

APPENDIX 13:
**CHEMAINUS WATER SYSTEM EMERGENCY
RESPONSE PLAN ACTION ITEMS**

Chemainus Water System Emergency Response Plan

ACTION LIST

1. Type of Emergency: **Contamination of Banon Creek Reservoir Source**

Banon Creek Reservoir holds about 12 M imp gallons behind a concrete dam. Contamination of source has been revealed by testing involving both chemical and bacterial tests.

Actions:

- Notify and meet with Health Unit and determine if boil advisory is required.
- Issue boil advisory, if required, to users via door delivery and post notices. If contamination is not treatable by boiling, issue a no water use notice until contaminants are flushed from the system.
- Advise CKAY, Shaw Cable, News Leader/Pictorial and The Citizen newspapers.
- Flush water system to purge contaminants.
- Arrange for alternate sources if necessary, i.e., bottled water and tankers.
- Switch to Saltair (CVRD) supply.
- Connection to the Saltair (CVRD) supply, subject to CVRD approval, involves interconnection between hydrants on Victoria Road and Chemainus Road. The Saltair pressure is about 44 psi below the Chemainus pressure. Temporary booster pump locations are shown on the plans attached. Fire trucks are to be used as temporary booster pumps. With Saltair supply only, the area above the PRV's on River Road, Henry Road, and Crozier Road will not have water service.
- Temporary booster pumps must also be set up at the River Road PRV for domestic supply only of the upper zone.
- Extreme water restrictions.
- If long term outage, setup pump-out system from Chemainus Lake for supply. This will require Ministry of Environment approval for supply from Chemainus Lake on a temporary basis and a boil advisory will be required as no chlorination will be provided.

Contacts:

- Health Unit
- Provincial Emergency Program
- Ministry of Environment
- Department of Fisheries and Oceans

2. Type of Emergency: Shutdown of Banon Creek Reservoir Source

Actions:

- Same as #1, but delete flush water system to purge contaminants.

3. Type of Emergency: Broken Watermain

Actions:

- Utility crew dispatched to site.
- Isolate area.
- Notify users of service interruption.
- Repair break - see repair clamp list in Section E.
- Put back into service.
- If there is a potential for contamination (i.e. sewage) go to #1 above.

4. Type of Emergency: Chlorinator Failure - Banon Creek

The chlorine residual leaving Banon Creek Reservoir is monitored and alarmed if it falls below 1.3 ppm or above 2.8 ppm. An alarm will indicate there is either a high chlorine demand or the chlorinator has failed.

Actions:

- Dispatch utilities personnel to site.
- Check chlorinator and do residuals through system.
- Repair chlorinator.
- Flush system to remove slug of unchlorinated water.
- Notify Health Officer if residuals in system have fallen below 0.1 ppm, or if failure has been for extended period.
- Take samples for testing the day after the event at sampling sites noted on attached plan.
- Consider boil advisory if extended chlorinator failure.

5. Type of Emergency: Chlorinator Failure - Oak Street

- Dispatch utilities personnel to site.
- Check chlorinator and do residuals through upper Victoria Road system.
- Flush water system.
- Repair chlorinator.
- Notify Health Officer if residuals in system have fallen below 0.1 ppm or if failure has been for an extended period.
- Take samples for testing the day after the event at sampling sites noted on the attached plan.
- Consider manual batch dose of hypochlorite (6% or 12%) directly into the Victoria Road Reservoir.
- Consider a boil advisory if extended chlorinator failure.

6. Type of Emergency: Pump Station Failure - Oak Street

Actions:

- The Oak Street Pump Station is the source of water to the Upper Victoria Road pressure zone.
- If the pump station fails, repairs must be undertaken and completed within 24 hours in winter and 12 hours in summer during normal consumption. The Victoria Road Reservoir can provide supply for these periods during a pump station failure. It has a capacity of 170,000 imp gallons.
- If it is determined the failure will exceed these times, switch to Saltair (CVRD) supply and follow instructions noted in #1 for Saltair supply.
- As an alternate, a fire truck can be used to pump at the Oak Street pump station. Please see fire truck use in Section D.

7. Type of Emergency: Banon Creek Dam Failure

Actions:

- Same as #2.

8. Type of Emergency: Earthquake

Actions:

- Check Banon Creek and Holyoak Dams.
- Check Oak Street pump station, Banon Creek chlorinator and PRV stations for damage and misalignment.
- Isolate damaged areas.
- Check integrity of Victoria Road Reservoir and isolate as required.

9. Type of Emergency: Power Failure at Pump and Chlorinator Stations

Actions:

- Banon Creek chlorinator has a generator.
- Oak Street pump station chlorinator can be run by portable generator.
- Operation of the portable generator will not be required until the Victoria Road Reservoir, which is fed by this pump station, reaches the 40% level.

10. Type of Emergency: Generator Fuel Outage at Stations

Actions:

- Contact diesel supplier Petro Canada as primary supplier.
- Diesel is also available at the Public Works yard and can be transported via Municipal vehicle.
- Alternate suppliers are available.

11. Type of Emergency: Victoria Road Reservoir Contamination

Actions:

- Isolate reservoir from system.
- Contact the Ministry of Health and consider boil advisory.
- Place applicable pump(s) in continuous service to maintain supply while reservoir is out of service.
- Flush upper system.
- Test for contamination and determine source.
- Cleanup contamination and retest water.
- Put back into operation.

12. Type of Emergency: Fire in Pump Station

Actions:

- The Oak Street Pump Station has heat detectors connected to an automatic alarm system.
- The Banon Creek chlorinator does not have detectors.
- Fire departments will be dispatched to the pump stations by 911 when the fire alarm is activated.

13. Type of Emergency: Holyoak Lake Dam Failure or Supply Loss

Holyoak Lake supplies the Chemainus Water System typically from July to October each year. Water is discharged from the lake in a controlled manner and discharges into Banon Creek, which flows to the 12 M imperial gallon Banon Creek reservoir where the Chemainus water intake is located.

Loss of the dam or supply is a major concern. Should the loss occur during the summer months less time will be available to arrange for alternate supplies of water.

Sources of supply include:

- Saltair water system (CVRD) via Chemainus Road and Victoria Road interconnections.
- Supply from Holland Lake, with the Town of Ladysmith's approval, via pumping to Banon Creek which runs in close proximity to Holland Lake.
- Temporary supply from Chemainus Lake.

Should loss of Holyoak Lake supply occur, notify the following:

- Health Unit
- Provincial Emergency Program (assistance with alternate supply)
- Ministry of Environment (temporary water licences)
- Town of Ladysmith
- CVRD

**14. Type of Emergency: Watermain Break at Victoria Street/
Chemainus Road**

Should a break occur at this location, the lower zone of Chemainus, north of this location, will be without water. However, alternate supply can be taken from the Victoria Road reservoir through the PRV at the Oak Street pump station for a short duration.

Actions:

- Utilities crew to isolate the break/leak and start repairs.
- Activate the pressure reducing valve at the Oak Street pumping station to supply the lower zone from the Victoria Road reservoir.
- Contact the Health Unit.
- Contact the CVRD to arrange alternate supply from the Saltair water system.
- Contact the Chemainus Sawmill to advise them of reduction in water available. The Sawmill also has a connection just south of the of the Chemainus Road/Victoria Road intersection, which may or may not be available depending on the break location.
- Repair leak.

15. Type of Emergency: Suspected Contamination by Vandalism

Actions:

- Advise Ministry of Health.
- Notify RCMP and fire departments.
- Issue public advisory via radio, Shaw Cable, door to door notices and faxes to water users not to use water. Ask local community groups, Chamber of Commerce, fire departments and police to assist in getting notice out.
- Take water samples in proper containers for water testing (compare with normal water test results).
- Flush water system to purge contaminants and retest water.
- Arrange for alternate water sources such as bottled water and tankers.
- Impose water restrictions if necessary to ensure fire supply.
- Consider switching source water if source continues to be contaminated.

16. Type of Emergency: Chlorine Leak

Actions:

- See Policy 20.1 (attached).