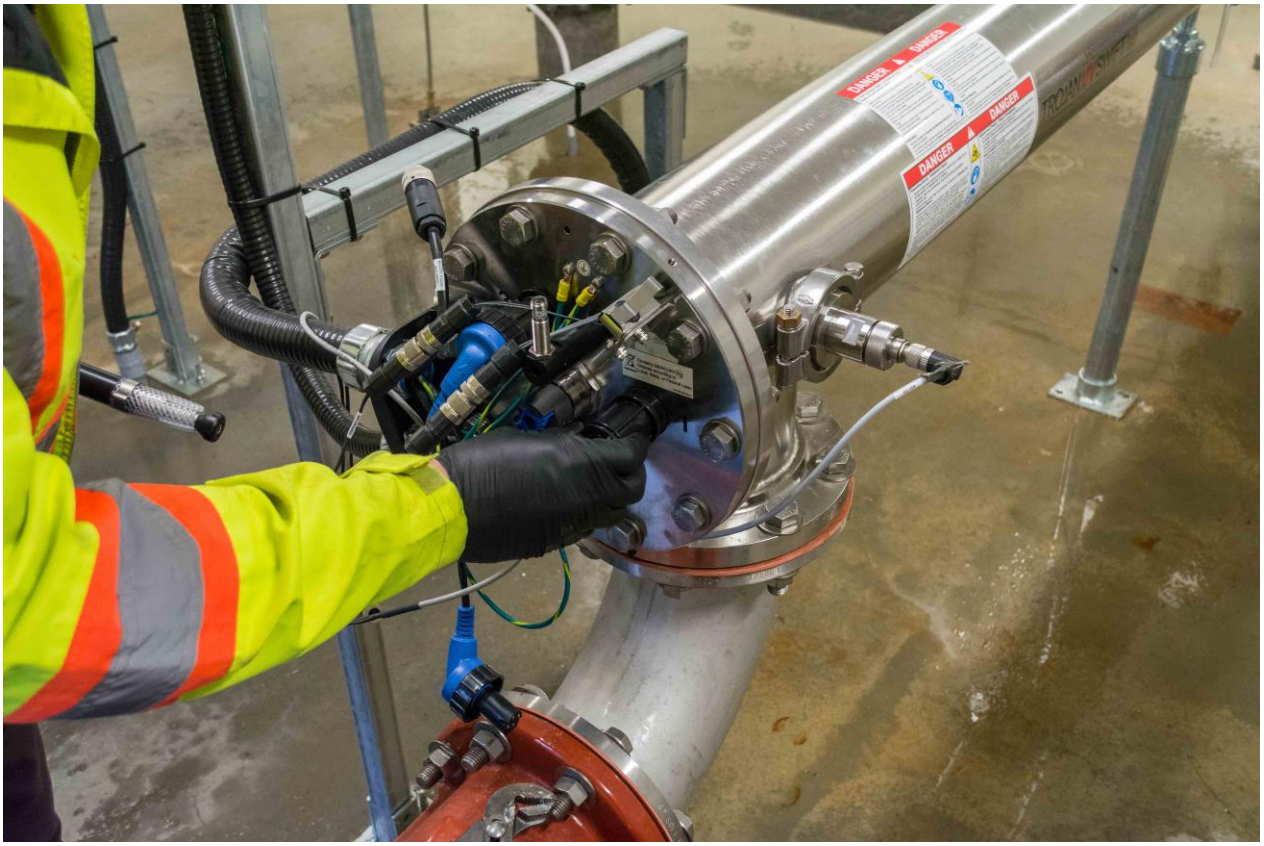
Comox Valley
REGIONAL DISTRICT

Black Creek Oyster Bay Water System Emergency Response Plan



Update: August 2019

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1. Loss of Power – BC Hydro Power Supply

The loss of BC Hydro power will automatically activate the power generator to provide electricity to the Comox Valley chlorination station. The water on call person will receive a page from the alarm monitoring company advising that there has been a power failure alarm and a genset run, power transfer alarm.

1.1 Respond to alarm and assess the situation.

1.2 Contact BC Hydro and notify them of the situation. Request an estimate of the duration of the power outage. **BC Hydro 1-888-769-3766**

1.3 Ensure that the generator is running properly.

1.4 Ensure that the chlorination equipment is operating properly.

1.5 Refuel standby generator if the outage is expected to last for an extended period

1.6 Once BC Hydro power is back in service check equipment and refuel the generator.

Genset

- Capacity is 80kw.
- Total run time with full fuel tank (120 gallons) is approximately 45 hours.
- Heaters are not on the generator supply.

In the event of freezing temperatures additional heat sources may be required within the chlorination building.

Stopping and starting of the booster pump may cause the ejector to vent chlorine solution causing a chlorine leak alarm.

- Staff will respond as per CVRD water services chlorine leak policy in the safety manual. (Section 2)

The regional district pump stations have uninterruptible power supplies that would maintain data logging and limited control in the event of a power failure.

In the event of an extended power failure:

- A backup portable generator could recharge the battery units in these stations.

2. Chlorine Leak at Oyster Bay Station Well #1, 4840 Regent Rd.

Chlorine leaks require a response from CVRD waterworks personnel trained in chlorine cylinder leak repair.

The chlorination station gas storage room is equipped with a chlorine gas scrubber.

The scrubber has the capacity to neutralize 2000 lbs. of liquid chlorine gas (under pressure).

In the event of a chlorine gas leak in this room, the scrubber will activate automatically and an alarm will be sent to the water on call person.

Leaks outside of the chlorine gas storage room would not activate an alarm from the chlorine leak sensors.

Details of leak assessment and repair are covered in the department safety manual.

Chlorine leak response

2.1 If waterworks personnel detect a chlorine leak during delivery:

- Contact the manager of water services, or senior water technician**,** then additional water services staff will be called out to respond to the leak.
- The manager will determine fire department and RCMP will be required for evacuation of the surrounding area.
- Any additional emergency notification may be initiated at this time or determined by assessment of the leak.

2.2 If this leak requires additional assistance from the fire department or RCMP, the chlorination station cannot be used to meet with emergency response personnel due to chlorine gas exposure.

- The meeting site is at the gate at the entrance to Well #1.

2.3 A repair plan will be determined after assessment by trained CVRD water services staff.

2.4 Leak repair will be completed by CVRD staff equipped with proper protective equipment. If needed, level "A" chemical suits are located at the waterworks shop at 299 Puntledge Ave. Additional technical support is available through the chlorine supplier: Brenntag Canada Emergency Contact phone 1-604-685-5036. Brenntag Canada emergency plan number is ERAP 2-0985.

2.5 After repairs have been completed, emergency response personnel will determine when the area is safe to allow anyone that has been evacuated to return to their home or workplace.

2.6 **Emergency Contact phone 1-604-685-5036** for technical support available through the chlorine supplier: **Brenntag Canada**.

2.7 Any equipment used (Repair Kit) would need to be serviced and any repair materials restocked.

2.8 A leak of this nature would require a report to be filed with the WorkSafe BC outlining the cause and procedures followed.

2.9 A post incident investigation would need to be arranged to ensure the appropriate actions were followed. Any changes in procedure would be implemented.

3. Failure of Chlorination Equipment

The Oyster Bay chlorination station has a backup chlorine ejector and solution line. In the event of failure of one of the chlorine ejectors, the operator on call can switch to the backup ejector by opening and closing the appropriate valves.

3.1 The on call water services personnel will receive a "Low Chorine Alarm" from the alarm monitoring service. The operator can close the main valve (in the station) on the system that is in need of repair.

3.2 It may be necessary to bypass the alarms (Low Chlorine residual, Booster fail) until repair is made and the equipment is returned to service.

In the event that the chlorination station is unable to function entirely

The reason for this would be a major component failure either due to fire or electrical overload or natural disaster.

3.3 The on call person would be the first response to any of these events. If it is found that the system does not have the ability to chlorinate, the manager of water services shall be contacted immediately. The manager will decide if the public health authority will need to be advised of any potential contamination.

3.4 A boil water notice (see Communications Procedure page 11) may need to be issued if there has been any unchlorinated water that has entered the distribution system.

3.5 Turn off the well pumps. This will stop unchlorinated water from entering the water system.

3.6 The repair of failed equipment or an alternate chlorination method needs to be implemented.

3.7 Bacterial water samples and free chlorine residuals should be taken throughout the distribution area.

3.8 Assess the volume of unchlorinated water entering this system. This can be back flushed to the chlorination station. Test the chlorine residual at the flushout outside the chlorination station. Test chlorine levels at all stations to ensure levels are adequate.

3.9 When repairs are made and sufficient sampling has been done to prove 0.6 mg/l chlorine in the supply system and the main valves in the pipe galleries can be opened to allow water back into the distribution system.

3.10 Subject to approval of VIHA the boil water notice may be rescinded.
(See Communications Procedure page 11.)

4. Bacterial Contamination of the Distribution System

The Black Creek/Oyster Bay water system is sampled bi- weekly. Consult with VIHA regarding **E. coli** presence in water samples. If there is **E. coli** detected in any of these samples proceed as follows:

4.1 Test for free chlorine levels present at sample site. Determine that adequate levels are present.

4.2 Flush the sample tap and ensure there is no local contamination of the site. Resample the site that had the presence of Total Coliform.

4.3 Results of these samples will show any indication of growth in 24 hours. Complete test takes 48 hours. If there is any indication of Total Coliform in further samples, flushing of the affected area and resampling will be required.

4.4 Continue flushing and sampling until no presence of Total Coliform is indicated.

E. coli Contamination or High Turbidity Levels

4.5 Contact the Vancouver Island Health Authority. Any water samples that indicate the presence of **E. coli** or **High Turbidity Levels** could require a boil water notice (see Communications Procedure page 11) to the users of the Black Creek/Oyster Bay water system.

4.6 Evaluate operational adjustments designed to reduce turbidity levels (i.e. temporarily isolate the water system from the source (river) and supply water from reservoirs only, etc).

4.7 Commence daily turbidity sampling and testing at all reservoirs to measure turbidity levels in the system, as well as the incoming turbidity from the source. (If turbidity results acceptable to VIHA, and not trending higher, then daily testing required only on week-days. Terminate daily testing after turbidity drops below 3 NTU.)

4.8 Determine the area affected and flush the system until acceptable chlorine or turbidity levels are found. Resample throughout the area.

4.9 Evaluate a communication strategy. It may be necessary to notify specific sites by hand delivering or faxing notices. i.e. hospitals, long-term care facilities and schools etc. Key communication issues – boil water notice, higher chlorine taste, water colour, etc.

4.10 Once the cause of the problem has been determined and corrected, three consecutive negative tests must be received. Consult with VIHA to determine when the boil water notice may be rescinded. (See Communications Procedure page 11.)

4.11 Evaluate need for a communications strategy.

5. Contamination of the Water Supply

In the event that there is contamination or suspected contamination of the water system occurs, including suspected reservoir intrusion:

5.1 Contact the manager of water services or other supervisor so they can advise the Vancouver Island Health Authority and Corporate Communications Team that contamination of the water supply has occurred.

5.2 Assess the source and the extent of the contamination within the water system. It may also be necessary to issue a boil water notice or other restrictive use notices such as water use restriction notice and/or do not consume the water notice to the users of the water system through the media. Additional advisories may be required after determining the cause of contamination.

5.3 If the contamination is from the source, turn off the well pumps and close the valves to isolate the water system from contamination. If the distribution system is contaminated, isolate the affected area. If the contamination is determined to be hydrocarbons leaking into the water source, the risk to the water supply must be assessed as soon as possible. This assessment will determine the appropriate response.

5.4 Water staff, in consultation with the Vancouver Island Health Authority, will need to determine a sampling strategy for hydrocarbons and assess the threat to the water supply.

5.5 If the source is contaminated, contact the **Emergency Management BC (EMBC) Emergency Coordination Centre (ECC)** and advise them of the nature of the emergency. **Phone 1-800-663-3456.**

5.6 In all cases sampling and testing of the water will be needed to determine the extent of the contamination.

5.7 It may also be necessary to flush the system if it is determined that there is contamination of the water supply.

5.8 After flushing, resample and determine that there is no contaminated water in the system. When the Vancouver Island Health Authority is satisfied that the water meets the drinking water standards, the system can be put back into normal operation.

5.9 Issue a removal of boil water notice a removal of water use restriction notice (and/or a removal of do not consume the water notice through the media

5.10 Clean up equipment and restock any supplies used.

5.11 Contact all agencies involved to ensure that proper controls are in place to prevent future events and that the procedures for controlling contamination are adequate.

6. Loss of Water Supply, Including Earthquakes

The response to the loss of supply is dependant on the cause and extent of the damage to the source or supply system.

Loss of a large supply main

6.1 Contact the manager of water services or supervisor and advise them of the nature of the emergency. The manager will determine which agencies will require notification.

6.2 Isolate the affected area. Depending on which water main is closed, this may create an alarm at one of the reservoirs due to loss of supply while filling.

6.3 It may be necessary to restrict water use through radio announcements and contact to the users of the water system.

6.4 Arrange to make the necessary repairs to the system.

6.5 Flush the system after repairs.

6.6 Ensure that there are adequate chlorine levels in the water prior to putting the supply main into service.

6.7 Remove any restrictive water advisories through the media.

6.8 Replace materials used for the repair.

Earthquake

The response to emergencies created by an earthquake would be dependant on the severity. It would be necessary to assess the nature of the damage to the water system. For this scenario it is assumed that this is a severe earthquake. It is also assumed that the earthquake has created multiple broken water mains and that the BCOB water system is losing water at a high rate. The objective is to preserve clean stored water for use as potable drinking water.

6.8 Contact the manager of water services or other supervisor and co-ordinate a response plan. Utilize available staff to perform the assessment of the infrastructure. Prioritize the work needed, based on damage to the system and supply options that may still be intact. Notify any agencies that would be affected by disruption of service. A boil water or restrictive water use notice may need to be issued through the media.

6.9 In the event that the supply system cannot fill the reservoirs, the water that they hold may be needed for an interim supply. This would be accomplished by closing the inlet (on those reservoirs that fill from the bottom) and the outlet valves. The distribution zones that are supplied by these reservoirs would immediately be put out of water.

This is an extreme measure and would be a last resort to hold some potable water for the Comox Valley water system.

6.10 The priority for repairs would be to first establish the supply system and chlorination station. Water hauling and bottled water would be needed to meet the domestic water requirements of the Comox Valley.

6.11 As repairs are made to the infrastructure, areas that had been out of water would be put back into service through standard testing and bacterial certification processes.

6.12 As supply and water quality are assured, boil water and restrictive use advisories would be removed in consultation with VIHA.

6.13 Any materials that were used for repair would need to be restocked.

7. Communications Procedures

The Manager of Water Services will alert the Communications Department about any water emergencies. A decision on the level of response will be made in conjunction with the department and the GM of Engineering and/or the Senior Manager of Water and Wastewater.

Communications Contacts:

Christianne Wile, Manager of Operational Communications	250-218-9856
Jennifer Steel, Manager of Corporate Communications	778-585-0717
James Warren, GM of Corporate Services	250-334-7312

The Crisis Communications Plan applies to incidents that occur within the CVRD and for which the CVRD has direct jurisdictional authority. The CVRD will assume lead responsibility for all emergency communications in those jurisdictional areas, and for those components of infrastructure and services for which the CVRD has direct accountability. This could include some or all of the following actions:

- Sending out an emergency message via the Connect Rocket emergency management system
- Posting an emergency banner on the website
- Advising Water Committee and CVRD Board Chair
- Advising CVRD staff
- Preparing a press release and distributing to Comox Valley Media
- Posting updates to social media
- Posting updates to the website
- Drafting FAQs and Key Messages
- Responding to social media inquiries

Emergency Contact List

Agencies	Emergency Numbers
Comox Fire Department	911
Courtenay Fire Department	911
Black Creek/Oyster Bay Fire Department	911
Courtenay Fire Department	911
R.C.M.P.	911
Brenntag Canada Emergency (Office 1-800-661-1830)	1-604-685-5036
North Island Hospital Comox Valley	250-331-5900
Campbell River Hospital	1-250-287-7111
Vancouver Island Health Authority:	
Environmental Health Officer: David Cherry dave.cherry@viha.ca	Office: 250-331-8518 Fax: 250-331-8596
Environmental Health Officer: Nancy Clements Nancy.Clements@viha.ca	Office: 250-923-1343 Fax: 250-850-2110
Public Health Engineer: Murray Sexton	Office: 250-755-6215 Fax: 250-755-3372
Medical Health Officer (MHO): Dr. Charmaine Enns	Office: 250-331-8592 Fax: 250-331-8513
After Hour Vancouver Island Health Authority MHO Emergency Contact	1-800-204-6166
Emergency Management BC (EMBC) 24/7 Emergency Coordination Centre (ECC)	1-800-663-3456
Ministry of Environment (MOE)	1-800-663-3456
Center for Disease Control (CDC)	1-604-661-7033
Maxxam Analytical Labs	250-338-7786
BC Hydro Vancouver Island Control	1-250-701-4611
BC Hydro Loss of Power	1-888-769-3766
WorkSafe BC	1-866-922-4357
Prices Alarms	1-888-817-8415
Comox Valley Regional District Emergency Management	250-334-8890
City of Courtenay	250-334-4441
City of Courtenay Works Yard	250-338-1525
Town of Comox	250-339-2202
Town of Comox Works Yard	250-339-2485
K'ómoks First Nation	250-339-4545

CVRD Staff Contacts:	**Cell**
Mike Herschmiller, Manager of Water Services	250-218-9699
Steve Prunkle, Senior Waterworks Operator	250-218-3207
Gord Murduff, Lead Waterworks Operator	250-207-0304
Steve Russell, Waterworks Operator	250-207-0307
Eric Cox, Waterworks Operator	250-207-0297
Kerry Bird, Waterworks Operator	250-897-6677
Gavin Waterfield, Waterworks Operator	250-207-0294
Dan Fredlund, Water Utilities Technician	250-650-2410

SEE NEXT PAGE FOR DETAILED INFORMATION CONTACT NUMBERS

EMERGENCY NOTIFICATION PROCEDURE
COMOX VALLEY WATER SYSTEM

In the event of an emergency the following persons shall be contacted and advised immediately of the situation:

City of Courtenay	
Administrator	- David Allen: 250-703-4854 (alt: 250-334-4441)/cell: 250-218-8312
Director of Public Works Services	- Trevor Kushner: 250-338-1525 cell: 250-218-4517
Manager Transportation and Utilities-Maintenance	- Kyle Shaw: 250-338-1525 works yard / cell: 250-218-4804
Waterworks Foreman	- Burton Brand: 250-338-1525 cell: 250-218-3153
After hours & holidays	- Protect Answering Service: 250-334-2947
Town of Comox	
Administrator	-Richard Kanigan: 250-339-2202
Public Works Superintendent	- Craig Perry: 250-339-2485 cell: 250-897-8132
Municipal Engineer	-Shelly Ashfield: 250-339-5410 cell: 250-218-3096
Chief Water Operator	- Brett Green: 250-339-5410 works yard /cell: 250-897-8022
After hours & holidays	- 250-3338-9434
Comox Valley Regional District	
Chief Administrative Officer	- Russell Dyson: 250-334-6000
General Manager	- Marc Rutten: 250-334-6000
Manager of Water Services	- Mike Herschmiller: 250-334-6000 / cell: 259-218-9699
After hours & holidays	- 1-877-999-2285 answering service
K'ómoks First Nation	
Band Emergency Liaison	- Katherine Frank: work: 250-339-4545 / cell: 250-218-4975
Comox Valley Water Committee	
Chair	- Director Robert Frisch
Puntledge Hatchery	
Hatchery On-call person	- 250-703-0907
Prices Alarm	- 1-888-817-8417
BC Hydro	
Vancouver Island Control	- BC Hydro Emergency: 250-850-0540
Fraser Valley Office	-1-604-455-1715
Vancouver Island Health Authority	
Health Officer	- See previous pages

An emergency is defined as anything that would/could cause illness to any resident within the Comox Valley Water System supply area, a malfunction of a major component that would/could interrupt water service or contamination/disruption of the source supply.