DISTRICT OF SUMMERLAND

WATER UTILITY EMERGENCY RESPONSE PLAN

May 2022

(Updated - April 2025 - SG)

District of Summerland File No. 5600-73

THIS PAGE IS INTENTIONALLY LEFT BLANK

Contents

1.0 EMERGENCY RESPONSE PLAN – INTRODUCTION

1.1 Emergency Plan Objective

The objective of the District of Summerland (DOS) Emergency Response Plan (ERP) is to provide staff and regulatory agencies with a guideline for addressing a wide range of potential water-related emergencies that Summerland may face.

Summerland has the responsibility to provide adequate fire flows, an adequate supply of irrigation water, and clean, safe drinking water to our customers, and make every effort to maintain this when an emergency occurs. Proper preparation allows a utility to react more thoughtfully and thoroughly when an emergency occurs.

Information from the following documents was utilized in the preparation of this plan:

- 2021 – Water Master Plan
- *Drinking Water Protection Act*
- AWWA Manual M19, Emergency Planning for Water Utilities
- DOS Policies and Procedures Manual (current as of present date)
- Interior Health (IH) Documentation on Water Quality events
- Ministry of Health - Provincial Turbidity Decision Tree
- Watershed Mapping for Trout Creek

No two emergencies are exactly the same. This ERP is a guideline for dealing with a wide range of emergencies. Each emergency is set out with a description, a general chronological order regarding how to deal with the emergency and how to document the works in a consistent manner. The task list for each emergency is also a check list that will serve staff with a reminder of items to be checked off or considered through the course of an emergency event. This document includes items specific to the DOS water supply system.

Sections 3 through 7 set out the potential emergency scenarios. For each scenario, an order for addressing the emergency with a checklist is included. The objective is to ensure that key items have been considered in the emergency response and obvious items have not been overlooked.

With a number of integral links to related policies and procedures within, this document is best used on a workstation with access to the District of Summerland server.

1.2 Operational Resiliency

Operational resiliency is the ability of the operation to adjust, adapt, and continue to provide service under emergency conditions. The objective for the Summerland Water Utility is to have a high operating resiliency. Operational resiliency indicators include the following:

Emergency Response Plan: Having a thorough and well-thought-out ERP is the first step in developing resiliency in operations so that emergencies can be better handled. This document is a part of the process for developing resiliency.

Regional Agency Coordination: This ERP must be circulated and available to the greater regional emergency response agencies. The Summerland Fire Department is the local agency for staging for the Provincial Emergency Program.

Mutual Agreements for Aid: For certain emergencies, DOS may have to rely on other water utilities for assistance and support. The City of Penticton, the Regional District of Okanagan Similkameen and the District of Peachland are the three local adjacent water utilities that DOS may require assistance from at some date in the future. The District will work toward a formal mutual aid agreement, based on the principles in protecting a community;

Emergency Power: Gravity supply with back-up power generation to run the disinfection equipment is possible for the DOS water system if there were a catastrophic failure in the power supply grid.

Ability to Meet Water Demands: The capacity of the DOS water system is substantial and, if needed in an extreme emergency, could benefit areas beyond the limits of the current service area.

Critical Parts Inventory: A listing of critical parts or where they are available is provided in Appendix C of this document. Contact names for those support agencies in the Okanagan that may have specialty parts or services are listed in Section 11 of this document.

Critical Staff Resiliency: The ability of staff to react and maintain composure during an extreme event is not known until tested. Training and positive reinforcement of decision-making by staff at all levels will assist to cover off what might occur during an emergency.

1.3 Staff Priorities

During any emergency, DOS are to follow the general operating principles provided within this section.

Safety of DOS Staff is Paramount: If DOS does not maintain safe working conditions, they may compromise their own safety and may not be able to assist the public if the emergency conditions escalate. DOS staff are to be aware of their personal safety first, so that they will be able to be of assistance to the greater public.

- Identify the hazards and their severity
- Determine who might be harmed and how
- Evaluate the risks and decide on precautions to be taken
- Determine if the risks can be removed
- Determine who are the appropriate people to contact for assistance
- Record any significant findings
- Always wear appropriate collective or personal protective equipment
- If working alone, ensure use of Working Alone monitoring system and procedures

Safety of Public: Protection of the health and well-being of the citizens of our community is equivalent to the first principle.

Safety of Public and Private Assets: This includes protection of the integrity of public and private physical assets including roads, buildings, homes, and other assets of value. The intent is to take reasonable measures to protect all assets, but not at the risk of personal or public injury.

Safety of Environment: This includes protection of slopes, stream banks, and items that might become damaged with the flow of water.

Inform Media and Communicate: This issue can occur prior to, during, or after an event. The communication to the public is important but falls after the preceding items.

Reporting of Event: The reporting of work falls under the responsibility of the person in charge during the emergency. Support staff may assist; however, documentation of the events is now required for reporting and quality control.

The Distribution List for the ERP is located at the back of this document. Sufficient numbers of the ERP have been printed to have one in each staff truck and one at each major facility location including the Works and Infrastructure Office and Water Treatment Plant (WTP).

1.4 Emergency Planning Definitions

The concepts and emergency planning definitions utilized in this document are listed in this section. Definitions are in accordance with AWWA Manual 19, Emergency Planning for Water Utilities.

Emergency: An unforeseen or unplanned event that may degrade water quality or impact quantity of domestic water, irrigation water, and fire flow supply available to the community.

Minor Emergency: A routine, common or localized event that affects a minimal number of customers. Examples include a small diameter pipe break, motor vehicle incident involving a hydrant, a short power loss, or a service repair. A minor emergency should be able to be easily handled by the utility without special equipment or materials. Minor emergencies, if dealt with effectively can be controlled so they do not become major emergencies.

Major Emergency: A disaster that affects a major part of the water system and their customers in terms of either water quality or water quantity. A major emergency can place the health and the safety of a community at risk. Major emergencies occur infrequently.

Natural Disaster: Natural disasters are caused by natural forces or events that cannot be controlled by humans. These can include wildfire, earthquake, flooding, tornadoes, heat domes, freezing or other severe weather-related events.

Toxic Substance: A substance that**,** when entering or potentially entering the environment, has or may have immediate or long-term harmful effects on human health, the environment or its biological diversity. These can include chemicals, heavy metals, pesticides or other pollutants.

Human Caused Disaster: A disaster caused intentionally or non-intentionally by human actions. It may be the result of human error, transportation accidents, employee work stoppages or lack of attention, vandalism, sabotage, terrorism, biological contamination, chemical spills, etc.

Hazard: Is a source of potential damage or danger associated with a disaster. Examples are unstable slopes due to a creek wash-out, ground shaking from an earthquake:

HIC: Highest irrigation consumer

Lifeline Supply: The concept of Lifeline services is where the infrastructure for a community provides the essential services for health, safety, and sustenance. Lifeline utilities include water, wastewater, electricity, and natural gas in colder climates. Certain transportation networks, communication systems, hospital systems, and emergency operation centers can be considered lifeline services.

1.5 Emergency Reporting Form

Type of Event:_____

Date and Time:_____

Location:_____

Contributing factors:_____

Notes:_____

Photos Taken? Yes / No - download to DOS Record file

\\SRV-FS2\Master District\5200-5799 Engineering and Public Works\5600 Water Supply and Distribution\5600-04 Water Mains\Watermain Breaks Reporting

Recorded by:_____

2.0 EMERGENCY SCENARIOS

2.1 Introduction

This section provides a listing of possible water system emergencies that are related to the physical components of water supply. The quality of the water delivered is addressed in Section 3 of this ERP.

2.2 Emergency Scenario Format

This page sets out the format for all emergency scenario descriptions within this Emergency Response Plan.

Description of Event: Title of each potential emergency is provided so that the information can be located in the area of district work. Events in Section 2 describe the physical aspects of providing water service. Events in Section 8 describe the water quality issues that may become an issue.

Indicators: Means of how the emergency is or can be recognized is provided for each emergency. The emergency may be indicated by either DOS staff or external contacts.

Actions: Actions for how DOS staff is to react to the emergency are listed generally in order of expected approach. This list is only a guideline and, during an emergency event, if time permits, the list should be reviewed to ensure that all foreseeable actions are taken. The boxes listed on the right-hand side of the numbered scenarios form a checklist for the lead Water Operator to review that all appropriate actions are being taken.

Contacts: Contact agencies are listed after actions. The specific contact persons are listed within the Communications Section of this Emergency Response Plan.

Event Record: This checklist at the page bottom provides a summary of the event, whether photos were taken and a listing of the reporting of the emergency.

All emergency events, even including service repair leaks and small water main breaks are to be documented and issued to the DOS Office for electronic filing. Events are to be recorded by date. Folders are to be set up for large events and to contain photos and data. The Folders file name protocol to be as follows:

3.0 DAM SAFETY EVENTS

See Dam Emergency Plan located here.

4.0 WATERSHED EMERGENCIES

4.1 Contamination - ALGAE Bloom in Watershed Reservoirs

Description: Algae Bloom is found within one of DOS Upper Watershed Reservoirs.

Indicators: Noted algae bloom reported in upper reservoirs by public, DOS staff. Causes may include warmer temperatures and elevated nutrient levels.

Actions: Steps to be taken by DOS staff.

1. Document Incident: Record location of bloom (reservoir), distance to DOS Intake, climatic conditions in past couple weeks, is reservoir low level outlet (LLO) currently open.
2. Notify Supervisor
3. Notify Management
4. If bloom is significant, collect water samples and send to aquatic biologist (ie. Larratt Aquatic Consulting) for species ID and discuss importance of findings.
5. Consider closing of LLO until bloom is over or until water quality improves, if deemed necessary.

   Note: Historically speaking, it has been rare that a bloom in the upper reservoirs has contributed to a bloom in the Summerland Reservoir and even when it has occurred, the treatment plant has been effective at removing the organics. Some algae species produce toxins in which case the treatment plant process may not be effective in full removal, consultation with IH is required.
6. Communication: Begin public notification if required and follow Water Quality Notification Procedures.
7. Continue monitoring and sampling if event progresses OR if recommended by consultant OR if recommended by Interior Health.
8. Treat Reservoir: Contact aquatic biologist. Review and consider ways in which to treat reservoir for algae bloom.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

4.2 Watershed: Extreme Runoff Event in Trout Creek Watershed (Flow and Turbidity)

Description: Extreme flow events increases turbidity and the risk of damage to DOS physical structures and to the community.

Indicators: An event may be indicated by:

- Alarm indication from DOS supervisory control and data acquisition (SCADA) system on Trout Creek intake monitoring the creek level.
- Phone call from main DOS office or from a resident;
- Extreme weather statement issued by Environment Canada or other forecaster;
- Direct call from staff members noticing heavy rainfall event visually or from media; or call from Dam Safety

Actions: By DOS crew member upon receipt of notification.

1. Determine Magnitude of Creek Flow:
    - Travel to Intake if safe to do so.
    - Drive to Trout Creek Intake to witness flow and see if flow is contained by the creek banks and the condition of bridges. Notify Supervisor of condition and provide photos or videos if possible. Supervisor to notify Management staff.
    - Measure turbidity and flow at Trout Creek Intake and consider throttling down Intake gate if event is considered short lived to reduce the amount of high turbidity water from entering the Summerland Reservoir. Ensure WTP Chief Operator and staff are aware of changing water quality conditions.
        - If necessary, reduce customer demand as per Appendix B.
    - Inform Fire Department if a risk of overtopping the banks of Trout Creek exists
2. Determine Origin of High Flows:
    - Determine which creek stem is generating the majority of flow; Isintok or Thirsk.
    - Supervisory / Management to coordinate further watershed investigation by staff: photograph/video confluence of Trout Creek with Meadow Valley Creek, Isintok Creek, Bull Creek (accessed by KVR from Faulder or from Crump Creek Rd), flows coming into Thirsk Lake and throughput at Isintok Lake.
        - Staff travelling in the watershed must carry some manner of satellite device (satellite phone, InReach) to maintain communication with base
    - If a single stem is causing high flow, consider that dam integrity may be compromised. Investigate that stem's source lake / dam.

- If any dam is experiencing unusual conditions, ongoing monitoring may be advised. If there is potential for a dam safety condition to develop refer to Summerland's DEP (located here) for the appropriate response.
- If appropriate, District staff will consider rental of a helicopter to review the damage, assess the origin of the high flows and to check creek stability.
- Check storm cell radar on Federal Weather Office site to determine further potential flow increases at https://weather.gc.ca/index_e.html?layers=,radar&alertTableFilterProv=BC

3. Site Review at Trout Creek Intake and Flume:
   - Check integrity of structures, then creek banks along Trout Creek and flow to Summerland Reservoir.
   - Don emergency personal flotation device (PFD). Stay at least 1m away from the creek bank if it is flowing at a high level. If any portion of works appears compromised, begin closing gates and reduce flow between sites.
   - Call Works Foreman for assistance if structural support is required (ie. earthwork berms or sand bagging) to keep uncontrolled water from entering the flume.
   - Measure turbidity at determined intervals (ie. every hour) and note fish flow gauge elevation.
4. Stability of Trout Creek Intake:
   - If known to be a restriction in creek flow, review level of creek in relation to top of gates.
   - Ensure sandbags are readily available (to keep creek flow within banks).
   - Check integrity of retaining walls.
5. WTP Operations:
   - To be closely monitored to determine expected conditions and make appropriate changes to on-line treatment at plant.
   - Treatment of water up to 100 Nephelometric Turbidity units (NTU) is possible, however, diversion of high turbid water is desired.
   - Consider more frequent cleaning of screens if at higher risk of plugging.
   - Regularly monitor Summerland Reservoir Level.

Summerland Reservoir Water Levels	
Important levels	Elevations measured in feet
Min level to maintain hydraulic mounding	1952.5
Low level alarm	1952.8
High level alarm	1954.2
Approximate target elevation	1953.7

6. If damage is noted, ensure appropriate assessment:
    - Repairs to involve appropriate engineer.
    - If work is within wetted perimeter of Trout Creek, water licensing and approvals (Section 9) through the Water Sustainability Act (WSA), and environmental monitoring may be required.

Event Record: Record of incident details for future reference as well as evidence of events and actions taken.

5.0 WATER SUPPLY AND INTAKE

5.1 Toxic Substance in Trout Creek Above Intake

Description: Elevated levels of known or undetermined contaminant in source water (Trout Creek).

Indicators: Notification of spill or vehicle accident in Trout Creek or other tributaries by Ministry of Transportation and Infrastructure, member of the public, RCMP, Summerland Fire Department or Provincial Emergency preparedness agency.

Actions:

1. Notify Chief Operator.
2. Notify Manager of Water Utilities.
3. Determine estimated time of incident, when plume will reach intake gates and ensure corrective action has been initiated by appropriate group to rectify contamination source. Determine if contaminant has entered Trout Creek Flume.
    - Close Trout Creek intake gates before contaminant reaches this diversion.
    - If contaminant is believed to have entered the Trout Creek Intake, refer to *Section 5.3 – Contamination of Summerland Reservoir* for further instructions.
4. Collaboration with industry experts and regulators.
5. Water quality sampling in Trout Creek and Summerland Reservoir as required.
    - Sampling Program: discuss with Engineer, Biologist/Chemist and Drinking Water Officer to develop a reasonable and representative sampling program. Consider sampling in creek and reservoirs affected. If contaminant is known, sample for specific parameter. If not known, sample and test for full parameters as required.
6. Assess Water Demand: Review system water demands and determine water quantity for minimal domestic needs and consider reducing customer demand as per Appendix B (as necessary). Contact Drinking Water Officer (DWO) if DOS cannot provide these levels.

Event Record: Record of incident details for future reference as well as evidence of events and actions taken.

5.2 Failure of The Trout Creek Flume

Description: A concrete flume, approximately 1400m in length, carries all of Summerland's water to the Summerland Reservoir during the irrigation season (approx. Apr 15 – Oct 15). This flume directly feeds the Summerland WTP and the separated irrigation system for the upper Prairie Valley area. A failure in this structure would be difficult to repair quickly and could result in loss of water to the entire District.

Indicators: SCADA alarms, low water at Summerland Reservoir or in WTP clearwell; phone call from public

Actions:

1. Notify Chief Operator.
2. Notify Manager of Water Utilities.
3. Close or throttle down intake gate to a point where water is no longer exiting the flume at point of failure.
4. Open winter supply line to ensure water supply (reduced volume) continues to WTP.
5. If reservoir level continues to drop, reduce customer demand as per Appendix B.
6. Depending on failure mode, contact Works Foreman for assistance (repairing banks, etc).
7. Contact appropriate engineer re: slope stability, method of stabilization / repair and coordinate repair as required.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

5.3 Contamination of Summerland Reservoir

Description: Contamination has been detected or possible contamination is present

Indicators: Public notification (taste complaint, odour or colour observations), poor water sample results, visible observations made by water operators, accident near flume at roadway crossing with potential contamination.

Actions: Steps to be taken by DOS staff

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Water Operations staff to investigate site, inform Chief Operator and contact management with situation update. Management or Senior operations staff to contact IH.
4. Confirm that the source of contaminant is mitigated.
5. If chemical contamination confirmed or highly suspected to be present:
   - Discuss with Engineer, Biologist/Chemist (Lab) and DWO to develop a reasonable and representative sampling program. Contact appropriate laboratory, arrange bottles if required and collect samples for rush analysis.
6. In an extreme situation of contamination where raw water should not enter WTP, consider closing the Screening Works Slide gates and de-activating the WTP, all pump stations and irrigation systems. Through consultation with IHA and senior management, a "Do Not Use" notice would be provided to the public as soon as possible.
7. Administrative staff (ie. W&I and Utilities Coordinator) to be contacted and brought in to facilitate communication.
8. Communication: Begin public notification and follow Water Quality Notification Procedures.
   - Continue discussion with appropriate experts (ie. drinking water officer, engineers, etc) as situation progresses
   - If logistically possible, discuss alternate water sources (bottled water deposit at a central location, Garnett Valley system backfeeding, etc) with Works and Infrastructure.
   - Continue monitoring Summerland Reservoir until water quality is back to normal. Consult with IH to determine when best to life the Do Not Use notice.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

5.4 Loss of flow from Summerland Rodeo Well

Description: There are three wells located at the rodeo grounds property; one is in use to supply non-potable water to the rodeo grounds and KVR property; the other two are in place as backups to provide raw water to the Summerland Reservoir (not currently in use). Loss of flow from the well sites can be a result of a power failure or problems specific to the well site.

Indicators: Notification from customers reliant on Rodeo Ground well; phone call from public using the facility or DOS staff working at site.

Actions: Steps to be taken by DOS staff

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Check flow from tap, confirm reading on pressure gauge at bottom of pressure tank (approximate values: pump cut-in pressure = 30 psi, pump cut-off pressure = 60 psi.
4. Potential issues and solutions
    - Pump switch failure - contact DOS electrician.
    - Power failure - Contact Summerland Electrical Department to obtain information on duration of power failure.
    - Submersible well pump failure – contact certified well driller / pump installer (see Section 9.5 for contact information)
5. Not an emergent situation but if it's determined that issue lies with aquifer recharge, hydrogeologist will need to be contacted.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

6.0 WATER TREATMENT PLANT (WTP) EMERGENCIES

6.1 WTP - Cannot Meet Water Demands

Description: This type of emergency is typically caused by extreme weather events that place a very high irrigation demand on the WTP or any other situation where high water demands are coupled with equipment problems at the facility

Indicators: Visual observations by water operators, failure of WTP equipment as identified by SCADA and alarms.

Actions: Steps to be taken by DOS staff.

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Investigate WTP site (in past, these problems have been caused by a combination of high flows and overheating raw water pump variable frequency drives (VFDs)).
    - Check all SCADA pages and trends to determine what is operational, what has failed, or what is at risk of failure in the WTP.
    - Check raw water pump temperatures on VFD displays in the motor control centre (MCC) room.
    - Note status of chlorine disinfection, clearwell levels, chemical dosing status, and raw water flows from the Summerland Reservoir.
    - Switch – Adjust Equipment: there is redundancy on certain critical pieces of equipment such as mixers, dosing pumps, raw water pumps, chlorine supply pumps where equipment could be switched as needed. There is also a spare parts inventory for other critical pieces of equipment.
        - Check WTP shelving and inventory lists for available parts & pieces that may be available to aid in necessary repairs.
    - If the issue stems from the raw water VFD's, switch to stand-by raw water pump and restart the Actiflo.
    - Call District electrician if necessary.
4. If Flow Issue:
    - If the raw water flow from the screening works, Summerland reservoir, or intake is reduced or somehow compromised, further investigation will be required to determine problem (ie. compromised flume, etc)
    - If the reservoir level is too low, adjust the intake slide gate accordingly.
    - If the raw water flow to WTP is reduced, clean the screening works chamber (one side at a time).
    - If the level in Trout Creek is too low, notify Water Distribution Chief Operator to open appropriate dam to allow more water into stem as soon as possible.
    - If there's a raw water line main break between the Summerland reservoir and the WTP, refer to Section 7.1
5. Contact Support:
    - Contact additional support as needed. District electrical/instrumentation technician, other DOS operators, neighbouring operators, process equipment suppliers / distributors, etc

6. **First response** - If WTP cannot provide water for demand, reduce customer demand as per Appendix B.

7. **Second response** – Open supplemental line

   - If staff identify that an 8-hour outage of the High Irrigation Users (HIC), is not long enough for the WTP to recover
   - Notification to Manager who will notify Director, CAO, and Council
   - Operator or Manager to notify Interior Health of the situation and the Boil Water Notification
   - Prepare and open the Supplemental Line and Hypochlorite System with procedures:
   - Turn high irrigation users back on.
   - Verify Supplemental Line is operating suitably, and chlorine residual is sufficient at Pump House #2

8. Once the clearwall level has stabilized and the WTP can supply adequate volumes to meet demand, turn WTP back on and turn supplemental line off.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

6.2 WTP - Failure of Components in Sludge Handling Process

Description: Backwash water & Actiflo wastewater are pumped from the WTP waste tank into two on-site HDPE lined residual holding ponds via two submersible pumps. These two holding ponds are used to settle out sludge and recycle 10% the supernatant back to the WTP raw water tank to be re-treated. The settled-out sludge is ultimately pumped from the holding ponds to the landfill drying beds by a single submersible pump at the bottom of each pond.

Indicators: Visual observation by Water Operator of a pond leak, line break, or overflow. Pond sludge pump or waste tank pump failure. Main break between WTP and Landfill. Phone call from public.

Actions: Steps to be taken by DOS staff.

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Document Situation: Note date, time, location and risk. If sludge or water is over-flowing from the residual holding ponds to the WTP area, or down the residual holding ponds driveway, notify Water Treatment Chief Operator immediately, notify Manager or Director.
4. Review Impact Area:
   - Turn on/off waste tank or pond sludge pumps as required to either stop or increase the flow depending on the issue at hand.
   - Plan to address the impacts of the sludge/water accumulation, depending on the physical location of the sludge/water.
5. Spill Containment:
   - If a spill or overflow exists, shut down all necessary pumping equipment if it is contributing to the problem.
   - Turn on necessary equipment ONLY if it will help draw down the pond levels and help stop the overflow.
   - Contact the Works Foreman to request containment be set up (berm construction, sandbags, etc)
   - Once contained, sludge can be cleaned up and taken to the sludge disposal area at the landfill
6. Contact Agencies:
   - If a significant spill exists on public lands or neighboring properties, advise MOE of the situation.
7. If WTP cannot provide water to meet demand, refer to Section 6.1 of ERP for next steps.

6.3 WTP – Power Failure – Emergency Power Operation

Description: For extended power failures, the WTP has a backup diesel generator which is sufficient to run the entire WTP for extended periods of time. In the event of a power outage the generator will automatically start and transfer power from utility to generator. Multiple WTP alarms *may* result from this transfer.

Indicators: Generator run alarm to stand-by phone, other WTP alarm.

Actions: Steps to be taken by DOS staff.

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Document Situation: Note date, time, location and means of recognition of event. Check SCADA to see if backup generator is online at WTP.
4. WTP Site Investigation:
   - Ensure the WTP chlorine disinfection system remains operational by checking all pertinent SCADA pages and trends
   - If the WTP has shut down due to alarms caused by power transfer, clear/reset those alarms and restart the process.
   - Contact DOS Electrical Utility staff to determine if the power event will be for an extended period of time or if there is an ETA for restoration.
   - Confirm fuel levels in the WTP diesel generator. If an extended outage is forecast and more fuel is required, contact fuel supply contractor or Works Foreman for transport and re-fuelling.
5. Media Alert: Summerland Electrical Utility will notify customers of outage via social media, media release and/or Voyent Alert.
6. If water quality at the WTP is compromised due to a power outage (ie. equipment failure), inform Water Treatment Chief Operator and management who will determine whether a boil water notice is required.
7. Call administrative staff to begin public notification if required and follow Water Quality Notification Procedures.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

6.4 WTP – Failure of Critical WTP Process or Control Equipment

Description: Some examples of critical process and control equipment includes: SCADA system, pumps, mixers, valves, actuators, electrical, instrumentation, flowmeters, software, PLC's, chemical dosing equipment, level meters etc. The WTP is designed to operate on two separate process trains, converging at the filters. If one process train were to fail, it is still possible to run the WTP at half capacity, so long as no critical equipment has failed that is common to both trains.

Indicators: Visual observation by water operator. Failure of equipment as identified by SCADA alarms.

Actions: Steps to be taken by DOS staff.

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Document Situation: Note date, time, location and means of identifying the event.
4. WTP Site Investigation:
   - Ensure chlorine disinfection systems, WTP clearwell levels, chemical dosing pumps, raw water pumps, raw water flow from Summerland Reservoir are all operational, and functioning correctly.
   - Check all SCADA pages and trends to confirm what is functioning, what has failed, or what is at risk of failing.
5. Switch – Adjust Equipment: The WTP has built in redundancy on certain critical pieces of equipment such as mixers, raw water pumps, chemical dosing pumps, chlorine supply pumps, chlorine disinfection systems, and also has an inventory of spare parts for other critical pieces of equipment.
   - If possible, shut down the affected Actiflo process train and run on the secondary (lag) Actiflo train.
   - If both Actiflo trains have failed, identify the source of the problem and make necessary changes/repairs.
   - Reset and clear all alarms on SCADA, ensure Actiflo's are both in auto, and restart the WTP once safe to do so.
6. Flow Issue:
   - If the raw water flow from the screening works, Summerland reservoir, or intake is reduced or somehow compromised, determine which part of the infrastructure is the issue and take steps to correct.

- If there's a low or high reservoir level, adjust the intake slide gate accordingly.
- If the raw water flow to WTP is reduced, clean the screening works chamber one side at a time.
- If Trout Creek level is too low, notify Water Distribution Chief Operator and open appropriate dam to allow more water as soon as possible.
- If there's a raw water line main break between the Summerland reservoir and the WTP, refer to section 6.0 of this ERP.

7. Contact support:
   - Contact additional support as needed. District electrical/instrumentation technician, other DOS operators, neighbouring operators, process equipment suppliers / distributors, etc
8. If WTP cannot provide water to meet demand, refer to Section 6.1 of ERP for next steps

Event Record: Record of incident details for future reference and evidence of events and actions taken.

6.5 WTP – Chemical Storage Tank Failure

Description: The WTP chemical storage tanks are located within containment areas inside the facility. The storage capacities of the containment areas are sufficient for the operating volumes of the tanks. There are twin caustic soda tanks, twin coagulant tanks, and (future) twin sodium hypochlorite tanks.

Indicators: Visual observation by Water Operator. Level alarm from WTP SCADA.

Actions: Steps to be taken by DOS staff.

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Safety:
   - Primary concern is safety of the water operator.
   - Always wear full PPE when handling or dealing with ANY type of chemical spill.
   - If necessary, turn on ventilation fans and open doors to promote fresh air within the building.
   - For Chlorine Gas release, refer to Chlorine Gas Exposure Control Plan
4. ID Chemical & Site Assessment:
   - Identify which tank has ruptured and assess the situation.
   - Determine how much volume of chemical has spilled into the containment area.
   - If possible, close the interconnecting ball valve between the dual tanks with the extended key from the catwalk to prevent both chemical holding tanks from draining.
5. Refer to SDS:
   - Refer to SDS for specific information on the spilled chemical such as potential health effects and first aid measures.
   - If necessary, chemical supplier can also be contacted for further information.
6. Clean-up
   - If safe to do so, clean up spill as per SDS information and chemical supplier recommendations. It may be possible to use a temporary containment tank (totes) to store spilled chemical. If chemical is no longer usable within the water treatment process, contact supplier for disposal options.
7. Check Adjacent Equipment:

- Check condition of nearby equipment such as chemical dosing pumps, valves, piping, hoses, and structural components to verify that their integrity has not been compromised by contact with the chemical.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

6.6 WTP – Chemical Truck Spill

Description: A chemical spill could originate from damage to the tanker truck equipment, damage to the chemical offloading lines & fittings, or faulty/improper connections made to the offloading cam-lock connections while the truck is transferring chemical product from the trailer to the WTP chemical storage tanks inside the building. To avoid a spill situation, a Water Operator is required to be present during the chemical offloading process.

Actions: Steps to be taken by DOS staff.

1. Ensure all persons nearby are safe:
   - Primary concern is Water Operator safety.
   - Full PPE is required while hose connections are being made to the WTP and for the duration of the chemical offload.
   - The WTP chemical offloading checklist must be completed. This includes chocking the wheels to prevent truck and trailer from rolling away and breaking connections.
2. Contain Spill:
   - If a spill is due to a failed valve, fitting, or chemical hose, have the driver immediately close the trailer offloading valve and stop the pressurized air supply into the trailer.
   - Replace/repair failed valves, fittings, or chemical hoses.
   - If necessary, contain the spill within the chemical truck offloading area in the driveway using sand, gravel, or bags of granular absorb-all. Contact Works Foreman for heavy equipment aid if required.
3. Notify Supervisor
4. Notify Manager of Water Utilities
5. Disposal of Spilled Materials:
   - Consult chemical supplier and the SDS for means to safely clean up and dispose of spilled chemical.
6. Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.0 DISTRIBUTION EMERGENCIES

7.1 Break of Primary Transmission Main Leading out of the Water Treatment Plant

Description: The large diameter transmission main downstream of the WTP is a critical supply main and would be difficult to repair quickly. Disruption of this line could result in loss of water, both fire flow and domestic, to the majority of Summerland.

Indicators: Alarms, resident report, low water level at Summerland Reservoir or at WTP clearwell

Actions: Steps to be taken by DOS staff

1. Close the nearest upstream valve(s) to isolate the leak (potentially outlet valve at WTP)
2. Notify Supervisor
3. Notify Manager of Water Utilities
4. Contact Works Foreman to initiate staff callout and coordinate water line repair. Engineering may be required for support on repair design.
5. Water operations staff to adjust gate at intake to ensure Summerland Reservoir is maintaining a normal operating level.
6. Arrange for alternate water source. Depending on break location, re-routing of water may be possible to keep large areas of town supplied with water.
7. Call administrative staff to begin public notification and if required, follow Water Quality Notification Procedures.
    - Issue public notification through social media and/or Voyent Alert to reduce/restrict all treated water consumption.
8. If break occurs during the irrigation season (high water use), irrigation services must be shut off to maintain minimum domestic flows.
    - As staff availability dictates (both Utilities and Works), begin with connections that are irrigating at the time of the break. Further shutdowns may be required as the event progresses.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.2 Water Main Break

Description: Small breaks are considered manageable emergencies. Large breaks have the capacity to cause larger areas of DOS to be without water service, they are more difficult to repair and the damage from a large pipe break is significantly more dangerous than a small break. Public health risks must be considered for any water main breaks.

Indicators: Phone call from main DOS office or on-call service; alert provided by public

Actions:

1. Works staff to isolate leak by closing the nearest upstream system valves. Gate valves MUST be closed slowly so as not to cause water hammer and further damage in the distribution system. If possible, leave the supply valve slightly open to maintain positive pressure on the system.
2. Advise Fire Department of out-of-service hydrants (including detailed description of location) at (250) 494-7211 or (250) 469-8577 (after-hours: request duty officer).
3. Notify Water Division staff via on-call cell at (250) 809-4071.
4. Notify Supervisor
5. Notify Management
6. Initiate an emergency BC One Call.
7. Excavate the leak location using mechanical and hydro-excavation equipment. Expose line to below the leak point, maintaining a void under the pipe to prevent contamination from entering main in case of negative pressure.
8. Assess break magnitude: Identify if positive pressure was maintained.
9. Coordinate repair materials through determination of main size, material, diameter, pipe class etc and retrieve appropriate repair couplings, fittings, etc.
10. Contact Water Division with update, specifically on whether positive pressure was able to be maintained within system. This information will allow Water Division to determine the need for a WQA or BWN.
    - If required, Water Division to begin public notification using Water Quality Notification Procedures.
11. Repair water leak utilizing proper fittings, procedures, and disinfection protocol (AWWA C651, Disinfecting Water Mains).
12. Pressurizing the water main

- Contact Water Division prior to re-pressurization to ensure pump stations and pressure reducing valve stations are brought online without damage.
- Fill water main very slowly, bleeding air from high points during and after the main is loaded up to normal pressures.
- Flush water main in area downstream of where break occurred to remove contaminants and help bring water quality to normal standards.

13. If a WQA/BWN was instituted;

- Water division to take representative water samples shortly after re-pressurization and flushing
- 0-hour samples to be delivered to Caro Analytical in Kelowna with a “rush” designation.
- 24-hour samples to be withdrawn from the same locations and delivered to Caro the day after with same designation.
- Once sample results come back clean, consult with IH Drinking Water Officer to confirm removal of WQA/BWN.

Event Record: Record of incident details for future reference and evidence of events and actions taken

7.3 Canyon View Slide Zone Water Main Break

Description: This area is subject to ground movement resulting from the perpetual slide located on Canyon View Road just west of Simpson Road. Due to possible property and home damage in this area extra precautionary measures have been put into place in order to ensure the water flow from a break is stopped or reduced to manageable levels as to where damage is no longer occurring. Public health risks must be considered for this as with other breaks.

Indicators: Text alarms to specific on-call phones originating from PH #6 (high flow or low pressure alarm), phone call from main DOS office or on-call service; alert provided by public.

Actions:

1. Due to the sensitive location and potential damage that may occur, it is imperative that staff respond and stop water leaks in this location ASAP. Water breaks that are large enough will trigger automatic text messages to (PH #6 flow alarm goes to water on call phone):
2. Notify Supervisor
3. Notify Management
4. Works staff to identify and isolate main break.
    - Approach location with extreme caution. Due to the hillside location and potential sloughing of earth, large depressions may be present.
    - Throttle nearest upstream line valves very slowly to water hammer and further damage in the distribution system. Once main is isolated, repair leak as per Section 7.2.
    - If closing of the isolation valve is not practical due to excessive flow through the valve, notify Water Division to shut down Pump House #6 remotely.
5. Once main is isolated, leak can be repaired as per Section 7.2 – Water Main Break.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.4 Water Distribution - Pump or motor Failure

Description: Pump motor failure will result in loss of supply capacity to the service areas at elevation. Either redundant supply and alternative pumps, or an alternate feed is required to maintain service capacity.

Indicators: Alarm condition - power Failure, low flow, only one pump showing run times, phone call from public reporting low/no pressure.

Actions: Steps to be taken by DOS staff.

1. Confirm alarm condition for pump / motor failure:
2. Review flow trends at pump station, pressures, and condition before pump stop.
3. Look for surges or irregularities. If undetermined and pump appears to have only tripped out, reset pump and try restart. If pump stops again, shut pump down and take off-line. If possible, allow station to run on secondary pumps.
4. Check System Flow Rates: determine if pump can be left off-line overnight or until next day when pump can be investigated during regular hours.
5. If immediate repair is necessary, initiate steps below.
6. Advise Fire Department of out-of-service hydrants (including detailed description of location) at (250) 494-7211 or (250) 469-8577 (after-hours: request duty officer).
7. Notify Supervisor
8. Notify Management
9. Contact Support Persons: call appropriate trade i.e. Instrumentation, electrician, and/or pump repair service for assistance.
10. Insufficient Water Supply:
    - If water service is to be disrupted for an extended period, customer contact and notification is required.
    - W&I / Utilities Coordinator or similar to be called in to initiate contact with irrigators, answer public enquiries and notify via social media / Voyent Alert.
11. If pressure continues to be low, consider additional notification and further restrictions such as shutting down irrigation in served pressure zone.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.5 Water Distribution, PRV High Pressure / Low Pressure Alarm

Description: High pressure may cause damage to the distribution system and/or residential PRV valves and hot water tanks.

Indicators: SCADA alarm, water operator observation, calls from public reporting low / high pressures.

Actions: Steps to be taken by DOS staff,

1. Notify Supervisor
2. Notify Manager of Water Utilities
3. Identify affected location:
    - If operator is closer to WTP: confirm location of pressure variation by checking adjacent downstream, upstream and adjacent pressures at stations with instrumentation available.
    - If operator is closer to reported area and confined space equipment is NOT required, check station directly. If confined space equipment is required, contact additional staff member for confined space entry standby and monitoring.
4. Troubleshoot station: check for leaks, pressure gauges, pressure transmitter connections, flush y-strainers, and check for evidence of any components not functioning correctly.
5. Watermain Break: If PRV appears to be operating correctly, complete a local check for water main leaks in the area of the complaint (ie. water pooling, seepage across road, erosion, etc) . If leak is found, contact Works on-call phone to investigate further.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.6 Contamination of the Distribution System

Description: Contamination has been detected or possible contamination is present

Indicators: Public notification (taste, odour or colour observations), regular water sample results, water repair crews notice unusual water characteristics, known backflow from cross connection, back-siphonage from large main break.

Actions:

1. Isolate contaminated area (if known)
2. Notify Supervisor and/or water distribution chief operator
3. Notify Manager of Water Utilities
4. Notify RCMP
5. Determine source of contamination
6. Take corrective actions to prevent further contamination
7. Determine appropriate public health advisory through consultation with IH Drinking Water Officer.
    - For example – a biological contamination would likely require a Boil Water Notice, a chemical contamination would require a Do Not Consume Notice.
8. Communication: If required, initiate public notification and follow Water Quality Notification Procedures.
9. Begin water main flushing if required.
10. Arrange for alternate water source if required.
11. Water division to take representative water samples shortly after contamination removal.
    - 0-hour samples to be delivered to Caro Analytical in Kelowna with a “rush” designation.
    - 24-hour samples to be withdrawn from the same locations and delivered to Caro the day after with same designation.
    - Once sample results come back clean, consult with IH Drinking Water Officer to confirm removal of WQA/BWN.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.7 Reservoir / Balancing Tank Intrusion (Hunter's Hill, Trout Creek Tank, Deer Ridge Tank)

Description: Unauthorized access

Indicators: Public notification (taste, odour or colour observations), broken lock on reservoir access lid, poor water sample results, SCADA intrusion alarm, contamination has been detected

Actions:

1. Notify Supervisor and/or water distribution chief operator
2. Notify Manager of Water Utilities
3. Notify RCMP
4. Investigate site for evidence of contamination (ie. containers that may have contained a deleterious substance, etc).
5. If contamination is detected, isolate tank ASAP.
6. Determine appropriate public health advisory through consultation with IH Drinking Water Officer.
    - For example – a biological contamination would likely require a Boil Water Notice, a chemical contamination would require a Do Not Consume Notice.
7. Communication: Begin public notification if required and follow Water Quality Notification Procedures.
8. As required (and if possible): empty, pressure wash, disinfect and re-fill tank.
9. Consider hydrant flushing to remove any potential contamination downstream of tank.
10. Arrange for alternate water source if required.
12. Water division to take representative water samples shortly after contamination removal.
    - 0-hour samples to be delivered to Caro Analytical in Kelowna with a "rush" designation.
    - 24-hour samples to be withdrawn from the same locations and delivered to Caro the day after with same designation.
    - Once sample results come back clean, consult with IH Drinking Water Officer to confirm removal of WQA/BWN.

Event Record: Record of incident details for future reference and evidence of events and actions taken.

7.8 Chlorine Gas Leak

For chlorine gas leaks at the Water Treatment Plant or Garnett Valley Chlorinator, please refer to the Water Division Chlorine Gas Exposure Control Plan.

For chlorine gas leaks at the Summerland Aquatic and Fitness Centre, please refer to the Aquatic Centre Chlorine Gas Exposure Control Plan.

7.9 Earthquake

Description: Summerland is located just east of the high subduction zone of the west coast so moderate earthquakes will occasionally be experienced. If an earthquake is felt, then actions are to be taken to ensure that system integrity is not compromised.

Indicators: Earthquake felt at local residence in Summerland area, information broadcast of event through the media, radio, TV or other. Auto information bulletin e-mailed by Natural Resources Canada (NRC).

Actions: Steps to be taken by DOS staff.

1. Confirm the seismic event through the Government of Canada – Earthquakes Canada website at:
   - http://earthquakescanada.nrcan.gc.ca/index-eng.php
2. Notify Supervisor and/or Water Distribution Chief Operator
3. Notify Manager of Water Utilities
4. Check emails and site within 30 minutes of the event. As per
   - The District of Summerland has submitted an e-mail address to Earthquakes Canada (EC), specifically the water on-call phone email (wtponcall@summerland.ca). If an event occurs, EC will generate an automatic e-mail to water division staff to those within 30 minutes of the event. This e-mail is generated for any event within Canada measuring a magnitude of 4.0M or greater.
   - According to EC, seismic events having a magnitude of less than 3.5M are generally not felt and events measuring 3.5 - 5.4M rarely cause damage. Events that have a magnitude of greater than 3.5M are still reported on the EC website.
   - Any earthquake epicenter that falls within 50km of water infrastructure owned / operated by the DOS and is either felt or measures at greater than 3.0M requires staff response. Any larger events that do not meet these set criteria may still require staff response.
5. When an event occurs document: date, time, magnitude and any other relevant information.

6. Begin visual inspections of any DOS water infrastructure effected including:
    - Dams – see Dam Emergency Plan for additional information.
    - Water Treatment Plant - signs of concrete cracking or any other structural damage.
    - Distribution system – water leaks surfacing at grade
    - All water storage (balancing tanks – Hunters Hill, Deer Ridge, Trout Creek).
    - Utilities facilities: starting at intake, flume, Summerland Reservoir and working down through system checking pump stations and PRVs. A SCADA check may also be useful in determining system damage.
7. If considerable damage is discovered
    - Consider throttling system valves back.
    - If there are water line breaks and resulting overland water flow, consider reducing customer demand as per Appendix B.
8. If watermain valves must be significantly throttled back or turned off:
    - Advise Fire Department of out-of-service hydrants (including detailed description of location) at (250) 494-7211 or (250) 469-8577 (after-hours: request duty officer).
    - Call administrative staff to begin public notification and if required, follow Water Quality Notification Procedures.
        - Issue public notification through social media and/or Voyent Alert to reduce/restrict all treated water consumption.

Major Incident: If major earthquake is experienced, then Emergency protocol procedure is to be followed and all work will be in conjunction with other emergency preparedness agencies.

- All watershed issues to be coordinated through the Summerland Fire Department.
- EOC may be activated and all communication with Provincial Ministries and EMCR will be done through the Director of Utilities, Director of Works and Infrastructure and/or the CAO

Event Record: Record of incident details for future reference and evidence of events and actions taken.

8.0 PROTOCOL AND PROCEDURES

This section provides a summary of DOS Procedures to be followed during emergencies located in the following links.

- WTP Confined Space Entry Program and Procedures
- Water Distribution Confined Space Entry Procedures
- Cross Connection Control Procedure
- Polymer Handling Safety
- Water Quality Notification Procedures

- Chlorine Gas Exposure Control Program
- Respirable Silica Exposure Control Plan
- Backup Hypo Manual Operation
- Supplemental Line Procedure
- WTP Lockout Procedures
- Silica Exposure Control Plan
- Fire Safety Plans

9.0 COMMUNICATIONS

9.1 Introduction

This section provides contact information for staff and support resources during an emergency.

Section	Event
9.2	Emergency Contact Numbers
9.3	Watermain Break Call List
9.4	Contractors / Equipment
9.5	Specialty Services
9.6	Consulting Advisors
9.7	Suppliers
9.8	Interior Health (Regulator)
9.9	Government Agencies
9.10	Other Water Suppliers
9.11	Watershed Contacts – Organizations
9.12	Media Contacts
9.13	Critical Customers List

9.2 Emergency Contact Numbers

Event	Agency	Phone No.	Alternate
Major Event	Emergency Management BC	911	
Injury	Penticton Regional Hospital	911	
Ambulance	BC Ambulance Service	911	
Fire	Summerland / Penticton Fire Department	911	
Police	RCMP	911	911
Dam Failure	Emergency Management BC	1-800-663-3456	
Forest Fire	BC Wildfire	1-800-663-5555	*5555
Watershed Damage	RAPP hotline	1-877-952-7277	*7277
Computer/Network Issues	Summerland IT Department helpdesk@summerland.ca	(250) 404-4099	Roland Grombach: (250) 486-6668
SCADA / radio issues	Rob Mitchell (DoS Inst. Tech) Turn-key Controls Ltd (Distribution) John Petty (WTP) DBM Radio	(250) 490-7883 (250) 549-4701 (250) 490-5689 (250) 212-6064	
Electrical Utility Division	On-Call Cell	(250) 490-6818	
Wastewater Division	On-Call Cell	(250) 809-7141	
BC One Call	ID No. 1792	1-800-474-6886	
Fortis BC Gas Emergency		1-800-663-9911	
Telus		611 or (250) 310-2887, Option 2/7	
Aim Road Maintenance		1-866-222-4204	
Central Interior Traffic Control		(250) 488-0860	

9.3 Watermain Break Call List

Company and Service		Phone	Comments
Works & Infrastructure		(250) 494-0431	
Works Division	On-Call Cell	(250) 490-7617	
After-hours Answering Service		(250) 490-2305	
Works Foreman		(250) 490-6525	
Manager of Works		(250) 809-9818	
Works and Utilities Admin	Deb DeFerro Alt: Heather Martin	(250) 488-9576 (250) 462-5343	(personal numbers)

9.4 Contractors / Equipment

Organization	Office	Alternate	Support Role
Clay Resources Ltd	(250) 486-7725		Excavation and Trucking
NRG Excavating		(250) 488-3400	Excavation
H&M Excavating Ltd.	(250) 493-4677		Excavation
BTN Excavating	(250) 488-6640	(250) 488-5203	Excavation
Sawchuck Developments	(250) 765-3838		Concrete, construction
Maple Reinders	(250) 765-8892		Concrete, construction
Sunbelt Rentals	(778) 622-5800 - Pen	(250) 491-1991 - WK	Rental Equipment
Summerland Rental Centre	(250) 494-6916		Rental Equipment
Mearl's Machine Works	(250) 763-0109		Pumps – Valves - Process
Rock Welding Ltd.		(250) 462-1578	Welding and piping
EMPS	(250) 765-4998		Motors & Pumps
Aqua Tech Services	(250) 765-4730	(250) 470-8869	Augering – Boring - Wells
The Tunnelling Company	(250) 573-7814	(250) 371-1042	Augering – Boring - Wells

9.5 Specialty Services

Organization	Office	Alternate	Support Role
Alpine Helicopters	(250) 769-4111	(250) 768-3189	Helicopter
Canadian Helicopters	(250) 492-0637	(250) 490-6811	Helicopter
Eclipse Helicopters	(250) 492-5221		Helicopter
Aqua-Bility Projects	(250) 826-2967		Diving services, submerged gates and screens
Diving Dynamics	(250) 861-1848		Diving services
Caro Environmental	1 (888) 311-8846	(250) 859-2660	Water testing laboratory
Keldon Electric	(250) 493-7177		Electrical contractor
Betts Electric	(250) 492-3221		Electrical contractor
Agua Consulting	(250) 212-3266		General Water Engineering
Larratt Aquatic	(250) 769-5444	(250) 717-6289	Aquatic Biology
Keir Wood Leidal	(250) 503-5817	(250) 550-6762	Dam and Water Engineering
Interior Dams	(778) 480-6063	(250) 470-8777	Dam Engineering
Centrix	(250) 717-8813		Instrumentation
Anderson Instr.	(250) 870-7478	(250) 859-5081	Instrumentation
GeoPacific Consultants	(250) 762-8073	(250) 801-8536	Geotechnical
Ecoscape Environmental	(250) 491-7337	(250) 469-3474 (250) 808-3474	Environmental permitting

9.6 Suppliers

Organization	Office	Alternate	Product
Iconix	(250) 765-8668	(250) 212-0178	Piping materials
Wolseley	(250) 765-5186	(250) 300-1708	Piping materials
Canada Pipe	(604) 737-1279	(604) 649-4265	Ductile iron piping
Mearl's Machine Works	(250) 763-0109		Pumps and process piping
Centrix	(250) 717-8813		Instrumentation

Organization	Office	Alternate	Product
Alumichem	(604) 921-3317		WTP chemical supplier
Cleartech	(306) 664-2522		Chlorine
Brenntag	(604) 513-9009	1 (855) 273-6824	Chlorine and caustic soda
Penticton Lock & Key	(250) 493-3111		Locksmith

9.7 Interior Health (Regulator)

Interior Health Authority	Contact	Alternate	Email
Judi Ekkert	(250) 469-7070 #12274	(250) 808-3444	judi.ekkert@interiorhealth.ca
(Drinking Water Officer)		1-866-457-5648	

9.8 Government Agencies (not already listed)

Organization	Office	Alternate	Support Role
Ministry of Forest & Range	(250) 490-8249		Watershed damage
Ministry of Environment	(250) 490-8200		Watershed protection
Ministry of Transportation	(250) 712-3668	(250) 212-4896	
AIM Roads (Road Maintenance)	1 (866) 222-4204		

9.9 Other Water Suppliers

Organization	Person	Office	Alternate	Role
District of Peachland	Guy Martin	(250) 767-2108	(250) 718-6962	Operations Manager
City of West Kelowna	Chris Anderson	(778) 797-8842	(250) 808-2543	Public Works Manager
City of Penticton	Scott Boyko	(250) 490-2500		Public Works Manager
	David Best	(250) 490-2548		Utilities Manager
RDOS	Allen Fillion	(250) 490-4131	(250) 878-9144	Infrastructure Director
BMID	Bob Hrasko	(250) 765-5169	(250) 212-3266	Administrator
City of Kelowna	Kevin Van Vliet	(250) 469-8826		Utility Services Manager
Penticton Indian Band		(250) 493-0048		
Westbank Indian Band	Krista Derrickson	(250) 707-0493	(250) 575-4210	Utilities Manager

9.10 Watershed Contacts – Organizations

Organization	Office	Alternate	Comments
Gorman Bros	(250) 768-5131	(250) 870-1950	
Tolko	(250) 762-3411	(250) 870-7195	
BC Timber Sales	(778) 943-0109		
Front Counter BC	1 (844) 676-8477		www.frontcounterbc.ca for removal of abandoned or unauthorized buildings
Randal Kohlhauser (Natural Resource Officer)	(250) 490-2278	(250) 488-1835	For off-road vehicle damage in the South Okanagan region
Kyle Beadman (Compliance and Enforcement Supervisor)	(250) 260-4612	*5555	Supervisor for Provincial enforcement actions

9.11 Media Contacts

Radio			
Bounce Radio 98.5	(250) 770-2801	grant.scott@bellmedia.ca	Summerland
New Country 100.7 and Classic Rock 96.3	(250) 861-5963	info@newcountry1007.ca and info@k963.ca	Penticton / Kelowna
CBC Radio	(250) 861-3781	daybreakkelowna@cbc.ca	Okanagan Valley
Newspapers			
Penticton Herald	(250) 492-4002	editor@pentictonherald.ca	Tuesday to Saturday
Penticton Western News / Black Press Media	(250) 492-3636	editor@pentictonwesternnews.com	Wednesday and Friday
Summerland Review	(250) 494-5406	editor@summerlandreview.com Distribution: Thursday AM	Deadline: Monday by 9:00am
Castanet	(250) 860-5050	news@castanet.net	
Info News	250-488-3065	news@infonews.ca	
Television			
Shaw TV Okanagan (Channel 11)	(250) 492-5940		
Global Okanagan (CHBC News)	(250) 762-4535	okanagan@globalnews.ca	

9.12 Critical Customers List

A list of critical customers can be found within the Water Quality Notification Procedure folder, specifically in the Water Quality Notification List

10.0 REVISIONS AND UPDATES

10.1 Introduction

This section provides a listing of the agencies and individuals that have a copy of the DOS Emergency Response Plan (ERP). This section also provides a historical listing of the Revisions and Updates since the plan was produced.

10.2 ERP Distribution List

ERP Distribution List	
1	Director of Utilities
1	Manager of Water Utilities
1	Works Yard
1	Water Treatment Plant
4	Water Division Vehicles
1	Fire Department
1	Interior Health Authority – Drinking Water Officer
10	Total

As required, copies are also issued to Expert Advisors that work for DOS.

10.3 Emergency Response Plan – Revisions

Date	Revisions – Description of Changes (include pg number if necessary)
2025.04.03	General changes to verbiage and grammar throughout, updated page numbers
	Replaced dead links or full addresses
	Section 9 – confirmed contact information in section

APPENDIX A - SYSTEM OVERVIEW AND KEY INFRASTRUCTURE MAPPING

Introduction

Appendix A provides an overview of the water system plus mapping of where the primary distribution system components are located and Inundation Mapping in the event of a dam breach.

System Overview

The District has three available water sources; Trout Creek, Eneas Creek, and groundwater. There is a fourth potential source in Okanagan Lake, but the infrastructure is not yet in place. Groundwater is considered a supplemental source. Eneas Creek is used only for irrigation. Only Trout Creek is used to provide water to the Summerland water treatment plant.

1. Trout Creek (92% of total flow) main system;
2. Eneas Creek (8% of flow) seasonal (summer only) irrigation supply to irrigation lands along Garnett Valley.
3. Well No. 3 Emergency well to supply water to flume (0.1% of flow) to Trout Creek flume only;
4. Well No. 5 Rodeo Grounds well to the Rodeo Grounds and the KVR (0.1 % of flow);

The entire system has well over 6,000 connections serving a population of approximately 12,000 people. There are approximately 2,900 acres of agricultural land within the District with water rights. There are another 1,700 acres of dry land within the District boundaries without water service.

Irrigation demand accounts for approximately 75% of the total use during high summer demands. Total system demands from all sources servicing domestic, irrigation and commercial use, can reach 112 ML/day (21,000,000 US gallons/day). On average, winter demands for the entire service area are approximately 8 ML/d (1,500,000 US gallons/day).

Trout Creek Water Supply System

For the Summerland water system, water is drawn from Trout Creek, diverted through a 1,400m flume to Summerland Reservoir that provides balancing storage and settling of silts, and then into the headworks of the water treatment plant. Water is continuously monitored on-line for turbidity, pH, conductivity, and temperature. Chemical treatment of the water followed by filtration and disinfection with chlorination is provided.

Water Treatment Plant (WTP)

Intake **-** Water is drawn through the intake and water is treated through an Actiflo water treatment process followed by standard filtration and chlorination.

Clearwell **-** Water from the water treatment process is disinfected via gas chlorination and then held in a 6,000 m^3 clearwell. Chlorination is achieved utilizing a 2000 lb./day gas chlorinator. Four one-ton chlorine containers are on line at all times with four containers on standby. Switchover takes place automatically and CT values for 3 log *Giardia* inactivation is achieved year-round.

Following disinfection, water enters the supply conduit consisting of a combination of 1200 and 1050mm diameter transmission mains along Prairie Valley Road.

The primary distribution system consists of trunk mains ranging from 900mm diameter to 400mm diameter with secondary distribution mains consisting of pipes of 350mm to 100mm. Pressure is controlled by a series of pressure reducing stations and pump stations. Refer to DOS GIS system for more information on infrastructure locations.

Eneas Creek Water Supply System

The Eneas Creek area is supplied with domestic water primarily from Trout Creek through a new Pump Station on Garnett Valley Road. Irrigation flow supplied to the area from Eneas Creek / Garnett Reservoir is chlorinated. Irrigation flow can be supplemented from the Trout Creek system through PRV No. 10 if required.

Key Infrastructure Components (KIC)- refer to Facilities Maps

Sources, WTP, Reservoirs			
I.D.	**Location**	**Description**	
S-1	Trout Creek Intake	Elevation 594 m (HWL)	
S-2	Garnett Lake	Elevation 625 m (HWL)	
WTP	Prairie Valley Road	Capacity 75 MLD	
CW	WTP Clearwell	6,043 m^3, Twin-cell Concrete Reservoir	HWL 590.07 m
R-1	Deer Ridge Res.	423 m^3, Concrete Reservoir.	HWL 726.0 m
R-2	Trout Creek Tank	430 m^3, Concrete 2 cell reservoir	HWL 470.5 m

Pump Stations				
I.D.	**Location**	**No. Hp Flow and TDH**	**Pump Model**	**Voltage and rpm**
PS-1	Dale Meadows Road	2 – 60 hp (48 L/s @ 54.5 m)	American Marsh	600V, 1780 rpm
PS-2	Prairie Valley Road	2 – 50 hp (41.3 L/s @ 54.8 m)	Aurora Model 411	208 / 460V, 1775 rpm
PS-2A	Morrow Avenue	2 – 25 hp (37.9 L/s @ 36.6 m)	Peerless Pump 4X4X8A PV	208V. One pump has VFD
PS-2B	Hermiston Drive	2 – 20 hp	Berkeley B1 – 1 ½ ZPL	208 V
PS-3	Gillard Avenue	2 – 10 hp (9.1 L/s @ 40.2 m)	Aurora Model 411	460V, 1740 rpm.
PS-4	Loomer Road	2 – 25 hp (15.1 L/s @ 79.2 m)	Aurora Model 411	460V, 3500 rpm. 1 – 5 hp winter pump.
PS-5	Simpson Road	2 – 75 hp (83.6 L/s @ 49.7 m)	Aurora Model 411	460V, 1775 rpm. 1 – winter pump
PS-6	Simpson Road	2 – 30 hp (56.5 L/s @ 32.3 m)	Aurora Model 411	460V, 1730 rpm. 1 – winter pump
PS-7	Cedar Avenue	3 – 5 hp (5.69 L/s @ 30.6 m)	Aurora 2Fire Pump (157.5 L/s @ 35.0 m TDH)	1 – 100 hp
PS-8	Garnett Valley	3 - 7.5 hp (5.67 L/s @ 62.8 m TDH)	Grundfos skid unit no fire pump	208 V
PS-9	Lakeshore	1 – 30 hp (30.3 L/s @ 54.9m TDH)	Oliver Pump	208V (decommissioned)
PS-10	Lower Hunters Hill	2 – 25 hp (16.1 L/s @ 73.3 m TDH)	Grundfos, Model CR 45-3-1	VFDs, 600 V
PS-11	Upper Hunters Hill	Proposed, 1 high flow pump	50 hp-Paco VS-50129	2 duty pumps – 10 hp Grundfos, CR 32-3-2

PRV Stations

I.D.	Location	Main Bypass Valve Size / Type	Inlet – Outlet Pressure m (psi)
PRV-01	Garnett Valley Road	150mm Clayton / 38mm Clayton	88m (125 psi) / 63m (90 psi)
PRV-03	Trout Creek Tank	2-150mm Singers / 38mm Singer	75.6m (108 psi) / Tank Level
PRV-04	McDougal Road	100mm / 38mm Clayton	105m (150 psi) / 38m (54 psi)
PRV-05	Whitfield Road	150mm (reduced port) / 38mm Clayton	114m (162 psi) / 45.7m (65 psi)
PRV-06	Slater Road	150mm Clayton- Red. Port, 75x50mm	106m (150 psi) / 39m (55 psi)
PRV-07	Solly Road	200mm Clayton / 75mm Clayton	84.4m (120 psi) / 45.7m (65 psi)
PRV-08	Solly Road	200mm Clayton / 75mm Clayton	116m (165 psi) / 45.7m (65 psi)
PRV-09	Lower Town Tank	200mm Clayton / 75mm Clayton	88m (125 psi) / 35.1m (50 psi).
PRV-10	Prairie Valley Road	3-300mm Claytons + 100mm Clayton	98.5m (140 psi) / 66.3m (95 psi)
PRV-12	Hespeler Road	150mm Clayton / 50mm Clayton	91.4m (130 psi) / 49.2m (70 psi)
PRV-13	Clark Street	100mm Clayton / 50mm Clayton	91.4m (130 psi) / 54.1m (77 psi)
PRV-14	Harris Road	150mm Clayton / 50mm Clayton	82.3m (117 psi) / 45.7m (65 psi)
PRV-15	Hillborne Avenue	250mm Clayton / 100mm Clayton (Red-Port)	91.4m (130 psi) / 45.7m (65 psi)
PRV-16	Gartrell Road	150mm Clayton / 38mm Clayton	119.6m (170 psi) / 45.7m (65 psi)
PRV-17	Morgan Street	200mm Clayton / 63mm Clayton	112.6m (160 psi) / 63.3m (90 psi)
PRV-18	Lower Town	200mm Clayton - installation is part of Lakeshore condominium Project	

APPENDIX B – REDUCE CUSTOMER DEMAND

This appendix provides a step-by-step guide for reducing customer demand for various emergencies.

Step 1 – Community Wide Voluntary Usage Reduction

Using the Water Quality Notification Procedures, communicate a request to all residents for reduced water use. Methods and forms are available in the Water Quality Notification Procedures including media releases, social media posts, email notifications, posting on electronic sign, Voyent Alert updates, etc.

Step 2 – Voluntary Usage Reduction by Highest Irrigation Users (**supplied by the WTP**)

- Utility Manager and/or Water Operators to contact Voluntary Highest Irrigations Users (VHIC) list and request irrigation timing adjustments or irrigation turn offs.

VHIC List: This list is to be updated annually by Water Utility staff. Metering data is collected for the 20 highest use irrigators. Irrigators are given the choice to be on the voluntary list to help during emergencies. Contact information is updated annually, and each customer agrees to best method of communication (email, phone, text, physical door knock).

Step 3 – Mandatory Highest Irrigation Users Turn-Off

- Utility Manager to contact Works and Infrastructure (W&I) On-Call number and notify of emergency and the level of urgency for irrigation turnoffs. W&I admin staff to also be called in.
- Provide W&I On-Call and W&I admin staff with High Irrigation Users (MHIC) list.
- W&I admin staff begin communicating with customers on the MHIC List and answer inquiries. Internal notification via email to all stakeholders to be sent.
- W&I On-Call staff to systematically turn off customers on MHIC List.
    - Place "turned-off" tag on blue box.
    - Physically record each customer turned off on MHIC List and the time of turn-off.
- W&I On-Call to provide copy of MHIC List record to Water Distribution System Operator.

MHIC List: This list is to be updated annually by Water Utility staff. Metering data is collected for the 15 highest use irrigators. Those customers are contacted and informed they are on the list and the possible circumstances that the HIC list may be used. Contact information is updated annually, and each customer agrees to best method of communication (email, phone, text, physical door knock).