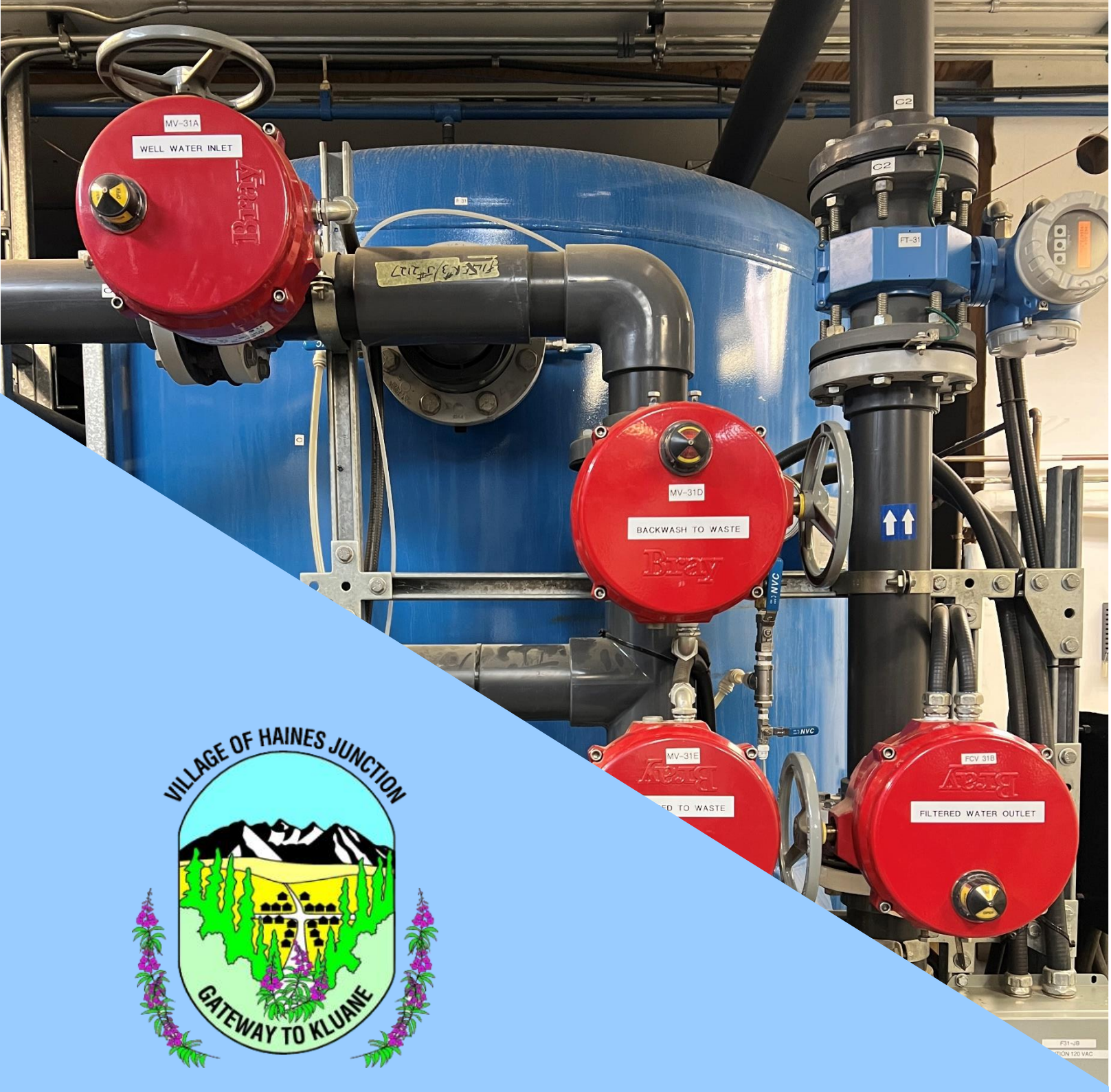

VILLAGE OF HAINES JUNCTION

GATEWAY TO KLUANE

Water System Emergency Response Plan
Village of Haines Junction
Public Works
March 1, 2024

Contents

1.0 THE PLAN

Purpose

This **Water System Emergency Response Plan** has been prepared to guide the Village of Haines Junction and response agencies in responding to an emergency of the Village's water system.

Objectives

The objectives of this Emergency Response Plan are to:

- Provide the earliest response to an emergency condition.
- Ensure that water quality and public health are not compromised.
- Ensure that water for fire-fighting is available.
- Restore normal water system operation.
- Protect the natural environment from impacts associated with the system operation in the event of an emergency.

Scope

This plan guides response to the Village of Haines Junction's water system including the Wells #3 and #5, Pumphouses 1, 2, 3, 4, the storage reservoirs, the water transmission (pipe) systems from source to reservoirs below Pumphouse 4, distribution mains, and PRV stations.

This plan is intended for use by Village of Haines Junction staff in responding to emergency scenarios related to the Village's water system serving the Village of Haines Junction, CAFN Settlement Land and bulk water fill station.

This plan is an internal document for Village staff implementation and use only.
This document serves as informational purposes only to the external plan holders.

1.1 How to Use the Plan

The Water System Emergency Response Plan is meant to act as a guide in the event of a water system emergency. This is important because the plan is written to act as a reference rather than an explicit set of instructions. The more familiar everyone is with the format and information within the plan the more helpful it will be in the event of a real emergency.

In order for this Plan to be effective in its use, it is imperative that each Plan Holder read the Plan in advance.

Within the section labeled 'Action List' several potential water system emergencies are listed. Each potential emergency contains a guide for the persons involved to reference in an attempt to avert further damage. It is essential that this section be reviewed in advance because the lists are intended to act as *only* a reference for guiding one through the respective emergency. It is crucial to have a pre-determined plan for how your department, company or organization will react when faced with such emergencies and not rely solely on these sets of recommendations. You will notice that at the end of each Action List there is a set of suggested contacts. Contacts for organizations that are referenced and located in other sections throughout the document can be found in the **Emergency Contact List (Appendix A)**.

Another vital component of the plan is post emergency response. We ask that an internal document referred to as the **Post Incident Report (Appendix C)** be filled out after each water system emergency. This should typically be prepared by the Manager, Water Resources. However, to allow this process to be as straightforward as possible, we ask that those who carry out the actions in the Action Lists, for example the technicians involved, please fill out an **Incident Form** at the time they execute their actions. This form asks the individual to list out each of the actions taken along with the time and date the action was executed. The form also provides space for post-incident comments.

After the incident has been alleviated, it is asked that the form be given to the Manager, Water Resources so that the information can be considered in future updates of the document. This requirement allows participants the chance to provide comments and recommendations about the emergency Action List in which they followed while allowing the City to retain a detailed account of the actions taken to alleviate the water system emergency. Filling out the Incident Form and finally the Post Incident Report thereby marks the first steps in improving emergency response for the following year. Incorporating techniques that worked better and eliminating those that did not work, allows the City to improve the water system emergency action strategy.

In addition, annual tabletop exercises and regular updates are recommended. We ask all plan holders to attend meetings and participate in regards to offering input and recommendations so that this document can become more effective and thorough. It is

important to note that an emergency response plan such as this is of little or no value if individuals do not review it, know how to use it, or participate in its creation and evolution.

1.2 Updates to the Plan

1.2.1 Registration

The Village of Haines Junction will distribute a copy of the Water System Emergency Response Plan to those listed in Section 2 - HOLDERS OF THE WATER SYSTEM EMERGENCY RESPONSE MANUAL.

1.2.2 Updates

The Village of Haines Junction should review, update and distribute the plan to those on the distribution list, at least every three (3) years.

1.3 What is the Water System?

1.3.1 The System

The Village of Haines Junction is responsible for providing adequate supplies of potable water to its citizens, even in the event of an emergency or disaster.

Disruptions in water quality and delivery may result from emergencies such as significant weather events, natural disasters, accidents, vandalisms or terrorism. If prepared in advanced, the Village will be more effective at responding to and recovering from such emergencies and disasters. A goal of the Village is to minimize all adverse impacts resulting from disruptions in the water system. This is best achieved through sound emergency planning and effective communication.

The Village of Haines Junction provides potable water to citizens of the Village of Haines Junction and CAFN Settlement Land. Water is also supplied via bulk water fill station to residents in the surrounding area outside the municipal boundaries.

The Village operates a dual ground water source with a maximum production of 2198 cubic metres per day. The water is transported from the wells by two primary supply
mains to Pumphouse 2.

The Village has a reservoir, pump stations, pressure reducing stations, and water distribution mains which govern the supply of water to the end users.

1.3.2 Primary Supply System

The Village of Haines Junctions water supply comes from two drilled wells (well 3 and well 5). Each well is designed with a submersible pump and piping system. Each well has a pump house building, where co2 and liquid sodium hypochlorite (chlorine) are injected into the raw water supply. Each well pump is controlled by a Variable Frequency Drive (VFD). The VFD allows operators to set the required flow from each pump House. Sodium hypochlorite (chlorine), ph. and temperature analyzers monitor levels leaving each pump house.

Raw water is pumped through dedicated transmission main lines to pump house #2. There are no municipal services on these lines. At pump house #2 the water is treated for arsenic and sediment removal. There are six, 20 micron cartridge filters for sediment and three multimedia filters for arsenic removal. The water is again analyzed for chlorine residual and ph. before going to the reservoir.

The Village's Water Operators also ensure a minimum residual disinfection of 0.20 mg/L (ppm) free chlorine is provided at all ends of the distribution system.

1.3.4 Storage Reservoirs and Secondary Supply Mains

After treatment water is stored in a below ground reservoir with a capacity of 2000 cubic meters. Water is pumped from the reservoir to supply mains. An analyzer measures Chlorine residual, pH and Temp. of the water leaving the reservoir and entering the supply mains.

The village's water system flows from the reservoir by pumped distribution throughout the supply system. Two separate pressure zones exist throughout the system. The secondary supply mains vary in size and age throughout the village, replacement of these supply mains commenced in 2018.

2.0 Water System Emergency Response Plan Holders

2.1 Internal Plan Holders

Designated user	Name	Telephone
Public Works Manager	Jerry Tracey	867 336 4422
Village CAO	Dave Fairbank	250 619 5921
Water System	Operators	867 634 5316

2.2 External Plan Holders

Agency	Name	Telephone
Yukon Environmental Health	Franklin Fru	867 667 5061
Yukon Government Community services	Ben Hancock	867 336 0271
CMP Engineering WSP Engineering	Chris Potvin Matt Sider	867 334 7866 867 332 8223
Champagne Ashihik First Nations Municipal services	Dainius Zaldokas	867 334 5231
Haines Junction Fire Department	Bruce Tomlin	867 634 4444

3.0 Communication and Command

3.1 Incident Command System

Direct and open lines of communication will help ensure that the health and safety of consumers are preserved throughout water emergency incidents, that effective action is taken to resolve problems and that there is quick response, and to minimize any harm resulting from the emergency. This includes not only resource and internal communication but also informative and timely communication with the public.

The Village of Haines Junction has adopted the Incident Command System (ICS). Therefore, the communication flow and titles of those delegated authority during water related incidents in the current document will be referred to as those proposed in ICS planning and practice.

3.2 What is the Line of Communication?

Incident Commander

Upon notification of the emergency, the Village CAO or Public Works Manager will assume position of Incident Commander. This individual will be responsible for contacting and assembling the Command Staff and General Staff as required. The primary responsibility of the Incident Commander is to ensure effective overall management of the incident. This involves ensuring incident safety for all of those involved, providing information services to external and internal stakeholders and maintaining liaison with other agencies involved with the incident. Until authority has been delegated to positions within General and Command Staff, the Incident Commander has direct control over all aspects of the emergency. It is also likely that with small emergencies the Incident Commander will feel it unnecessary to give out all or any of the subsequent positions and may solve the incident independently.

Command Staff

Upon notification of the emergency, the acting Incident Commander will assign positions of Command Staff and Operations Staff. The role of the Command Staff is to provide information, safety, and liaison services for the entire organization. There are three such positions to be delegated as required, the Public Information Officer, Safety Officer, and Liaison Officer. Fortunately, for the Village the magnitude of any single water related emergency will most likely not require all three positions but instead focus primarily on the Public Information Officer who will serve as a conduit for information to the internal

and external stakeholders, including the media and/or any other organizations seeking information. The structure of the Command Staff is outlined in the Communication Flow Chart included in the incident command system operation description attached more thoroughly.

The Public Information Officer is the only line of communication between the Incident Commander and all other Village agencies and/or media outlets requiring information on the emergency. This individual is expected to supply updates at regular intervals regarding the emergency situation that will be provided to all of the inquiring agencies. It is the responsibility of the Public Information Officer to intercept and provide direction to non-critical parties as to ensure that the 'Emergency Action Teams' set up under various Sections can concentrate on the incident at hand.

In addition, it is the responsibility of the Incident Commander to contact all coordinating and governmental agencies as required unless this task has been delegated to the Public Information Officer. It is the priority of the individual in charge to work with Yukon Environmental Health to mitigate any dangers to public health. Under the guidance of the Environmental Health Office (EHO), the Incident Commander will issue any boil water or water restriction notices necessary. It should be noted that depending on the size of the emergency such actions may be delegated out otherwise if not such actions remain the responsibility of the Incident Commander.

Call Centre

The Village office and office staff will create the call center for public information. The Public Information Officer will be updating the call centre at regular intervals on the current emergency situation. It is important that this centre deals directly with concerned individuals and not transfer these calls unless warranted, enabling Section Chiefs to work on resolving the emergency without interference. The public should be assured that all possible resources are being allocated to restore normal operations and be advised where to access situation updates.

General Staff

Upon notification of the emergency, the Incident Commander will also assign the positions of General Staff. The General Staff will consist of all Public Works Staff, the critical management team will include public works staff and outside agencies depending on the severity of the incident. The scope of the majority of water related emergencies occurring within the Village of Haines Junction would likely only require an Operations Section. In situations deemed more severe or requiring special training may require other agencies such as the Fire Department. The Operations Section function is to provide all the tactile fieldwork necessary to help alleviate the incident. This means that most of the incident resources are ultimately assigned to the Operations Section.

Initial Emergency Meeting

Once an emergency has been identified, the Incident Commander must meet with whomever they feel will be the most relevant individuals and agencies to discuss the situation and assign responsibility. At this meeting the Incident Commander is responsible for delegating out authority while adhering to the structure and planning initiatives outlined by ICS. Immediate action may have already gone underway prior to this meeting but it is imperative that duties and responsibilities be formally assigned to manage the emergency as effectively as possible.

Objectives

a. Identify who will be taking the following responsibilities:
b. Incident Commander.
c. Information Officer and Operations Section Chief.
d. Additional Section Chiefs (Operations, Planning, Logistics and Finance/Administration Chiefs) assigned as required.
e. Discuss the emergency response strategy including:
f. The level of emergency.
g. Extent of affected area.
h. Need for external resources.
i. Response strategy and initial Incident Action Plan.
j. Communications/media relations strategy.
k. Communications update schedule/frequency.
l. When the next emergency meeting will be?

3.3 Internal Communications

Protocol

1. The Information Officer will be responsible for sending an internal email or telephone call to all call centers that identifies:
    a) What the emergency is?
    b) When it began?
    c) Where it is?
    d) Who is affected by the emergency?
    e) What is being done to correct the situation?
    f) How long it is expected to last if known?
    g) What information to provide to the public?
    h) Where they can direct calls that require more information?
    i) When they will be receiving the next update?

2. The call centers that require this email/phone call are:
    a) Administration Front Counter/Main Switchboard

b) Public Works Front Counter
c) Fire Department/ After Hours Emergency Line
d) RCMP
e) Others as required

3. Emergency updates must be provided to these call centers:
a) as soon as new information becomes available or
b) at the frequency decided in the initial emergency meeting or
c) at least twice a day

4. If the emergency is expected to continue after regular business hours have concluded then an example telephone message should be provided to all call centers a half hour before the end of the business day; however, if the emergency is deemed severe call centers may be accessed 24 hours. See the attached example for external greeting.

5. It may also be warranted to provide an email to all domains to help facilitate accurate dissemination of information. This will be decided by key management during an emergency meeting.

3.4 External Emergency Message

Example

You have reached the (call center name) after hours message system on (current date)

Description of emergency and area affected. Instructions for affected residents.

The Village is working to resolve the problem and will be providing further information on the situation as it becomes available. Further information can be obtained from our website at www.hainesjunction.ca.

If you require immediate assistance, please dial 867-634-5316 for the after-hours emergency line. Thank you for patience and cooperation.

3.5 Phone Alert Broadcasting

The Village of Haines Junction subscribes to **Voyent Alert**, an automated message delivery system which can send a **pre-recorded voice message, text message, or app specific alerts** to multiple telephones, simultaneously.
The Village may, as one method of contacting the public, use this system to quickly send off a prerecorded message to all citizens, businesses, organizations, schools, care facilities, hospitals, etc. who have signed up to receive alerts.

3.7 Communication during Power, TV, Telephone Outages

In the event of a major emergency or prolonged outages of power, television and/or telephone, the Village may have to use sign boards at key locations around the Village, deliver notices door-to-door, and use social media to provide information to the public on the state of the water delivery system.

4.0 DEFINING TYPES OF EMERGENCIES

This section defines many of the potential problems that could affect water quality or quantity in the water supply and distribution system. Each type of event can cause different types of damage to the systems' components and may require a specific solution. Emergency Incidents usually have a wide range of severity. In this plan, categories of severity are defined as Alert Condition, Emergency Condition, Potential Disaster Condition and Disaster Condition, each of which aides in determining appropriate response actions. Examples of each condition are as follows:

Alert Condition: are considered to be routine emergencies like a distribution watermain break, short power outage, or minor mechanical condition failure.

Emergency Condition: are considered to be more significant emergencies like disruption of the main water supply system; complete loss of chlorination equipment system; reservoir contamination; or water quality degradation due to things like high turbidity or a positive E-coli detection. These types of issues usually require a Boil Water Advisory or Water Use Restriction Notice to protect the public.

Potential Disaster Condition: are situations like imminent break of a dam due to excessive high water level in the reservoir. Appropriate precautions must be taken to mitigate downstream losses, notify and protect the public.

Disaster Condition: are emergency situations like failure of a dam releasing source water, large forest fire within the watershed, acts of terrorism or hazardous chemical spill in the watershed. These types of emergencies constitute a catastrophic disaster/major emergency which requires immediate notification of law enforcement and local emergency management services. These events often take anywhere from several days to months to resolve before the system returns to normal operation.

In the event of a potable water emergency, it is the responsibility of Senior Water Operator to take action immediately even if the Environmental Health Officer at Yukon Environmental Health cannot be reached.

4.1 Bacteriological Contamination of the Distribution System

Type of Emergency: (See below)

This emergency would arise in the event of a positive bacteria result from distribution sampling. Yukon Environmental Health Services receives all test results from regular distribution sampling and will contact the utility in the event of a positive result. Sub-divisions or construction projects may not know to contact Yukon Environmental Health Services and may contact the utility directly.

Conditions:

1. A total coliform or non-coliform background count over 200 CFU/100ml requires resampling to verify if there truly is a problem. This is NOT an Emergency Condition.
2. **An e-coli count over 1 CFU/100ml is an Emergency Condition** and the Environmental Health Officer at Yukon Environmental Health Services must be contacted. *CFU = colony-forming unit; MPN = Most Probable Number*
3. Record free and total chlorine levels
4. Flush the distribution system in the area.
5. Resample the area for bacterial analysis.
6. Try to determine why a positive count occurred.

<u>If bacterial contamination still exists:</u>

1. Initiate emergency meeting with senior Water Operations staff and the critical management team.
2. Contact the Yukon Environmental Health Officer to discuss next steps.
3. If requested by Yukon Environmental Health Service, Issue a “Boil Water Advisory” (See Appendix B).
4. Identify the areas affected and use the Emergency Water Notification plan and maps to notify all users in the identified area.
5. Flush the distribution system in the area.
6. Take water samples for bacterial analysis.
7. Once results for all three criteria are acceptable to the Yukon Environmental Health Services meaning: Once the water system has returned to normal operations, two consecutive (2 days in a row) bacteria tests must be taken and results sent to Yukon Environmental Health Services.
8. Only then can the “Boil Water Advisory” be rescinded by Yukon Environmental Health Services (See Appendix B).
9. Complete Post-Incident Report (See Appendix C).

4.2 Supply Main Failure

Type of Emergency: Emergency Condition

In the event of a supply main failure there will be the potential for loss of water to residents, backflow in the system and flooding of properties.

Potential Actions:

1. Initiate emergency meeting with senior Water Operations staff and the critical management team.
2. Stop the flow of water by closing valves on all sides of the problem area.
3. Make the site safe. Notify Fire Department of affected area for Fire Prevention.
4. Provide a temporary bypass or alternative supply line, if possible.
5. Make a damage assessment and prepare a plan to begin repairs and identify a schedule to resume normal operations.
6. Place sediment control measures in place and de-chlorinate the water released if possible.
7. Contact the local residents to advise them of the condition and provide regular updates of the situation.
8. If the failure results in limited water supply, issue a “Mandatory Water Conservation Advisory” (See Appendix B).
9. Arrange for a bulk water supplier to haul potable water to the Village if necessary.
10. Repair the damage and disinfect the affected main section.
11. Complete Post-Incident Report (See Appendix C).

4.3 Distribution Water Main Break

Type of Emergency: Emergency Condition

In the event of a distribution main failure there will be the potential for loss of water to residents, backflow in the system and flooding of properties.

Potential Actions:

The Public Works Water Distribution system departmental procedure for water main break at site level to be followed:

1. Village of Haines Junction Public Works calls Water Distribution Operator (or On-call Operator after normal business hours) to investigate the water main break or leak after receiving the initial call.
2. A soon as possible staff isolate water main break by closing valves in the surrounding area.
3. After the initial inspection a site assessment is made and the following activities should be carried out:
    - Make the site safe. (Make safe the localized water main break area with cones and road barriers for road and sidewalk closures, if required).
    - Organize traffic control, if required.
    - Organize an ATCO ‘dial before you dig’ emergency call to ensue workers safety prior to undertaking any excavation works.
    - If required, additional staff are called to assist on site (after normal working hours the Public Works Manager will contact the additional staff.
4. Make a damage assessment and prepare a plan to begin repairs and identify a schedule to resume normal operations.
    - Staff evaluates damage to Village infrastructure (road, sidewalk & pipes etc.).
    - Staff evaluates damage to adjacent utilities i.e. Atco Electric, Northwestel etc. Emergency calls made to other utilities if their infrastructure is damaged.
    - Staff evaluates damage to adjacent private property.
    - If there is the potential that the adjacent water distribution system has been contaminated, contact Yukon Environmental Health Services Officer and determine if a “Boil Water Advisory” is required.
5. The Incident Commander determines if evacuation of residents is required
    - Dependent on the size and the scope of break, it may be necessary to evacuate residents. An assessment should be completed on affected home(s) and if support is required in the form of evacuation, contact should be made with Village emergency response personnel, Fire Rescue, RCMP and the Emergency Program Manager. At this point a unified command would be established with Public Works and other Village responding agencies as they arrive to facilitate support for the operations.

6. If there will be significant erosion and sediment effect on streams, notify Yukon Environment Protection Officer
7. Staff organizes personnel, equipment, machinery, materials and parts to repair the water main break.
8. Staff repairs the water main and re-open valves to check repair is watertight.
9. Staff organizes for reinstatement of excavation (if emergency repair carried out at night, the excavation reinstatement occurs the following day).
10. Reinstatement works carried out and traffic control measures removed.
11. The Public Works Manager should be provided with a situation report of the water main break. If the water main break has a neighbourhood or community impact that is beyond the capacity for Public Works staff and their resources to manage, the Public Works Manager should contact the Village's Emergency Program Manager with a request to activate the Village's Emergency Co-ordination Centre (ECC). Communications from the site would channel into the ECC and the Public Works Department would ensure the rest of the Village is maintaining service. The procedures, roles, responsibilities and activities identified in the Village's *Emergency Response and Recovery Plan* will be followed upon activation of the ECC.
12. Complete Post-Incident Report (See Appendix C).

4.4 Failure of the Chlorination System at Pumphouse 1 or Pumphouse 3

Type of Emergency: Emergency Condition

There should always be a minimum of 0.20 mg/L of free chlorine, and not to exceed 4 mg/L free chlorine, throughout the distribution system. Dosing rates vary due to the flow rate. Pumphouse 1 and Pumphouse 3 each have a sodium hypochlorite injection system which consists of redundant pumps and an injector. A failure can occur on one or both of the pumps or injector lines.

Potential Actions:

1. If one injection pump is non-operational then switch to secondary injector pump using SCADA.
2. Adjust the chlorine dosage accordingly using SCADA.
3. If both systems are inoperable then contact the Public Works Manager to discuss possible solutions.
4. If no alternative solutions can be found quickly, contact the a Yukon Environmental Health Officer.
5. Issue a “Boil Water Advisory” (See Appendix B)
6. Review options for flushing un-chlorinated water from the system.
7. Identify, assess and correct the problem.
8. Ensure chlorine dosage is adequate to provide a minimum of 0.20 mg/L free chlorine throughout the distribution system.
9. Take water samples throughout the main distribution system for bacterial analysis.
10. Once normal equipment operation resumes, contact the Yukon Environmental Health Officer to discuss rescinding the “Boil Water Advisory.”
11. Complete Post-Incident Report (See Appendix C).

4.5 Chemical Spill – at Pumphouse 1 or Pumphouse 3

Type of Emergency: Alert Condition

There is a possibility of a chemical spill at Pumphouse 1 or Pumphouse 3 that could cause serious injuries that would be detrimental to the health and safety of the water operations staff.

Potential Actions:

1. When handling any chemicals operations staff should follow the Material Safety Data Sheet (MSDS) provided for that chemical.
2. The appropriate personal protective equipment (PPE) must be used at all times when handling any chemicals in the plant.
3. A chemical spill safe work procedure is in place and this should be initiated and followed in the event of a chemical spill at either pumphouse.
4. If there is a chemical spill the operator should immediately inform the Senior Water Operator or the Public Works Manager in his absence.
5. Water Operators will initiate and follow the Emergency Response Procedure for chemical spills.
6. If possible, contain the spill to ensure that no concentrated chemicals reach open water sources.
7. If the chemical spill cannot be contained or isolated call 911 and ask for assistance from Village of Haines Junction Fire Rescue.
8. Identify, assess and correct the problem.
9. Complete Post-Incident Report (See Appendix C).

4.6 Failure of the SCADA (Supervisory Control and Data Acquisition System)

Type of Emergency: Alert Condition

The SCADA system is used to collect data, process alarms and in some cases provides remote set points to PLC's that provide local control of Pumphouse 2. The severity and cause of a loss of either of this will need to be assessed in each situation.

Potential Actions:

1. Contact the Public Works Manager or Senior Water operator to assess and rectify the situation. If more expertise are required contact CMP Engineering or WSP Engineering.
2. The primary SCADA server is located in the Pumphouse 2 computer room.
3. Complete Post-Incident Report (See Appendix C).

4.7 Failure of Outstation PLC (Programmable Logic Controller)

Type of Emergency: Alert Condition

Programmable Logic Controllers (PLCs) provide automated control of various processes including chlorination, water treatment, pump station, reservoir, and energy recovery system operations. The severity and cause of a loss of either of these systems will need to be assessed in each situation, and corrected as soon as possible.

Potential Actions:

Contact the Public Works Manager or Senior Water operator to assess the situation.

1. Switch the system to manual operation.
2. Ensure that all equipment is running properly.
3. Ensure chlorine dosage is adequate to provide a minimum of 0.20 mg/L free chlorine throughout the distribution system.
4. Operate the system manually until PLCs are repaired or operational again.
5. Contact CMP Engineering or WSP Engineering for support if required.
6. Complete Post-Incident Report (See Appendix C).

4.8 Extended Loss of ATCO Power Supply

Type of Emergency: Alert Condition

The loss of ATCO power will automatically activate the standby power generator which is diesel driven to provide emergency power as needed to Pumphouse 2 and Pumphouse 4. *Please note that Pumphouse 1 and Pumphouse 3 may not be operable without sourcing and connecting a portable generator source. In the event of a long power outage it may be necessary to connect an emergency generator to either Pumphouse 1 or Pumphouse 3 to ensure the supply of water.*

Potential Actions:

1. Initiate emergency meeting with senior Water Operations staff and critical management team.
2. Check with ATCO regarding status of the situation.
3. Ensure that generator is running properly.
4. Ensure that all other equipment is running properly.
5. Re-fuel stand-by generator if the power loss is expected to last for an extended period.
6. Check the generator's oil pressure, water temperature and verify that there are no fuel or coolant leaks periodically.
7. Once grid power is regained, take the generator off line and refuel.
8. Additional information on the generator operation can be found in the Standard Operating Procedures Manual and Maintenance Manual kept on site.
9. Complete Post-Incident Report (See Appendix C).

4.9 Reservoir, Wellhead or Pumphouse Intrusion

Type of Emergency: Emergency Condition

This condition results in the event of unauthorized access to the site, the control building or the reservoir. A reservoir intrusion could be the result of intended or unintended contamination of the storage facility and distribution system. If the reservoir may be out of service for an extended time, contact CAFN municipal services department to assist in water delivery to citizens and residents.

Potential Actions:

1. Initiate an emergency meeting with senior Water Operations staff and management team.
2. Isolate the reservoir by closing valves.
3. If criminal activity is suspected, secure the site and protect any evidence.
4. Contact the RCMP.
5. Contact the Yukon Environmental Health Officer.
6. Isolate the downstream system.
7. Take samples from the reservoir and the downstream system. Test against regulated water quality requirements and the Guidelines for Canadian Drinking Water Quality.
8. Issue a “Boil Water Notice” if the reservoir potentially contains a bacterial contaminant and water has entered the distribution system (See Appendix B).
9. Issue a “Do Not Consume Water Notice” if the reservoir potentially contains a chemical contaminant and water has entered the distribution system (See Appendix B). Contact CAFN Municipal services department to assist in water delivery to citizens and residents
10. Identify the areas affected and hand deliver notices to all users in the identified area.
11. Keep reservoir off-line until samples are deemed safe to drink.
12. If samples are not safe to drink, drain and repair any damage to the reservoir.
13. Rinse and disinfect the reservoir.
14. Once bacterial and chemical results from the distribution system are acceptable to Yukon Environmental Health Services, issue notification that the Drinking Water Problem has been corrected.
15. Once bacterial and chemical results from the reservoir are acceptable to Yukon Environmental Health Services, put the reservoir back on line.
16. Complete Post-Incident Report (See Appendix C).

4.10 Backflow / Backpressure Incident

Type of Emergency: Emergency Condition

Backflow or back-siphonage can cause contamination of the water distribution system and results when there is a negative pressure in the system. Negative pressure forces water backwards into the water system and any contaminant located at the opening to a faucet tap or hose bib, irrigation system or fire suppression system.

Potential Actions:

1. Initiate emergency meeting with critical management team.
2. Isolate the source of backflow if possible.
3. Isolate area downstream of backflow source.
4. Take samples for chemical and bacterial analysis.
5. Contact Yukon Environmental Health Office (EHO).
6. Issue a “Boil Water Advisory” if there was the potential for bacterial contamination.
7. Identify the areas affected and hand deliver notices.
8. Issue a “Do Not Use the Water” if there was the potential for chemical contamination. Contact CAFN municipal services department and request portable water be trucked in from an alternate water treatment plant.
9. Flush the distribution system in the area.
10. Identify, assess and correct the problem.
11. Once the chemical analysis results are acceptable to Yukon Environmental Health Office (EHO) and there is no threat to human health, remove the “Water Restriction.”
12. Once total and fecal coliform results are acceptable to Yukon Environmental Health Office (EHO), remove the “Boil Water Advisory”.
13. Complete post-incident report. (See Appendix C).

4.11 Water Source High Turbidity Readings, Caused by flood event or down hole changes in well aquifer.

Type of Emergency: Public Health - Emergency Condition

This event could be the result of a number of situations such as water main breaks or down hole changes in the wells aquifer. A flood event in the Dezedeash River could also trigger this response at pump house #1. Each situation will vary in severity and will need to be dealt with appropriately. The potential actions are listed in order of response from least severe to most severe. The Canadian Drinking Water Guidelines require turbidity levels less than 1 NTU in the distribution system. Average turbidity for wells 3 and 5 is 0.12NTU.

Potential Actions:

1. If weather and river levels indicate high likelihood of extreme rain or a rain on snow event, and potential to cause high turbidity; initiate mitigation measures by feeding entire Village water demands through pump house #3. This pump house has less likelihood of flooding than pump house #1.
2. Monitor turbidity.
3. If turbidity exceeds 5 NTU, notify Yukon Environmental Health Office (EHO) and begin discussions regarding remediation actions.
4. Increase chlorine dosage to ensure a minimum of 0.20 mg/L free chlorine throughout the distribution system.
5. Initiate an emergency meeting with the critical management team.
6. As directed by Yukon Environmental Health Office (EHO), issue a "Boil Water Advisory"
7. Continue to monitor turbidity until issue is resolved.
8. Once turbidity results are acceptable to Yukon Environmental Health Office (EHO), remove the “Boil Water Advisory”.
9. Complete post-incident report (See Appendix C).

4.12 Building Fire

Type of Emergency: Emergency Condition

DO NOT TRY TO PUT OUT A FIRE:

- If the fire is spreading beyond the spot where it started.
- If there is a potential for explosion.
- If the fire can block your escape.
- If the extinguisher proves to be ineffective

This emergency would arise in the event of an internal or external fire at the South Fork Water Treatment Plant, in any pump stations or water utility buildings.

Actions:

1. Contact Village of Haines Junction Fire Rescue.
2. Ensure that all personnel are accounted for and clear of the building fire.
3. Advise Village of Haines Junction Fire Rescue of any chemicals or hazardous gases stored on site.
4. If fire causes loss of chlorination, implement other options for disinfection immediately.
5. Complete Post-Incident Report (See Appendix C).

4.13 Major Earthquake

Type of Emergency: Disaster Condition

In the event of a major earthquake, potential damage to the Villages utilities may be a concern. The storage reservoir, pump stations, water supply mains and lagoons should have their condition assessed soon after the event. Because many other agencies will be involved it will be essential to coordinate all efforts to most effectively deal with the situation.

Potential Actions:

1. Send qualified staff to the following sites to confirm their status. Extreme caution should be exercised for safety reasons:
    a) Pumphouse 2
    b) Pumphouse 4 / Storage Reservoir
    c) Pumphouse 1 / Well 3
    d) Pumphouse 3 / Well 5
    e) Sewage Lift Station
    f) Sewage lagoon
2. Initiate emergency meeting with senior Water Operations staff and the critical management team.
3. If any critical concerns, contact Village's Fire Department and Emergency Operations Center as necessary.
4. If the water supply system cannot supply adequate flow for any particular reason, consider issue a "Water Use Restriction" (See Appendix B).
5. If there was potential for backflow into the system, issue a "Boil Water Advisory" (See Appendix B).
6. Check the flows at the Pumphouses and compare with historical values to determine if there is major water main damage.
7. Conduct a thorough inspection which includes:
    a) An interior review of all facilities looking for spraying water indicating damaged pipes, cracked concrete floors, structural damage to the block walls and roof.
    b) A review of all equipment and instrumentation to evaluate the status of the system.
    c) A walk around the exterior of all buildings looking for structural damage.
8. Assess the extent of each damaged section and record findings.
9. Make a damage assessment, prepare a plan to begin repairs and identify a schedule to resumption of normal operation.
10. Once adequate flow is restored, remove the "Water Use Restriction" (See Appendix B).
11. Once total and fecal coliform results are acceptable to Yukon Environmental Health Office (EHO), remove the "Boil Water Advisory".
12. Complete Post-Incident Report (See Appendix C).

4.14 Returning to Normal Operations

Each type of emergency will require unique remediation measures and returning to normal operation may be simple or quite complicated depending on the emergency.

1. As necessary, plans should be developed for neutralizing, flushing, disinfecting tanks, pump stations, supply and distribution piping systems.
2. Water system management team should verify water quality sampling results.
3. Senior staff responsible for the Village's water system operation will confer with Yukon Environmental Health Services regarding return to normal operation notification to the public.

LIST OF APPENDICES

Master Contact List Water Works Personnel

Boil Water Advisory Template

Boil Water Advisory REMOVED Template

Emergency Materials List and Instructions for hand delivery of notices

Post-Incident Report

Master Contact List Water Works Personnel

Position	Phone - Municipal Office	Cellular
CAO	867 634 7100	
Village office	867 634 7100	
Public Works Jerry Tracey – Public Works Manager - DRC	867 634 7100	867 336 4422 W 306 837 7271 P
Public Works Jeff Power - UMO1	867 634 7100	867 634 5353
Public Works William Rondeau - UMO	867 634 7100	867 336 5595
Public Works Joshua Dion - UMO	867 634 7100	236 998 8777
Backup Operator Ray Osbourne		867 333 9481

Emergency Contacts

Position	Phone	Cellular
Environmental Health Officer Franklin Fru	867 667 5061	
Police	867 634 5555	
Fire Department	867 634 2222	
Fire Chief Bruce Tomlin	867 634 2222	867 336 1884
Ambulance	867 634 4444	
Nursing Station	867 634 4444	
Environment Canada	867 667 8455	
Department of Fisheries and oceans	867 393 6722	
Yukon Electric	867 633 7000	
Northwestel	888 423 2333	
Plumbing Contractor The Plumbineers	867 333 3569	
Heating Contractor The Plumbineers	867 333 3569	
Electrical Contractor True North Electrical	867 332 2623	
Excavation Contractor MacKellar Contracting	867 335 6413	
Pump and motor Supplier Aqua Tech	867 668 5544	
Disinfection Supplier Yukon Service supply	867 668 4242	
Radio Station CBC Whitehorse	867 668 8400	
Radio Station CKRW Whitehorse	867 668 6100	
Radio Station CHON Whitehorse	867 668 6629	
Bulk Water Hauler CAFN Municipal	867 634 4800	
SCADA system issues CMP Engineering WSP Engineering		 867 334 7866 867 332 8223
Mechanical Support Nason Mechanical	780 470 7155	

Boil Water Advisory Template

Boil Water Advisory

Date: XXXXXX, X 20XX

To: Residents of the Village of Haines Junction

From: Village of Haines Junction

This boil water advisory applies to residents of the Village of Haines Junction in the area of XXXXXXXXXXXXX

This advisory is issued as a precautionary measure to protect public health in the event that water provided from the mainline service is impacted by XXXXXXXXXX.

To safeguard public health:

> Boil water for two minutes (rolling boil) prior to using it for drinking, cleaning food, preparing food, baby formula or fruit drinks, washing dishes, making ice, or brushing teeth.

For further information please contact the Village of Haines Junction @ 867-634-7100 Ext 104 or Environmental Health Services at (867) 667-8391 or toll free at 1-800-661-0408 ext. 8391.

Boil Water Advisory REMOVED Template

Boil Water Advisory REMOVED

Date: XXXXXX X, 20XX

To: Residents of the Village of Haines Junction

From: Village of Haines Junction

The boil water advisory that applied to residents of the Village of Haines Junction on XXXXXXX X, 20XX in the area of XXXXXXXXXXXXX has been REMOVED.

This advisory was issued as a precautionary measure to protect public health in the event that water provided from the mainline service is impacted by XXXXXXXXXXX.

Consecutive samples have confirmed the water is safe for public consumption.

For further information please contact the Village of Haines Junction @ 867-634-7100 Ext 104 or Environmental Health Services at (867) 667-8391 or toll free at 1-800-661-0408 ext. 8391.

DO NOT CONSUME WATER Template

DO NOT CONSUME WATER NOTICE

Date: XXXXXX, X 20XX

To: Residents of the Village of Haines Junction

From: Village of Haines Junction

This DO NOT CONSUME WATER NOTICE applies to residents of the Village of Haines Junction in the area of XXXXXXXXXXXXX

This advisory is issued as a measure to protect public health in the event that water provided from the mainline service is impacted by XXXXXXXXXXXX.

To safeguard public health:

DO NOT drink water from the affected water supply or use it for food preparation. *USE* an alternate source of safe drinking water, such as bottled water.

For further information please contact the Village of Haines Junction @ 867-634-7100 Ext 104 or Environmental Health Services at (867) 667-8391 or toll free at 1-800-661-0408 ext. 8391.

DO NOT CONSUME WATER REMOVED Template

DO NOT CONSUME NOTICE REMOVED

Date: XXXXXX X, 20XX

To: Residents of the Village of Haines Junction

From: Village of Haines Junction

The DO NOT CONSUME WATER NOTICE that applied to residents of the Village of Haines Junction on XXXXXXX X, 20XX in the area of XXXXXXXXXXXXX has been REMOVED.

This notice was issued measure to protect public health in the event that water provided from the mainline service is impacted by XXXXXXXXXXXXX.

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Consecutive samples have confirmed the water is safe for public consumption.

For further information please contact the Village of Haines Junction @ 867-634-7100 Ext 104 or Environmental Health Services at (867) 667-8391 or toll free at 1-800-661-0408 ext. 8391.

Emergency Materials List and Storage Locations

1. Potable Water Tanks (fit in bed of Village trucks)
   A potable water tank is stored at the Village shop and can be used to deliver water to residences during times of water distribution disturbance. This fits on the deck of the 5 ton truck and has all associated piping.
2. Waterworks Materials Suppliers
   There are various sources for additional parts in the Yukon, other communities or Whitehorse based business can supply addition resources.
3. Pipe Inventory
   The Village of Haines Junction has a pipe inventory stored at the Village Shop.
4. Couplings Inventory
   The Village of Haines Junction has a coupling inventory stored at the Village Shop.

Instructions for Hand Delivery of Water Notices

When deemed necessary to hand deliver notices, make sure each staff member or Fire Department Volunteer are assigned certain sections of the Village. CAFN Municipal services can also assist in hand delivery of notices. Make note of residents not contacted and try to re contact. A confirmation of delivery will be given to the incident commander.

Incident report form

Job: _____Date of incident: ___/____/___Time _____am/pm

1. What was the Incident/near miss?

2. Where there any injuries? (Note: Any injuries require an Accident Report Form)

3. Was there any damage to property or plant?

4. What caused the incident?

5. What actions will be taken to eliminate future repeats of the incident?

6. Management comments

Signed off by management when corrective actions have been adopted and monitored.

Management signature_____

Date of sign off_____