GENELLE IMPROVEMENT DISTRICT

EMERGENCY PROCEDURES

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TABLE OF CONTENTS

PAGES

INTRODUCTION

PROTECTING PUBLIC HEALTH

Safe and reliable drinking water is vital to every community. Emergency response planning is an essential part of managing a drinking water system. Most public water systems have had routine operating emergencies such as pipe breaks, pump malfunctions, bacteriological contamination, and power outages. These are manageable if the water system has an emergency response plan that can be put into action. More serious non-routine emergencies may result from intentional acts of vandalism, chemical spills, floods, earthquakes, windstorms, or droughts. These can drastically affect the system and the community that depends on it. Each emergency has unique effects on different parts of a water system. Floods can cause widespread bacterial contamination, earthquakes can damage water sources, distribution systems and treatment systems, and storms can disrupt power supplies. The common element is that each emergency may threaten the system's ability to deliver potable and palatable drinking water. Emergency response planning is a process by which water system managers and staff explore vulnerabilities, make improvements, and establish procedures to follow in an emergency situation. It is also a process that encourages people to form partnerships and get to know one another. Preparing a response plan and practicing it can save lives, prevent illness, enhance system security, minimize property damage, and lessen the overall burden of a catastrophic event and the cost associated to the disaster.

SYSTEM INFORMATION

Facility Certificate Number EOCP Facility Classification	0210645 Facility System Number Class 1, Certificate No 520	
System name and address	Genelle Improvement District 611 16th Ave Genelle B.C. V0G 1G0	
Directions to the system	Locate in the community of Genelle within the Regional District of Kootenay Boundary	
Basic description and location of system facilities	Ground water is pumped from 3 community wells to one 100 thousand imperial gallon reservoir. Travels through a looped system which consists of Asbestos Cement and PVC piping to feed the community of Genelle, there are 2 pressure reducing stations and 33 fire hydrants.	
Location/Town	Genelle B.C.	
Population served	900 Residents	
System owner	Genelle Improvement District	
Name, title & telephone number of person responsible for maintaining and implementing the emergency plan	Wendy Settle Water Systems Operator EOCP certification No. 7046 Level 2	250-365-1540

WATER SOURCE

The Improvement District water system consists of 3 wells pumping water to a storage system then gravity fed back into the community within the Improvement District.

DISTRIBUTION SYSTEM

Genelle Improvement District provides potable water to 288 active connections and approximately 900 people. The water supply distribution system includes three production wells (Wells # 1, 2, 3). The system includes 3 wells, 31 fire hydrants, and 2 pressure reducing stations, and one 100 thousand Imp gallon concrete reservoir also a 150,000 gal concrete reservoir. The lines consist of Asbestos Cement and PVC in most cases these lines are looped through the community. Pipe sizes range from 100mm – 200mm.

PRESSURE ZONES

Genelle Improvement District's system consists of 2 pressure zones. Upper zone services lots which range from 434m-484m, and lower zone is 410m-460m.

EMERGENCY RESPONSE PLAN MISSION AND GOALS

Mission statement for Emergency Response Plan	The mission of the water system is to be a safe provider of potable water to the community under normal conditions as well as during emergencies. In an emergency the mission of the Genelle Improvement District is to protect the health of customer by being prepared to respond immediately to a variety of events that may result in contamination of the water or disruption of supplying water via floods, storms, earthquakes, and vandalism.
Goal 1	Be able to quickly identify an emergency and initiate a timely and effective response to the situation at hand.
Goal 2	Be able to quickly notify local and regional authorities to assist in the response if utilities cannot respond effectively.
Goal 3	Protect public health by being able to quickly determine if the water is not potable nor palatable to drink or use and being able to immediately notify customers effectively of the situation and advise them of an appropriate protective action plan.
Goal 4	To be able to quickly respond and repair damages to minimize system down time and the potential of illness associated to water quality in the event of a rare emergency.

EFFECTIVE COMMUNICATION

Effective communications is a key element of emergency response
Developing partnerships with others in your local emergency response network, establishing relationships with our customers and the media, and creating communication tools such as fact sheets and media releases ahead of time will help us communicate efficiently and successfully during a crisis.

All questions and concerns should be directed to the designated spokesperson.

COMMUNICATION TIPS

Do:

- Be prepared.
- Designate a spokesperson.
- Provide complete, accurate, and timely information.
- Tell the truth.
- Express empathy.
- Acknowledge uncertainty and offer to get back with more information later.
- Document your communications.

Do not:

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

KEY MESSAGES

Develop possible messages in advance, and update them as the emergency develops:

- 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.
- **CENTRAL LOCATIONS TO POST PUBLICE NOTIFICATIONS: GID office building, Post Office, Genelle Community Hall.**

RISK ASSESMENT

Type of event	***Probability or risk*** ***(High – Med – Low)***	***Comments***
Earthquake	Low	Never experienced a major earthquake.
High winds	Med	System may be vulnerable to high wind events. Power can be disrupted for extended periods in certain areas
Drought	Low	Climate change poses an increasing threat to source waters.
Terrorism	Low	Need to be trained on suspicious activity, being prepared is a must.
Construction accident	Low	Construction crews can hit pipes if the locates are not done properly. May lead to system failure because of backflow and contamination.
Chemical spill	High	The probability is low but the risk is very high due to the severity of the consequences and the paths by which these chemicals are transported.

EVENTS THAT CAUSE EMERGENCIES

The main purpose of this plan is to address a situation where the raw water for the Genelle Improvement District is contaminated due to an accident on the railway CPR tracks close to two of our water sources. Other possible emergencies considered include:

- Natural disasters
- Accidents
- Deliberate acts of vandalism or terrorism
- System neglect or deferred maintenance

An emergency may affect the entire water system or only isolated sections. Each type of event can cause different types of damage to system components or contamination resulting in a disruption in service. Evaluations should be considered in how to respond to these actions.

NATURAL DISASTERS

EARTHQUAKES

Damage resulting from the earth shifting along geologic faults resulting in shaking and settling of the ground can cause severe structural damage to virtually all water system facilities, including sources, transmission and distribution lines, storage reservoirs, and pump-houses.

FLOODS

Floods can cause widespread contamination as turbid waters carry bacteria that can overflow sources, transmission lines, and pumping facilities. Floods can also ruin electrical components and telemetry systems.

HIGH WINDS

Every so often high winds occur in the region and they can pose a threat mainly to the power supply

HUMAN-CAUSED EVENTS:

HUMAN-CAUSED EVENTS THAT CAN RESULT IN A WATER SYSTEM EMERGENCY INCLUDE CHEMICAL SPILLS, VANDALISM, TERRORISM, CYBER-ATTACK, FIRES, CONSTRUCTION ACCIDENTS, AND BASIC NEGLECT OF MAINTAINING THE SYSTEM.

VANDALISM

Vandalism is generally a spur-of-the-moment act using materials at hand rather than pre-planned or pre-meditated activities. Vandals often break into systems, damage facilities, and paint graffiti. These acts are relatively easy to prevent by enhancing security, increasing lighting, installing locks on doors and hatches, and installing and maintaining security fencing.

TERRORISM

Acts of terrorism are conducted by someone whose intent is to instill fear or induce harm to people and facilities. Acts of terrorism are a very real threat. Even though it may seem unlikely, it would only take one well-staged event to undermine confidence in drinking water safety. Being prepared and knowing what to look for are crucial elements of preventing an attack on the system.

There are many potential terrorist threats to drinking water systems, including chemical, biological or radiological contamination as well as damage to infrastructure and computer systems. In most cases, contamination using biological or chemical agents would cause the most concern for a drinking water system. Although it would be difficult to effectively contaminate a large water supply with these agents or cause major damage, the possibility should not be taken lightly. The threat is real, and drinking water systems need to enhance security around facilities and be prepared to respond.

SYSTEM NEGLECT

System neglect, often referred to as deferred maintenance, is a significant cause of emergencies. System components that are aging and need replacement go without attention for so long that they fail, causing an emergency. Drinking water systems need to continuously evaluate facilities and replace them before a large scale failure occurs.

CROSS CONNECTIONS

A cross connection is an actual or potential physical connection between a public water system and any source of non-potable liquid, solid, or gas that could potentially contaminate water supply through a backflow event. Cross connections usually occur unknowingly when someone makes a connection in the system. Backflow is the reverse flow of water or other substances into the public water system. Under backflow conditions, unprotected cross-connections can provide a path for biological, chemical, or physical contaminants to enter the water supply. These contaminants can lead to waterborne disease outbreaks, chemical poisonings, and sometimes death. Backflow usually occurs when there is a loss of pressure somewhere in the system causing water flow to reverse.

CONSTRUCTION INCIDENTS

Construction incidents may fall into the category of an operating emergency e.g. a contractor damages a water line and the system needs to be shut down for repair. If the response is not timely and effective, this kind of incident can turn into a serious emergency. The system may lose pressure, resulting in the potential for backflow incidents to occur that contaminate the water distribution network. The utility must be aware of construction in and around the system and be prepared to respond quickly to an incident if it occurs.

CHEMICAL SPILLS

Many chemicals that are routinely transported can harm humans directly or by contaminating air or water. No drinking water system is safe from a hazardous chemical spill and the resulting contamination. Spills can come from motor vehicles, trains, airplanes, boats, or fixed containers. They can occur at any time without warning

EMERGENCY SEVERITY

Emergencies usually have a wide range of severity. Defining categories of severity can significantly aid in determining appropriate response actions and notifying correct agencies to assist with the emergency. Knowing the severity of the emergency and being able to communicate it to others will help system personnel keep their response balanced and effective. Making a decision on severity should be collaborative among system personnel with who could be potentially involved with the emergency. The individual in charge may also choose to coordinate with external parties, especially if partnerships have been formed and are part of the ERP contacts. The information for making the decision will progressively increase over time and may result in the level of severity being changed and other actions required. After an assessment of the severity, the assessment must be communicated immediately to all those dealing with the emergency. Make sure personnel have cell phones and/or radios when they are in the field assisting. Remember to have an alternative method of communicating if cell phones don't work or in a worst case scenario event. The buddy system should be utilized if personnel power is available.

TYPE I – ROUTINE EMERGENCY

The system experiences a normal emergency, such as a line break or power outage. System personnel are able to handle the problem with minimal assistance. The situation is not likely to negatively impact public health. Although it is important to begin responding, personnel should have no difficulty remaining calm and work thoroughly through the situation. Normal events can usually be resolved within 24 hours.

Description: Genelle Improvement District Type 1 Emergencies

- Distribution line breaks, PRV station failure
- Short power outages
- Minor mechanical problems in pump-houses
- Other minor situations where it is not likely that public health be affected (Fire hydrant strike)

The system has specific response activities identified for these types of emergencies, including proper sampling, disinfection, and pressure testing activities. System personnel are advised and are directed to work on the problem and are usually capable of resolving the problem within 24 hours from the first notification. If it is determined the event will last longer than 24 hours and storage is likely to be drawn down below a safe operating level, the situation may be elevated to a Type 2.

TYPE II – MINOR EMERGENCY

The system experiences minor disruption in supply or has indications of possible contamination where it may need to coordinate with Interior Health Authority (IHA) and consider issuing an advisory to customers. In these types of emergencies, health may be jeopardized, so it is important for system personnel to be on alert and initiate a quick response. These emergencies can usually be resolved within 48 - 72 hours.

Description: Genelle Improvement District Type II Emergencies:

- Disruption in supply such as a transmission main line break, pump failure with a potential for backflow and loss of pressure
- Storage is not adequate to handle disruption in supply
- An initial positive bacteriological sample (Total Coliforms, less than 10 counts)
- An initial primary chemical contaminant sample
- A minor act of vandalism
- Drought conditions

TYPE III – SIGNIFICANT EMERGENCY

The system experiences significant mechanical or contamination problems where disruption in supply is inevitable and assistance from Interior Health Authority (IHA) is needed. Major emergencies should be reported to Interior Health Authority and Ministry of Environment as soon as possible to determine the best available means of protection. System personnel are directed to the situation and outside agencies are notified to aid in the response. Major emergencies may extend beyond 72 hours before resolution.

Description: Genelle Improvement District Type III Emergencies:

- A confirmed coliform MCL or E. coli/fecal positive sample, requiring immediate consideration of a boil water advisory notice to customers
- A confirmed sample of another primary contaminant requiring immediate consideration of a boil water advisory notice to customers (i.e. Cryptosporidium, Giardia Lamblia, Turbidity)
- A major line break or other system failure resulting in a water shortage or requiring system shutdown
- An act of vandalism or terrorist threat such as damage to Water System Facilities

TYPE IV – CATASTROPHIC DISASTER/MAJOR EMERGENCY:

The water system experiences major damage or contamination from a natural disaster, an accident, an act of terrorism, and/or vandalism. These incidents require immediate notification of local law enforcement and local emergency governing services (IHA, MOE, and PEP). Immediate notification of Interior Health Authorities is critical to protect public health. These types of emergencies are usually not resolved quickly, depending on circumstances.

Description: Genelle Improvement District Type IV Emergencies:

- Chemical spill that comes into area of the system's source(s)
- High flood that infiltrates into system
- Act of terrorism possibly contaminating the water system with biological or chemical agents
- Storm that significantly damages power grid and system operations
- Intrusion alarms

EMERGENCY NOTIFICATION

During most emergencies it will be necessary to notify a variety of government agencies. Type III and Type IV emergencies will require this to be done immediately.

Procedure:	• Operator in charge will assess the situation and take immediate action. • Notification to Local Authorities (Interior Health) • The water notification will be distributed by: 1. Personnel placing "**water notices**" on doors and along travel routes 2. Personnel will do whatever it takes to notify throughout community 3. The City Administrator will notify local radio station, television and news paper 4. Administrative support person will provide pre-scripted message to telephone callers or media and log message that was delivered in a timely basis • Water Systems personnel will continuously update the community on water advisory • Once resolved, notify customers of rescinding notices

If no fire department member can be contacted call 911 if call already has not been made

CONTAMINATION OF SOURCE

Assessment	Train derailment close to drinking water source - notify the event of an occurrence and where. Call CP Rail Emergency 1-800-795-7851
Immediate actions	1. Isolate the intake valves, preventing contaminated water entering system. 2. Implement water response actions to inform customers to reduce water usage until situation is resolved. Arrange for alternative drinking water if necessary and initiate water flushing throughout the Improvement District. Response actions may require personnel to go door to door to deliver the appropriate notices.
Notifications	1. Notify Interior Health (Public Health Officer) 2. Local RCMP Detachment 3. Regional District of Kootenay Boundary 4. Notify, Caro Environmental Services or Passmore Laboratory, of increased testing
Follow-up actions	1. Collect water samples. 2. Follow Interior Health recommendations 3. Return all systems to normal after test confirmed and all is good 4. Reporting to Interior health

RESPONSIVE ACTIONS

GENERAL

POWER FAILURE – TYPE III

1. Call Fortis 250-368-0500 to check status and duration of power outage.
2. Decrease system pressures and notify contacts list of the possibility of water shortages if power outage is prolonged.
3. Issue ***Mandatory Conservation*** notice
4. On completing repair issue ***Water System Recovering*** notice

TRAIN DERAILMENT AND CONTAMINATION IV

1. Assess damage. If there is a liquid chemical spill, shut down the raw water intake. Use contact notification list and get emergency help;
2. The ditch that is between the water source and railroad tracks to contain spill
3. Issue a ***Do Not Use*** notice
4. Upon correcting issue an ***Drinking Water Issue Corrected*** notice

FOREST FIRE ENCROACHING COMMUNITY – TYPE IV

1. Increase all reservoir fill set points and maintain maximum water storage capacity for firefighting.
2. Increase manpower to monitor and assist with operation and to work with the fire department's need for volume and increased pressure.
3. Make an evaluation

INTRUSION ALARMS – TYPE IV

1. Dispatch will call standby personnel with location of site intrusion alarm;
2. Do a drive-by of location and have dispatch call the RCMP if location is not secure or suspicious activity is observed;
3. Record license plate numbers and description of vehicle and/or individuals if safe to do so. Do not confront individuals. Wait for the RCMP;
4. Thoroughly check area for any possible type of sabotage or vandalism.

DISTRIBUTION SYSTEM

LOSS OF RESERVOIR STORAGE – BACTERIOLOGICAL CONTAMINATION – TYPE III

1. Issue a Boil Water Notice (BWN).
2. Correct the issue.
3. Follow AWWA standards for Disinfection of Water Storage Facilities.
4. Consult with IHA before lifting the notice.

LOSS OF RESERVOIR STORAGE – CHEMICAL CONTAMINATION – TYPE III

1. Issue a Do Not Use (DNU) Notice.
2. Correct the issue.
3. Follow WWA standards for Disinfection of Water Storage Facilities.
4. Consult with IHA before lifting the notice.

LOSS OF RESERVOIR STORAGE – STRUCTURAL – TYPE III

1. Isolate reservoir from distribution system and assess the area;
2. If required during the assessment, run a pump to maintain positive pressure. Ensure that the distribution system does not increase in pressure but does remain positive within the system;
3. Contact proper authorities (i.e. Manager of Utilities, IHA, Director of Engineering) and assess the situation;
4. Notify local fire department that volume of water is decreased (indicate volume that is contained in affected reservoir);
5. If affected areas lack system capacity, implement ***Water Conservation Program*** and notify the affected users by going door to door or through other informational avenues;
6. Upon completion of repairs (as approved by the City Engineer), fill and sample the reservoir;
7. Follow AWWA standards for Disinfection of Water Storage Facilities before the reservoir is put back online.
8. Put reservoir back online once approved by the IHA (typically upon receipt of satisfactory water quality sample results or review by Public Health Engineer);
9. Lift all notices distributed to water users.

LOSS OF PRESSURE – PIPE BREAK – TYPE III

1. Identify the cause and location of the loss of pressure in the distribution system;
2. Contact proper authorities (i.e. Manager of Utilities, IHA, Director of Engineering) and assess the situation;
3. Ensure pumps are operating and positive pressure is maintained throughout the system. Ensure the minimum water levels are maintained in the reservoirs to maintain system integrity;
4. Issue a ***Voluntary Conservation Notice or Mandatory Conservation Notice*** as deemed necessary following the notification protocol;
5. When problem area is located and repaired, follow AWWA guidelines for disinfection of the water mains and/or reservoirs;
6. Notify water users when system integrity is back to normal, the proper authority has been informed and the test results are in hand.

BACKFLOW CONTAMINATION – TYPE II (POTENTIAL TYPE III)

1. In case of CHEMICAL OR TOXIC SUBSTANCE, advise accordingly – Consult with IHA regarding the issuance of a Do Not Use (DNU) Notice, perform bacteriological and/or chemical analysis.
2. In case of BACTERIOLOGICAL contamination, follow AWWA Standard for Disinfecting Water Mains and Storage Facilities.

BROKEN WATERMAIN – TYPE I

1. Isolate break at nearest valves;
2. Determine zone of influence
    a. If break is limited to a specific area, inform affected users of temporary loss of service or pressure reductions while repairs are being completed
    b. If break affects overall system, proceed to “Loss of Pressure Response”
3. Repair water main as quickly as possible following the AWWA guidelines for disinfection of water mains;
4. Once repair is completed, initiate water flushing and disinfection procedures in affected water mains;
5. Re-instate main operation after test results received (if any) and contact affected users and issue “Notice – Water System Recovering” if deemed necessary.

PRESSURE REDUCING VALVE FAILURE – TYPE I

1. Assess nature and cause of problem. Manually control system pressure with valves;
2. Determine zone of influence. With a large PRV failure, the small PRV may become the primary source of water supply to users and pressure reductions may occur during peak demand conditions. Notify affected users and, if deemed necessary, issue ***Voluntary Conservation Notice or Mandatory Conservation Notice*** to reduce water consumption;
3. Notify the Fire Department of locations where firefighting flows have been reduced;
4. Once corrected, notify affected users and the Fire Department that the PRV is back in service and issue *"Notice* – ***Water System Recovering"*** if deemed necessary.

WATER QUALITY SAMPLING

Many types of emergencies can jeopardize the quality of water and adversely affect those using the water. The primary objective for any water system is to protect human health, the system must know how to act quickly and make decisions on whether to issue a health advisory. Sampling and obtaining results from a lab takes time.

If there is reason to believe that the water has been contaminated, the Manager of Utilities and/or Chief Operator should consult Interior Health and consider issuing a health advisory as soon as possible – often before conducting water quality sampling.

Contamination of drinking water, whether intentional or unintentional, comes in many forms, which are classified in four general categories:

- Inorganics such as metals or cyanide
- Organics such as pesticides or volatile compounds
- Radionuclides
- Pathogenic microorganisms or microbial organisms

If the water system is experiencing an emergency caused by a natural event or intentional act and contamination is suspected, system personnel may be faced with making a decision about what contaminants to test for and how to get the tests performed quickly.

If contamination is suspected, Interior Health Authorities should be contacted to assist with the direction as to what testing should be completed. If it is suspected that someone intentionally sabotaged the system or contaminated the water, this may be a crime scene and Interior Health shall be notified immediately as well as the local RCMP detachment.

Coliform Bacteria: In the event of an emergency, testing for coliform is a standard first test, and if detected it is a signal that the system may be contaminated. Coliform bacteria are organisms that are present in the environment and in the feces of all warm-blooded animals, including humans. Coliform bacteria generally do not cause illness, but their presence indicates that other disease-causing organisms (pathogens) may be present in the water system. Most pathogens that contaminate water supplies come from the feces of humans or animals. Testing drinking water for all possible pathogens is complex, time-consuming, and expensive. Coliform testing is, however, relatively quick, easy, and inexpensive. Public water systems must test for coliform bacteria regularly as per the GCDWQ.

Heterotrophic Plate Count (HPC): This test provides information regarding the numbers of bacteria that may have been introduced into the water. HPC counts with significant growth require immediate action. Very high levels (1000 – 10,000 and greater) would suggest a problem that needs immediate evaluation.

Chlorine Residual: In chlorinated systems, this test indicates if materials introduced into the water have created a demand for the chlorine, leaving lower-than-normal or no residual and signaling the need for further evaluations. Samples need to be taken at the distal end of the distribution system (the point farthest from the start of the distribution system).
Note: Genelle Improvement District is not a chlorinated system.

Chlorine Demand: This test reveals unusual demands on the oxidizing capability of the added chlorine, indicating the presence of a contaminant that warrants further investigation**.**
Note: Genelle Improvement District is not a chlorinated system.

Total Organic Carbon (TOC): Relatively simple to perform, normal expected levels range from 0.2 to 4.0 mg/L for surface water and 0.01 to 2.0 mg/L for groundwater. Higher levels may indicate the presence of organic materials that could pose a health concern.

Trihalomethanes & Haloacetic Acid (THM & HAA): Disinfection by-products such as Trihalomethanes and Haloacetic acids. High levels suggest that contamination has occurred or that organic materials have been added to enable formation of disinfection by-products.
Note: Genelle Improvement District is not a chlorinated system.

Cyanide: This test is not easily performed, but should be done immediately if cyanide contamination is suspected. Presence may indicate a source of water pollution that must be traced and eliminated. It may be noted that toxicity is related to pH with a deleterious effect at pH = 6 and can become innocuous at pH > 8 (may be decomposed to carbon dioxide and nitrogen gas). Deterioration of cyanide happens in open streams and further reduction because of bacterial action. Time is the key for the reduction of cyanide. Cyanide is very poisonous. The lungs, gastrointestinal tract and skin absorb cyanide.

Sampling of Standard Operating Procedure (SOP) is attached on page 22. Testing agency is listed in contact list.

STANDARD OPERATING PROCEDURES

Testing of the Genelle Improvement District water system is done in accordance with the Ministry of Health regulations in agreement with the Interior Health Authority.
The frequency and the quality of the sample testing is determined on the basis of the number of water users on the system. Under the Safe Drinking Water Regulation, it is up to the medical officer in each region to establish the testing protocol, frequency and location of samples.

The water testing sites are at various locations within the district. A water sample is taken weekly and tested for Total Coliform and E Coli and the testing is done by Passmore Laboratory, 4235 Upper Passmore Road, Winlaw, BC, Tel: 250-226-7339, Fax: 250-765-3893, email: passmorelaboratory@columbiawireless.ca. The company is a "certified laboratory" and is approved by the BC Ministry of Health. The water samples are collected by the district's water system operator who is trained in the handling, sampling, storage and transportation of the water samples as per the guidelines.

Every 3 years Chemical Water Analysis is done on each well unless it is otherwise requested by IHA.

WATER SAMPLE SITES

(1) 102 – 12TH Avenue
(2) Well #1 (October to April) – also at Pressure Zone 1
(3) 611 – 16th Avenue
(4) Wells 2 and 3 (April to October) alternating- Pressure Zone 2
(5) Reservoir

WATER QUALITY STANDARDS FOR POTABLE WATER

PARAMETER:	**STANDARD:**
Fecal coliform bacteria	No detectable *Fecal coliform* bacteria per 100 ml.
Escherichia coli	No detectable *Escherichia coli* per 100 ml.
Total Coliform Bacteria	
a) 1 sample in the 30 day period	No detectable *total coliform* per 100 ml.
b) more than 1 sample in a 30 day period	at least 90% of samples have no detectable *total coliform* bacteria per 100 ml and no sample has more than 10 *total coliform* bacteria in 100 ml.

The Interior Health Officer is to be contacted anytime the water sampling results do not meet the Schedule A Water Quality Standards for potable Water (see above) outlined in the Drinking Water Protection Regulations. The Interior Health Officer and the Genelle Improvement District Water Operator will discuss what actions have to be taken.

FREQUENCY OF MONITORING SAMPLES FOR PRESCRIBED WATER SUPPLY SYSTEMS

Population served by prescribed water supply system:	Number of samples per month:
Less than 5,000	4
5,000 to 90,000	1 per 1000 population
More than 90,000	90 plus 1 per 10,000 of population in excess of 90,000

WATER SAMPLE PROCEDURES

Care must be taken not to contaminate lid or the top of the bottle when taking sample. Allow water to run approximately five (5) minutes to allow the standing water to be flushed out of the line and then a good representative sample can be collected. Fill all sampling containers to the appropriate levels. Store in a cooler with ice packs. Sample containers supplied by Passmore Laboratory may contain preservatives (if applicable). Use caution as the preservatives are corrosive. The preservatives are necessary to ensure accurate results. Samples are delivered to City of Castlegar Works and picked up by Passmore Lab worker.

EQUIPMENT NEEDED:

- Cooler with ice packs
- Thermometer for checking water temperature
- Passmore Laboratory Sample Bottles
- Passmore Laboratory Chain of Custody form and zip lock bag
- Delivered to City of Castlegar Works Yard on Minto Road

SAMPLING PROCEDURE FOR BACTERIOLOGICAL SAMPLING

1. Water samples are collected once per week typically every Monday.
2. Prior to sampling prepare Chain of Custody (COC) Form. Also fill in information label on the sample bottles for each site.
3. Proceed to each site and flush water for at least five (5) minutes.
4. Record the current time on the bottle and fill to between the shoulder and neck of the bottle. Replace the lid snuggly and place the sample bottle in the cooler with the ice packs along with the COC in a zip-lock bag.

GENELLE IMPROVEMENT DISTRICT EMERGENCY REPORT

TEL: 250-693- 2362 FAX: 250-693-2413 – 611-16TH AVENUE, BOX 82, GENELLE, B.C. V0G 1G0

1) Person or department calling in emergency:_____

Phone number_____ Date call received_____ Time call received_____

2) Location of emergency:

Street or house/building number_____

3) Condition at scene (check appropriate box{es})

☐ Escaping water: ___seepage ___Free-flowing ___Gushing

☐ Flooding: ___Roads ___Intersections ___Property ___Buildings

☐ Erosion: ___Banks ___Foundations

☐ Electrical Power: ___Interruptions ___Total Loss of Power

☐ Change in water quality: ___Taste ___Odor ___Color ___Clearness

4 Actual/potential damage: Briefly describe the situation _____

_____

5. Access restrictions, if any _____

6. Assistance already available (who, what they are doing, etc.)_____

_____

7. Personnel analyzing emergency_____

8. Reported results of investigation_____

9. Emergency action taken_____

_____

10. Persons/Department Notified of Emergency _____

Signature of person who filled out form_____

*To be completed and used by water system personnel

GENELLE IMPROVEMENT DISTRICT

BOIL WATER NOTICE

[Fecal Coliform Presence]

Laboratory tests indicate the presence of fecal coliform bacteria in the drinking water. If fecal coliform bacteria are present in drinking water supplies, this is a serious concern because disease-causing micro organism called pathogens may be present. These pathogens include bacteria, viruses and parasites that can cause enteric symptoms [diarrhea, cramps, nausea, vomiting or other symptoms]. Boiling the water kills these organisms. People with weakened or undeveloped immune systems are most at risk [this includes: elderly people, pregnant women and their unborn, very young children [under 2], people with AIDS, cancer, diabetes or kidney disease and people being treated with immuno-suppressing medications [antibiotics, chemotherapy, etc].

Water users are advised to bring all water to a rolling boil for at least one minute and let it cool before using it or, use bottled water. Boiled or bottled water should be used for drinking, making ice, washing dishes, brushing teeth and food preparation until further notice. We will inform you when you no longer need to boil your water.

THIS BOIL WATER NOTICE IS EFFECTIVE _____ UNTIL FURTHER NOTICE.

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle, Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

WATER QUALITY ADVISORY

[High Turbidity Levels]

High turbidity levels have been detected in the drinking water supply. High turbidity [cloudiness] levels may occur in surface water sources due to seasonal weather changes causing excessive surface runoff, flooding or lake turnover. A high turbidity level may impair the effectiveness of the disinfection treatment system. If disinfection is impaired, disease-causing microorganisms may escape into the water distribution system resulting in an increased risk of intestinal illness. People with undeveloped immune or severely weakened immune systems, infants and elderly may be at increased risk.

Due to the above concerns and as a precautionary measure, water users are advised to bring all water to a rolling boil for at least one minute and let it cool before using it or, use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth and food preparation until further notice. We will inform you when the Water Quality Advisory is removed.

THIS WATER QUALITY NOTICE IS EFFECTIVE _____ UNTIL FURTHER NOTICE.

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle, Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

WATER QUALITY ADVISORY

[Total Coliform Presence]

Laboratory tests indicate the presence of total coliform bacteria in the drinking water. The "total coliforms" may be due to inadequate disinfection treatment or distribution pipes that are in need of maintenance. Total coliform bacteria are naturally present in the environment and they are generally not harmful themselves but they indicate an increased chance that organisms causing intestinal illness may be present in the drinking water. People with undeveloped immune or severely weakened immune systems, infants and elderly may be at increased risk.

Due to the above concerns and as a precautionary measure, water users are advised to bring all water to a rolling boil for at least one minute and let it cool before using it or, use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth and food preparation until further notice. We will inform you when the Water Quality Advisory is removed.

THIS WATER QUALITY NOTICE IS EFFECTIVE _____ UNTIL FURTHER NOTICE.

ENQUIRIES?

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Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

BOIL WATER NOTICE

[Contaminated Water]

Contaminated water has entered the distribution system and we've receive reports of people with symptoms typical of waterborne illness. Disease-causing organisms [bacteria, viruses or parasites] may have entered the distribution system. These organisms can cause symptoms such as diarrhea, abdominal cramps, headaches, nausea, vomiting or other symptoms. Boiling the water kill these organisms. People with weakened or undeveloped immune systems are most at risk [this includes: elderly people, pregnant women and their unborn, very young children [under 2], people with AIDS, cancer, diabetes or kidney disease and people being treated with immuno-suppressing medications].

Water users are advised to bring all water to a rolling boil for at least one minute and let it cool before using it or, use bottled water. Boiled or bottled water should be used for drinking, making ice, washing dishes, brushing teeth and food preparation until further notice. We will inform you when you no longer need to boil your water.

THIS BOIL WATER NOTICE IS EFFECTIVE _____ UNTIL FURTHER NOTICE.

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

DRINKING WATER NOTICE

We have recently discovered that an unknown quantity of a chemical contaminant may have entered the water supply system. Water samples are being collected to determine if the water quality meets the standards of the *Guidelines for Canadian Drinking Water Quality.* The chemical contaminant may be at a level that makes our water supply toxic and unfit for drinking or bathing.

As a precautionary measure to avoid health risks, we are advising water users to use bottle water or an alternate source of water for drinking, making ice, washing dishes, brushing teeth, bathing and food preparation until further notice. ***BOILING THE WATER WILL NOT MAKE IT SAFE***. If alternate water sources are used, the water must be from Interior Health approved sources only. The water in your hot water tank may also be unsafe. Please consult a qualified plumber before draining you hot water tank.

DO NOT USE WATER NOTICE

IS EFFECTIVE_____UNTIL FURTHER NOTICE

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

NOTICE

VOLUNTARY CONSERVATION

As a result of the recent incident involving _____, there is a strong possibility that pumping systems will have to be shut down. All water users are requested to reduce water consumption immediately and to be prepared for a temporary water shortage. It is recommended that you store a small quantity of water for consumption and general household use. As an extra precaution, you may want to disinfect this emergency water supply by adding household chlorine bleach [two drops of bleach to 1 litre of water or 0.5mL bleach to 1 Imperial Gallon/4.55 litre of water] Please ensure that only clean potable water containers are used for storing these emergency supplies.

EFFECTIVE _____ UNTIL FURTHER NOTICE

THANK YOU FOR YOUR PATIENCE AND CO-OPERATION

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

NOTICE

MANDATORY CONSERVATION

As a result of the recent incident involving _____, the main pumping system is not in operation – there is no water entering the distribution system. Please refrain from using faucets and other plumbing fixtures and please use stored water, bottled water or an alternate source of water for domestic purposes. Draining your hot water tank is not recommended unless you have consulted a qualified plumber. If alternate water source are used, the water must be from Interior Health approved sources only.

EFFECTIVE _____ UNTIL FURTHER NOTICE

THANK YOU FOR YOUR PATIENCE AND CO-OPERATION

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

NOTICE

WATER SYSTEM RECOVERING

The water supply system has been inspected and, where necessary, repairs have been made. All pumping systems are now fully operational. While the system is recovering to normal operating levels, your assistance with conservative water use over the next two or three days would be appreciated. If you have received a *Boil Water Notice* or a *Water Quality Advisory*, please continue to take the necessary precautions until you've seen the *Drinking Water Problem Corrected* notice.

EFFECTIVE _____

THANK YOU FOR YOUR PATIENCE AND CO-OPERATION

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

NOTICE

DRINKING WATER ISSUE CORRECTED

Water samples collected from our water system indicate that **it is no longer necessary to boil water prior to consumption**. Chlorine levels will be increased for a short period of time and you may detect a stronger chlorine taste and odor. Chlorine levels will be reduced to normal operating range as soon as possible.

EFFECTIVE _____

THANK YOU FOR YOUR PATIENCE AND CO-OPERATION

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DISTRICT

NOTICE

DRINKING WATER ISSUE CORRECTED

The *Do Not Use Water Notice* is Removed

Water samples collected from our water system indicate that **it is no longer necessary to use bottled water or other alternate sources of drinking water**. We may find it necessary to increase chlorine levels for a short period of time and you may detect a stronger chlorine taste and odor. Chlorine levels will be reduced to normal operating range as soon as possible.

EFFECTIVE _____

THANK YOU FOR YOUR PATIENCE AND CO-OPERATION

ENQUIRIES?

Please call Genelle Improvement District at 250-693-2362 or Cell 250-365-1540

PLEASE SPREAD THE WORD TO YOUR NEIGHBOURS

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly [for example: people in apartments, rental units, nursing homes, schools, preschools, churches and businesses]. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Signature: _____

Wendy Settle Genelle Water Operator

GENELLE IMPROVEMENT DITRICT SUPPORT CALL-UP LIST

TEL: 250-693-2362 FAX: 250-693-2413 CELL: 250-365-1540 611 16TH AVE GENELLE B.C.

	NAME	CONTACT	TELEPHONE
Suppliers:	Terminal City	Don Blanchard	604-534-8687
	Andrew Sheret Ltd.	Jason Wills	250-365-2597Fax: 250-365-2629
Contractors:	Marwest (693-5449)	Bruce Cassidy	250-304-9417/ 304-9924/ 365-7238
	Monashee Electric	Al Walker	250-365-9676
	Castlegar Machine & Chrome	Frank Zmavc	250-365-5367 Fax: 250-365-8262
	West K Concrete	Robert Adrain	250-693-2430
Agencies:	Hospital – Trail		250-368-3311
	Hospital – Castlegar		250-365-7711 250-365-2298
	RCMP		250-364-2566
	Genelle Fire Department		250-693-2411
	Fire Department – Trail		250-364-0221
	Workers Compensation Board		250-352-2291
	K R Radio		250-365-7600
	K B S Radio		250-368-5510 & 250-365-5513
	Newspaper- Trail -Trail Times		250-368-8551
	Newspaper – Castlegar News		250-365-6397 Fax: 250-365-6390
	Shaw Cable (Community Bulletin)		250-365-3122
Priority-Service Lists/Utility:	Fortis BC		250-368-0500 or 310-9473
	Telus		250-310-3100

Generator Rentals : **generator must be connected by certified electrician**

Trowelex	250-365-3315
United Rentals	250-693-8844

Alternate Water Sources :

1. Kootenay Valley Water (bottled water) 250-365-8008
   2253 Columbia Avenue, Castlegar

2. China Creek - Genelle

GID– WATER SYSTEM- PERSONNEL EMERGENCY CALL-UP LIST

	NAME	TITLE	TELEPHONE
Present Trustees:	1. Jackie Smith	Chair	250-693-5439
	2. Rae Walker	Trustee	250-693-2460
	3. Darlene Espenhain	Trustee	250-693-8865
	4. Kevin Rogers	Trustee	250-365-9521
	5. Dainah Macleod	Trustee	250-364-8338
Maintenance :	1. Wendy Settle	Water System Operator	250-365-1540
Administration :	1. Kim Swetlishoff	Administrator	250-304-4835
			Office: 250-693-2362
Electrical :	1. Dennis Woodcox	SCADA	250-365-5666
Past Trustees :	1. Ron Christensen		250-693-5594
	2. Dale McRae		250-693-2232
	3. Fred Christensen		250-693-5448
	4. Allan Crocket		250-693-5590
	5. Bob Worley		250-693-5500
Interior Health Authority:			
	1. Pouria Mojtahedi	Environmental Health Officer	250-505-7234/ 250-505-7200
			Cel: 250-551-1911
	2. Marianne Crowe	Public Health Engineer	250-505-7225
			Fax: 250-505-7211
	3. Medical Health Officer		reception250-505-7221
			direct 250-505-7242
			On Call After Hours 1-866-457-5648
Ministry of Environment:	1. Kristen Murphy	Water Supply Technician	250-354-6333
			Fax: 250-354-6332
Ministry of Community Services :	1. Don Sutherland	Manager	250-387-4025
	2. Alexa Newton	Financial Analyst	250-387-4060
			Fax: 250-356-1873
Ministry of Transportation	1. Hugh Eberle	Area Manager	250-364-0742
Regional District of Kootenay Boundary:	1. Grant Saprunoff	Planning Technician	250-368-9148
			Fax: 250-368-3990
	2. Gerry Gardner	Director of Finance	250-368-9148
(RAPP) Report all Poachers and Polluters:			1-877-952-7277
Environmental Emergencies:			1-800-663-3456

INTERIOR HEALTH AUTHORITY

Medical Health Officers

Dr. Trevor Corneil	Chief MHO	Kelowna	250-368-7700	trevor.corneil@interiorhealth.ca
Dr. Sue Pollock Dr. Kamran Golmohammadi Dr. Silvina Mem	Medical Health Officers	Kelowna	250-368-7700	sue.pollock@interiorhealth.ca kamran.golmohammadi@interiorhealth.ca silvina.mema@interiorhealth.ca

Drinking Water Program Management

Roger Parsonage	Corporate Director	Vernon	250-549-5714	roger.parsonage@interiorhealth.ca
J. Ivor Norlin	Manager	Salmon Arm	250-833-4100	jivor.norlin@interiorhealth.ca
Dan Byron	Large Water	Cranbrook	250-420-2240	dan.byron@interiorhealth.ca
Rob Birtles	Small Water	Penticton	250-770-5540	robert.birtles@interiorhealth.ca

Drinking Water Program Staff

Marianne Crowe Richard Liu Wayne Radomske	Health Engineers	Nelson Kamloops Penticton	250-505-7225 250-851-7340 250-770-5540	marianne.crowe@interiorhealth.ca gingchun.liu@interiorhealth.ca wayne.radomske@interiorhealth.ca
Judi Ekkert Gordon Moseley Jessy Bhatti Pouria Mojtahedi	Large Water Specialists	Kelowna Vernon Kamloops Nelson	250-868-7700 250-549-5725 250-851-7340 250-505-7234	judi.ekkert@interiorhealth.ca gordon.moseley@interiorhealth.ca jessy.bhatti@interiorhealth.ca pouria.mojtahedi@interiorhealth.ca
Renee Ansel Katie McNamara Brian Gregory Tristin Wilson Kim Wrixon	Small Water EHO's	Nelson Kamloops Salmon Arm Penticton Williams Lk	250-505-7220 250-851-7410 250-833-4170 250-770-5540 250-302-5000	renee.ansel@interiorhealth.ca katherine.mcnamara@interiorhealth.ca brian.gregory@interiorhealth.ca tristin.wilson@interiorhealth.ca kimberly.wrixon@interiorhealth.ca

GENELLE IMPROVEMENT DISTRICT PHONE TREE – BY FOLIO NUMBER	
06180.000 - 06182.000	Name of Person Phoning
06183.000 - 06202.000	Name of Person Phoning
06203.000 - 06219.002	Name of Person Phoning
06220.000 - 06242.002	Name of Person Phoning
06243.010 - 06287.000	Name of Person Phoning
06288.000 - 06316.000	Name of Person Phoning
06317.000 - 07311.013	Name of Person Phoning
07311.014 - 07312.050	Name of Person Phoning
07312.055 - 08758.016	Name of Person Phoning
NOTE If someone can't be reached by phone, leave notice in mailbox or a slip it under the door.	