NORTH SHORE WATER UTILITY
Nelson Ltd.

July,

2015

Emergency Response Plan

Prepared by:

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Project Number:

14-017

Client:

North Shore Water Utility Ltd.

Revision:

1.5

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List of Revisions

Name/Title	Signature	Date	Rev. No.
Steven Thomson ***Project Engineer/ Senior Project Manager***			Rev. 1.5

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1.0 Introduction

The Safe Drinking Water Regulations of the Health Act requires that all purveyors of small water systems have an Emergency Response Plan (ERP) that they can refer to in the event of an emergency which might present a threat to the health of people drawing their water from that system. Enclosed in this document are the steps, procedures and contact information that will be essential when dealing with both minor and major emergencies.

When reporting an emergency, report the nature of the emergency, location, the number of people involved, and/or injured (if applicable), and any mitigating actions that have been taken.

All persons who have direct accountabilities or who are responsible for facilities supplying potable water (water system operators, management and local Environmental Health Officer) must ensure they are familiar with these procedures and reporting protocols to ensure a quick and effective response to any potable water concerns. All incidences must be documented. A List of Revisions table is attached at the beginning of this document to outline any changes made to this manual.

It is the responsibility of the system operator to update this ERP annually or as contact information changes. An operator's ability to respond quickly and correctly in the event of a system anomaly or an emergency will help prevent unnecessary problems. The annual review of the ERP is intended to prevent future emergencies. By making a thorough evaluation and review of all the potential "trouble spots" or vulnerable points in a particular system, the operator may identify steps that they can take now that will prevent an emergency from happening later. When an emergency does happen, the operator must immediately start taking the necessary actions to resolve it, not trying to determine what they should do first or next, ensuring action not reaction.

It is the goals of the North Shore Water Utility Nelson Ltd. (NSWU) to protect the customers of the water system from any potential health hazards related to a contamination of water source, while minimizing the disruption to service from potential emergency events listed in this document. These goals are accomplished through the following actions:

- Quickly identifying the type and source of the emergency and executing an effective response to the situation;
- Immediately notifying the customers and local health authorities should the water source become non-potable and providing an appropriate course of action plan;
- Collaborating with local fire departments and municipal public works in the event that the emergency is out of the scope of the NSWU resources; and
- Ensuring that repairs to damages are completed in the timeliest manner available to minimize system downtime.

The NSWU will continue to work towards refining the procedures outlined in this document and provide the most up to date information to it's users through posting of this ERP on the NSWU website.

2.0 System Information

The table below outlines the basic information that is available for system personnel and external parties such as emergency responders, repair people and the media. All buildings are locked to prevent unauthorized access. Signs are posted at both reservoirs with contact information and warning to protect the watershed. Bear spray is recommended when accessing the buildings. Comprehensive information on the utility can be found in the Operation and Maintenance Manual.

Table No. 1 - System Information

System Name	North Shore Water Utility Nelson Ltd. (NSWU)	
Directions to System	NSWU is comprised of two reservoir buildings containing the level control and chlorination systems. ***Isaac Creek/Collin Springs:*** Off Hwy 3A, turn onto Johnstone Road. Follow approximately 200 meters until Whitmore Road junction and turn right. Stay left and turn onto Parkview Road. Follow this road until the Sutherland Drive fork and remain right. Follow road to 673 Upper Parkview Road and turn left up driveway. Follow the Statutory Right-of-Way that goes behind this residence and continue on for approximately 200 meters. At the terminus of this road is the reservoir building. The coordinates for this building are $49^0$31'0.10"N/$117^0$17'16.36"W ***Sutherland Creek*:** Off Hwy 3A, turn onto Johnstone Road. Follow approximately 200 meters until Whitmore Road junction and turn right. Stay left and turn onto Parkview Road. Follow this road until the Sutherland Drive fork and turn left. Follow this road and turn right up the driveway for approximately 30 meters. The reservoir building will be on the right. The coordinates for this building are $49^0$30'48.65"N/$117^0$17'30.41"W	
Facilities	***Isaac Creek/Collin Springs:*** The treatment system is comprised of a 20,000 Igal concrete reservoir with a wood frame structure situated on top that contains the chlorination system. The intake is sourced by Collin Springs and is covered by a wooden structure to protect infiltration galleries. This intake is located approximately 30 meters north of the reservoir. ***Sutherland Creek*:** The treatment system is comprised of a 20,000 Igal concrete reservoir with a concrete block structure situated on top that contains the chlorination system. The intake is sourced by Sutherland Creek and flows into another level control building. Both are covered by wooden structures. These intakes are located approximately 60 meters northwest of reservoir following the gravel road.	
Distribution System	The 2.5 km distribution system is comprised primarily of 6" diameter PVC, with some 2" and 4" diameter pipe. There are 6 fire hydrants and one standpipe that are utilized for system flushing. Each house has a curb stop valve connected to the main, which allows for isolation of the residence.	
Location/Town	Nelson, BC	
Population Served	135 Active residential connections, two (2) motels, one (1) commercial building, and one (1) restaurant.	
System Owner	AquaDiversities Inc.	
System Operation and Maintenance	AquaDiversities Inc.	
Person Responsible for Maintaining ERP	Steven Thomson Senior Project Manager	Email: steven@9doteng.com Cell: 250-509-2222

3.0 Contact Information

In the event of any situation that causes serious injury or fire, **call 911 for emergency services immediately.**

Table No. 2 - Contact Information

Name	Email of Contact	Position	Phone
AquaDiversities Inc. Nathan Ward	nward@aquadiversities.com	Water Quality Technologist/Certified Operator/Operations Manager	P:250.509.2222
9dot Engineering Inc. Steven Thomson	steven@9doteng.com	System Engineer/Senior Project Manager	C:250.304.7791
AquaDiversities Inc. Forrest Dempster	fdempster@aquadiversities.com	Junior Water and Wastewater Technician/System Operator	C:250.505.7541
Interior Health Authority Marianne Crowe	marianne.crowe@interiorhealth.ca	Public Health Engineer	P:250-505-7200
Interior Health Authority Juliana Gola	Zara.Zychowicz@interiorhealth.ca	Environmental Health Officer	P:250.364.6202
Caro Analytical	kelowna@caro.ca	Water Analysis	P:250.765.9646
Passmore Labs	passmorelaboratory@columbiawireless.ca	Water Analysis	P:250.226.7339
Ministry of Environment Tamara Mickel	tamara.mickel@gov.bc.ca	Hazardous Spill	P:604.660.2421
		Environmental Protection Officer	P:250.354.6162
Kay's Contracting Matt Hanlon	matt@kayscontracting.com	Owner	P:250.509.1567
Sunnyside Trailer Park George Isner		Property Manager	P:250.354.0123
Tom Yasek		Local System Knowledge	P:250.352.5679
City of Nelson Public Works Department	rnystrom@nelson.ca	**Rob Nystrom** - Manager of Engineering Services	P:250.352.8271
	nrich@nelson.ca	**Norm Rich** - Utilities and STP Supervisor	P:250.352.8211
	colsson@nelson.ca	**Carl Olsson** - Design and Facilities Technician	P:250.352.8214

Name	Email of Contact	Position	Phone
City of Nelson Fire Department (non-emergency)	lmaccharles@nelson.ca	**Len MacCharles** - Fire Chief	P:250.352.3103
Ministry of Transportation and Infrastructure Catherine Littlewood	catherine.littlewood@gov.bc.ca	District Development Technician	P:250.354.6318
Kootenay Lake Regional Hospital		Non-emergency	P:250-352-2112
Nelson Hydro		Power Outages	P:1-877-324-9376
Police (RCMP) Nelson Detachment		Non-emergency	P:250.352.2156
Astral Radio		Media	P:250.352.5510
Nelson Star News		Media	P:250.352.1890

4.0 Customer Communication

Communication plays a key role in how well an operator is able to respond to an emergency. First, the operator must be able to alert all the users on the system as soon as possible, especially if there is any possible risk to their health from drinking the water provided. If the information to deliver to the water users warrants immediate action, the operator can utilize the "phone tree" communication method. The operator contacts one person and designates several numbers for the individual to contact and pass on information. Please see **Appendix G in Operations and Maintenance Manual** for a current list of users and contact information.

Communication tips:

DO:

- Be prepared;
- Designate a spokesperson;
- Provide complete, accurate, and timely information;
- Acknowledge uncertainty and offer to get back with more information later;
- Document your communication.

DO NOT:

- Speculate on the cause or outcome of an accident;
- Blame or debate;
- Minimize or brush off concerns.

4.1 Media

Local media (radio, television and newspapers) can carry warnings and assurances to the public if the situation is serious enough. Make sure you contact local media as part of your emergency planning to establish your credibility with them, and to ensure that if you ever do have to call they'll know who you are and how important it is to cooperate with you in alerting their readers or listeners.

4.2 Signs

In the event of an emergency, the Environmental Health Officer (EHO) may suggest that the operator post a boil water advisory/water quality advisory sign in all public areas. Examples of these signs are found in **Figure No. 1** below. These signs are posted at all access roads and community mailboxes that service the utility area.

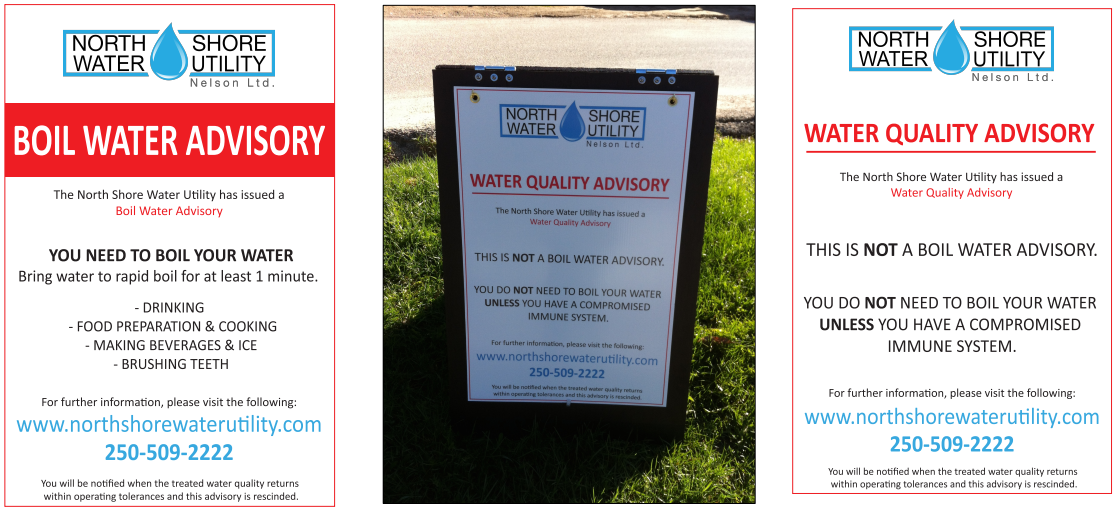

Figure No. 1 - Water Quality/ Boil Water Advisory Signage

4.3 Website

The NSWU has created a website to provide a platform for the exchange of information between the customers and the Utility. Customers can receive immediate notification of Utility events via text or email by visiting the website at http://northshorewaterutility.com and signing up for alerts on the homepage.

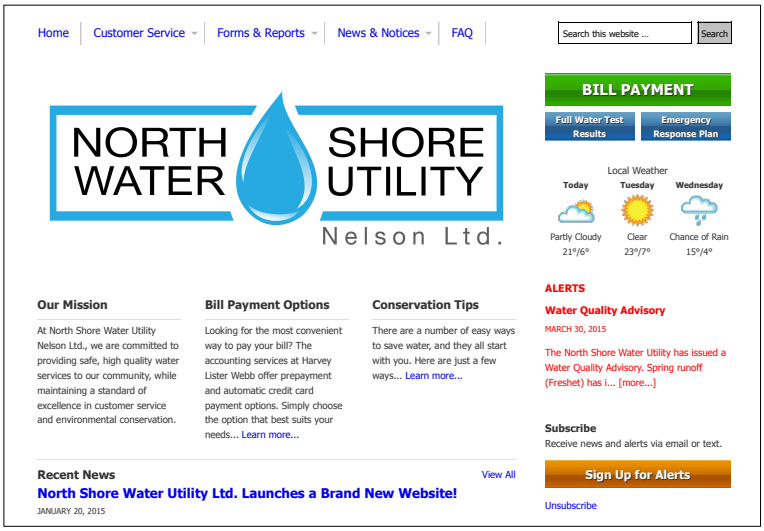

Figure No. 2 - North Shore Water Utility Homepage

During an emergency, the media, the system users and others will have many questions. Be prepared by organizing basic facts about the crisis and your water system. Assemble a team of players quickly, including a main spokesperson to answer questions. Make sure field and office staff knows how to deal with the media and questions from the public and how to respectfully defer questions to the spokesperson.

Below is a list of possible messages to deliver during an emergency:

- We are taking this incident seriously and doing everything we can to resolve it.
- Our primary concern is protecting our customers' health.
- Another important concern is keeping the system operational and preventing damage.
- What we know right now is…..
- The information we have is incomplete at this time, we will keep you informed as soon as we know more.
- We have contacted regional and local authorities to help us respond effectively and to correct the current situation as soon as possible
- If you think you may be ill or need medical advice, contact your local physician or go to the emergency room of the hospital.
- We are sampling the water and doing tests to determine whether there is a potential cause of contamination.

Table No. 3 - Spokesperson and Alternate

Spokesperson	Alternate 1
Nathan Ward Water Quality Technologist/Operations Manager	**Steven Thomson** Project Engineer/Senior Project Manager

5.0 List of Potential Emergency Situations

The operator must review and identify all potential emergency situations that could make the water unsafe, prevent the flow of water, or pose a health risk. Some of the potential categories relevant to NSWU water treatment facility and distribution system include:

- Adverse test results
- Contamination of source (biological and chemical)
- Loss of source water
- Plumbing or equipment failure
- Natural disasters
- Cross connections
- Extended power failure
- Fire
- Deliberate acts of vandalism or terrorism

5.1 Adverse Test Results

Turbidity and chlorine residual are tested for on a routine basis, both at the reservoir and post distribution system, to ensure they are maintained within the regulatory parameters.
Microbiological testing for both E. coli (fecal coliforms) and total coliforms is performed on a bi-monthly basis and warrant immediate action if regulatory parameters are not achieved.

5.2 Contamination of Source

Contamination of the water source is a major emergency and could be a result of the following:

- Biological (i.e. Animal carcass)
- Chemical (i.e. Leakage of a hazardous material)
- Flooding or mudslide (danger to intake, higher turbidity, higher bacteria)
- Malicious tampering, vandalism or acts of terrorism

5.3 Loss of Source

In the event that a loss of source water is detected, the following may have occurred:

- Plumbing failure (ie. Broken or obstructed pipes)
- Physical obstruction of source water (i.e. Mudslide)

5.4 Plumbing or Equipment Failure

Plumbing and equipment failure can be categorized as Type I, II, III or IV in severity and warrant a variety of actions. Due to the aging infrastructure of portions of the distribution system, it is important for the operator to be well informed of where shut off valves are located and what portions of the utility are affected. **A map of these valves is posted in both reservoir buildings**.

Examples of a **Type I or Type II failure** would be:

- Minor failures in treatment system components, which can be mitigated by replacing or repairing equipment.
- Small leaks that can be addressed by either the operators or plumber.

Examples of a **Type III or Type IV** failure would be:

- Backflow or back-siphonage of system that results in loss of pressure somewhere in the system causing water flow to reverse.
- A major pipe burst in either the treatment or distribution system that cannot be addressed without complete shut-down.

5.5 Natural Disasters

Natural disasters can result in a variety of emergencies and are a real threat in the rural location of the NSWU water treatment facility. The most common of these include:

- Rock slides
- Forest fires
- Mudslides

5.6 Cross Connections

A cross connection is an actual or potential physical connection between a potable water system and any source of non-potable liquid. Cross connection contamination can occur through a back-flow or back-siphonage event that reverses the flow of water or other substance into the public water system. Contamination from a cross-connection source can lead to:

- Waterborne illnesses
- Chemical poisonings

5.7 Power Failure

Power failures are not uncommon in the North Shore area, but also do not pose a significant risk as the reservoirs will likely supply treated water until the power is restored.
Sources of power failure may be:

- Downed power line
- Overload of the system
- Electrical panel issues

5.8 Fire

A fire can be a result of any of the following and is a major event if uncontrolled:

- Faulty wiring
- Vandalism
- Natural wildfire

5.9 Deliberate Acts of Vandalism or Terrorism

Acts of vandalism are not pre-meditative or pre-planned and often result in minor repairs. These include:

- Graffiti
- Broken locks
- Broken gates/door

Acts of terrorism are conducted by someone whose intent is to instil fear or induce harm to people and facilities. Even though it may seem unlikely, being prepared and knowing what to look for are crucial elements of preventing an attack on the system. Examples of these acts are:

- Addition of a biological, chemical, or radiological contaminant
- The use of an explosive device to render parts of or the entire system inoperable

6.0 Emergency Severity

The emergencies listed in this document can have a wide range of severity. It is important for the person(s) addressing the emergency situation to correctly identify the level of severity so that the appropriate response can be put in motion. If the individual is unsure of the level of severity, they must coordinate with the external parties listed in the contacts section of this ERP to correctly identify course of action.

Table No. 4 outlines the different types of emergencies and the corresponding example situations that are associated with it.

Table No. 4 - Emergency Severity

Type	Description	Examples
Type I - Routine Emergency	The system experiences a normal emergency that does not likely pose a risk to the publics health. System personnel are able to handle the situation with minimal assistance.	Minor mechanical problems in reservoirs, short power outages, initial elevated turbidity readings, low reservoir level at Isaac Creek without Sutherland online.
Type II - Minor Emergency	The system experiences minor disruption in supply or has water quality issues that may need consultation with IHA in order to determine course of action. These emergencies may pose a risk to public health, but can usually resolved within 48-72 hours.	Distribution line break, extended power outages, elevated turbidity for three (3) consecutive days, an initial positive total coliform reading, chlorine residual below 0.20 mg/l at the end of the distribution system, minor act of vandalism.
Type III - Significant Emergency	The system experiences a major disruption in supply requiring supplemental resources. The system experiences water quality concerns that pose a definite risk to public health. Resolution of event is beyond 72 hours.	A distribution main break near or at the reservoir, reservoir or intake events that require shut-down, positive total coliform counts on retest or any e.coli counts, back flow resulting in cross connection contamination, major acts of vandalism or terrorism that require facility shut-down.
Type IV - Catastrophic	The system experiences major damage and complete shut-down is imminent. Local law enforcement and emergency governing services (IHA, MOE) involvement is required. Resolution is not anticipated within a set time.	Landslides, forest fires, chemical spill at intake or reservoir, multiple distribution main breaks.

7.0 Notification Protocol

As an emergency is identified, it is important for the operator to know whom to contact at what level of severity. Below is a list that will apply generally to the different types of emergency. A follow up Emergency Response Report is to be forwarded to the Operations Manager (see **Appendix E** for report sheet).

Type I - Operator should be able to resolve emergency with minimal assistance from other support personal within the NSWU resources (i.e. plumber). Follow up emergency/response report to be forwarded to the Project Manager(s) or Operations Manager.

Type II - Operator to immediately inform the Operations Manager. IHA to be notified by either Operations Manager or Project Manager(s) for direction, if applicable. Operator to confirm with Operations Manager that signage is to be posted and place at the appropriate locations (see **section 4.2**). Alert posting on web site to be initiated by Project Manager (s).

Type III and IV - Operator to IMMEDIATELY inform Operations Manger and Project Managers and contact emergency response services as applicable. Immediate notification to the users and public is

required. The Spokesperson or alternate (see **Table No. 3**) will address the appropriate media and the operator will initiate the "phone tree" method of communication to the NSWU users.

8.0 Responsive Actions

Below are the severity level and responsive actions to some of the possible emergency situations addressed in **Section 5.0.** **Notification protocol should be followed as listed in Section 7.0.** *These are guidelines only*, it is the operators responsibility to become familiar with necessary protocol, but also be prepared to act quickly and effectively to mitigate emergencies not addressed in this ERP.

8.1 Adverse Test Results

8.1.1 Turbidity above 1 NTU (less than 3 consecutive days)

Level of Severity - Type I

- Monitor levels daily.

8.1.2 Turbidity above 1 NTU (more than 3 consecutive days)

Level of Severity - Type II

- Confirm with Operations Manger on Water Quality Advisory (WQA) and post signage/alert.
- Increase chlorination dose and adjust to maintain above 0.30 ppm at the end of the distribution system.
- Monitor levels until readings consistently read below 1 NTU and inform Operations Manager.
- If during Spring Freshet, continue to post WQA regardless of levels until melt is completed for the season.
- With approval from IHA, rescind WQA and post to alerts.

8.1.3 Post Distribution System <0.20 mg/l

Level of Severity - Type I

- Investigate reservoir (check carboy levels/dosing pump).
- Add 100 ml of 12% Sodium hypochlorite to reservoir and mix thoroughly.
- Recheck chlorine residual levels in reservoir and post distribution system after 2 hours.

8.1.4 Total Coliforms Present

Level of Severity - Type II

- Check operator log sheets and ensure a minimum residual of 0.3 mg/l was recorded for the test date. If not, check current residual at reservoir and post distribution system.
- Ensure with water analysis facility that test was negative for the presence of E. Coli.
- Contact local EHO to discuss is Water Quality Advisory should be posted.
- Perform bacteriological re-test (quantitative and with 24-hours).
- If re-test shows counts present, shock-chlorinate/flush system and increase disinfection concentration. These procedures are outlined in the **Operation and Maintenance Manual Section 5.6.**

- Post a Boil Water Advisory (BWA) until re-tests show no counts present and rescind with approval from EHO.

8.1.5 E. Coli Present

Level of Severity - Type II

- Immediately contact EHO and initiate BWA. Contact Sunnyside Trailer Park and inform them of BWA.
- Check Operator Log Sheets and ensure a minimum residual of 0.3mg/l was recorded for the test date. If not, check current residual at reservoir and post distribution system.
- Perform bacteriological re-test (quantitative and with 24-hours).
- Inspect intakes and reservoirs for animal activity.
- If re-test shows counts present, contact EHO and consider the following:

    1. Degree of contamination.
    2. Determine what level of communication is required to inform the users.
    3. Evaluate the treatment system.
    4. Evaluate the integrity of the water supply.
    5. Survey users for incidents of waterborne intestinal illnesses.
    6. Review the past history of the treatment and/or distribution system.

- Shock-chlorinate/flush system and increase disinfection concentration. These procedures are outlined in the **Operation and Maintenance Manual Section 5.6.**
- Continue to perform bacteriological tests until two consecutive tests show no counts.
- With approval from EHO, rescind BWA and post to alerts.

8.2 Contamination of Source

Level of Severity - Type II

- Shut down system by turning off main distribution system valve from reservoir.
- Inform Sunnyside Trailer Park if contamination affect the Isaac Creek intake and poses a threat to their water source.
- Refer to MSDS in Operation and Maintenance Manual Appendix B for safety precautions and clean up procedures.
- Bring alternate reservoir on-line if not already.
- Remove contaminant if possible (i.e. animal carcass).
- Notify IHA and determine what action to take and what level of communication is required to inform users. If IHA requires immediate notification to users (i.e. level of contamination poses a risk to health), initiate the phone tree method of communication.
- Post signage/alert.
- Notify Ministry of Environment if spill is hazardous.
- Contact police if contamination was deliberate.

- Closely monitor water quality and record any instances of health complaints. Perform necessary tests to ensure water quality has returned to acceptable parameters and with approval from IHA, rescind BWA and post to alerts.
- Shock chlorinate/flush system to remove contaminant as required. These procedures are outlined in the **Operation and Maintenance Manual Section 5.6.**

8.3 Loss of Source

Level of Severity - Type III

- Investigate source loss.
- Shut down system if loss is significant and bring alternate reservoir online if not already.
- Notify all users (including Sunnyside Trailer Park) and implement a temporary water restriction. Post alert.
- Contact City of Nelson Public Works and arrange potable water tanker.
- Contact EHO.
- Contact Ministry of Environment.
- Arrange alternate source if necessary.

8.4 Plumbing or Equipment Failure

8.4.1 Chlorination Disinfection System Failure

Level of Severity - Type I

- Assess nature and cause of problem.
- If post distribution system chlorine residual is below 0.20 mg/l, see **8.1.3.**
- Add 100 ml of 12% Sodium hypochlorite to reservoir and mix thoroughly.
- Replace dosing pump.

8.4.2 Minor Leaks in Distribution Main

Level of Severity - Type II

- Contact operations manager immediately.
- Isolate section of main if possible and switch to alternate reservoir.
- Inform resident (s) affected by shut-off.
- If leak is within section of existing 4" asbestos pipe (refer to distribution system map) additional safety precautions must be follow. Refer to Health and Safety section of O&M.
- Contact Kay's to expose leak.
- If repairs are anticipated beyond a 12 hour period, arrange alternate source of water for users.
- Identify possible materials required to fix leak.

8.4.3 Distribution System Main Break

Level of Severity - Type II

- Contact operations manager immediately.
- Isolate section of main if possible and switch to alternate reservoir.
- Inform resident (s) affected by shut-off.
- Contact Kay's Contracting for machine work.
- Post signage and have area flagged off with clear direction or a flags person to redirect traffic during repair. Post alert to warn residents of traffic reroute.
- Contact City of Nelson Public Works for additional support if necessary.
- Flush system following repair to remove any debris or silt. These procedures are outlined in the **Operation and Maintenance Manual Section 5.6.**

8.5 Natural Disasters

Level of Severity - Type III/IV

- Contact emergency respondents IMMEDIATELY!
- If disaster event has compromised only one of the reservoirs (i.e. rock/mudslide), turn off main valve supply to distribution system and bring alternate source online.
- If both reservoirs are affected, contact the City of Nelson Public Works and arrange for a potable water tanker.
- Contact Ministry of Environment for additional direction and support services.
- Contact IHA for additional direction and support services.

8.6 Cross Connection

Level of Severity - Type III

- Assess nature and cause of backflow contamination issue.
- Take photograph and contact Operations Manager to discuss.
- Isolate area if possible.
- Notify IHA and determine what action to take and what level of communication is required to inform affected users.
- Arrange for alternate drinking water source if unable to isolate the affected area.
- Make corrections to fix or eliminate the source of cross connection.
- Shock chlorinate/flush system to remove contaminant as required. These procedures are outlined in the **Operation and Maintenance Manual Section 5.6.**
- With approval from IHA, rescind advisories and alerts.

8.7 Extended Power Failure

Level of Severity - Type II

- Call Nelson Hydro to check status of repairs and anticipated duration of outage.

- As the distribution system is gravity fed, the back-up power supply needs only to run the chemical dosing pump and actuating valves. This requires a small generator that can be supplied by City of Nelson Public Works or Andex equipment rentals.
- Perform additional post distribution chlorine residual tests to ensure targets are met.
- Inform EHO and explain corrective measures.
- Post signage/alert until power is restored.

8.8 Fire (In Treatment Building)

Level of Severity - Type III

- If fire cannot be contained using fire extinguisher, evacuate building leaving doors closed and call 911 or Nelson Fire Department.
- Ensure safety of all that may have been in the building and ensure access is clear for emergency vehicles.
- Close nearest valve to distribution system that is SAFE to do so and switch to alternate reservoir.
- Notify EHO and post signage/alert.

8.9 Deliberate Acts of Vandalism or Terrorism

Level of Severity - Type III/IV

- If vandalism is minor, contact Nelson RCMP.
- If a major vandalism or act of terrorism occurs, ensure the safety of all persons in the surrounding area and contact local emergency respondents IMMEDIATELY.
- Shut down system by turning off main distribution system valve from reservoir.
- Bring alternate reservoir on-line if not already.
- Contact Ministry of Environment if biological or chemical threat. Also see **Section 8.2.**
- Notify IHA and determine what action to take and what level of communication is required to inform affected users. If IHA requires immediate notification to users, initiate the phone tree method of communication.
- Post signage/alert.

9.0 Returning to Normal Operations

As the emergency passes and you regain control, the system must be prepared to return to normal operating condition. This may be a very simple or very complex process, depending on the severity of the emergency. Returning to normal operation may simply mean the system restores power and the operator checks to ensure the chlorine dosing pumps are working properly. Or it could mean the system must run off of one reservoir until the problem is fixed. Many factors might need to be considered before returning to normal operation. Consider the following questions:

- Has the system been repaired to the point that it can meet demand?

- Has the system operator/system engineer made a safety and operational inspection of all system components?
- Is there adequate staff to operate and manage the system?
- Does the local EHO support returning to normal operation?

If the system is ready to be returned to normal operation, follow the guidelines in the **Table No. 5**.

Table No. 5 - Guidelines for Returning to Normal Operations

Action	Description
Inspect all system components	Operator to inspect all components and verify that facilities are adequate for return to normal operation. Operator to make report to project manager(s) and system operator.
Contact applicable authorities	It is imperative that approval from local authorities is attained prior to bringing the system back into operation. They are a wealth of information and can determine if there are any additional concerns that need to be addressed. If a Boil Water Advisory or Water Quality Advisory has been posted, the EHO **must** approve removal of the notice.
Inform the users	Depending on the level of communication implemented to inform users of the emergency, the same level of communication should be implemented to notify the users that the emergency has been rectified.

10.0 Backup Equipment Operation

With the system being sourced by two separate reservoirs, there is redundancy to allow for either reservoir to be taken off-line without interruption of service to users. The treatment systems themselves are simple and do not contain complicated equipment. Back-up dosing pumps are available immediately through AquaDiversities Inc. in the event one fails. As the system is gravity fed with no booster pump stations, back-up power is supplied by a small generator to power the dosing pumps and actuating valves.

11.0 Emergency Response Plan Approval

This Emergency Response Plan has been reviewed, approved, and signed by the following people:

Name/Title	Signature	Date
Zara Zychowicz **Environmental Health Officer**		
Nathan Ward **Certified Operator/Operations Manager**		