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External contacts and drought provisions updated May, 2023

Reviewed & minor changes, July, 2024

Trincomali Improvement District
7925 Plumper Way, Pender Island B.C. V0N 2M2

EMERGENCY RESPONSE PLAN

EMERGENCY CONTACTS:

PRIMARY CONTACT - WATERMASTER

SECONDARY CONTACT - HEAD OF MAINTENANCE

REMAINING TID CONTACTS - TRUSTEES

Rick McMullen (Watermaster)	**cell 250-686-4896**
Mike McManus (Head of Maintenance)	**cell 604-842-4833** **home 250-629-3276**
Mike Shane (Chairperson)	**cell 604-418-0891**
Cindy Bedford (Secretary)	**cell 250-812-6190**
Michele Batty (Treasurer)	**cell 778-403-5354**
Rob Theriault (Records)	**cell 403-608-5071**

For ALL EMERGENCIES contact the Watermaster first, the Head of Maintenance second and thereafter as many of the remaining Trustees as possible.

EXTERNAL CONTACTS

Gloria Yu: Office: 250-519-3402 Email: <gloria.yu@islandhealth.ca> is the Environmental Health Officer (EHO) contact for the Vancouver Island Health Authority (VIHA).

Vancouver Island Health Authority General Emergency Number : 1-800-204-616
Pender Island Fire Rescue **Emergency 911** Hall #1 250-629-3321

Pender Island Neighbourhood Emergency Program Contacts (Trincomali):

John Pender (Upper Plumper Way) 250-629-6051

Deanna Roozendaal (Lower Plumper Way) 250-580-6860

Cindy Barrett (Bedwell Drive) 604-535-2128

Diane MacDonald (Trincoma Place) 250-629-9374

Karin Anderson (Swanson View Drive) 604-319-2851

B.C. Hydro Emergency 1-888-769-3766

B.C. Provincial Environment Emergency 1-800-663-3456

Oil Spill reporting, Canadian Coast Guard 1-800-889-8852

Excavation Contractor, Gulf Excavating 250-629-3258 cell 250-361-6364

Excavator Contractor, Big Dig 'Em 250-526-0104

Tree Service, Bradley Tree Service Michael Bradley 250-526-0032

Road Maintenance, Emcon Services 250-629-3431

B.C. Ministry of Transportation, Saanich Operations, Don Legault 250-739-8707

Jim Nixon, (takes our water samples) shinglebaynixon@shaw.ca 250-629-6654

Bottled Water:

Pender Island Tru Value 250-629-8322

Old Victoria Water Company 250-744-2333

Bulk Water Suppliers:

South Island water Ltd. (Sooke) 250-5165066

Island Water Hauling (Nanaimo) 250-323-6363

Mid Island Potable Water Hauling (Nanaimo) 250-466-4542

BACKGROUND

The Drinking Water Protection Act and its Regulations require that all small water systems have an Emergency Response Plan (ERP) that can be referred to in case of an emergency that might present a threat to the health of people drawing water from the system. Guidelines for preparing an ERP are set out by the Ministry of Health in its publication EMERGENCY RESPONSE AND CONTINGENCY PLANNING FOR SMALL WATER SYSTEMS.

A physical risk assessment was completed to ensure that the TID ERP and mitigation measures have been properly assessed and prioritized.

The TID comprises approximately 4 km of polyvinyl chloride (PVC) water main to 94 metered residences. Six wells, operating on timers, pump into a common manifold which feeds raw well water into two large concrete reservoirs located at 7925 Plumper Way. These concrete reservoirs have a combined capacity of half a million Imperial gallons or 2,273,450 litres.

The TID has a trained and provincially certified watermaster who is completely familiar with all aspects of the TID water system. The Watermaster is the PRIMARY CONTACT for all emergency responses set for forth in this ERP.

The TID has a trained and provincially certified head of maintenance who is completely familiar with all aspects of the TID water system. The Head of Maintenance is the SECONDARY CONTACT for all emergency responses set forth in this ERP.

All Trustees must have a rudimentary knowledge of the TID water system and be prepared to respond to the extent of their abilities to any emergency affecting the TID water system.

GENERAL TRUSTEE DUTIES

1. Ensure that the ERP is reviewed and updated annually and that any new trustee has a copy of the ERP along with all necessary keys for the various buildings comprising the water system.

2. Maintain an accurate Residents Contact List in cooperation with the Pender Island Emergency Program, Trincomali Coordinator. (Note that contact information is governed and protected by B.C. privacy legislation).

3. Annually update themselves on the location of various valves, pumps and other water system equipment.

4. Trustees and residents are not trained to respond to some emergency situations. Specifically, they should **NOT:**

a. attempt to deal with bleach or Sodium Hypochlorite,
b. enter a storage tank, or
c. attempt electrical or plumbing work.

GENERAL HEALTH AND SAFETY CONCERNS

The health and safety of the residents, volunteers, workers, contractors and the public are of paramount importance. TID is committed to complying with all applicable laws and regulations and requires the same of our contractors.

Potential hazards to residents include:

- Contamination of potable drinking water.
- Injury resulting from unauthorized entry upon or improper use of the TID facilities.

Potential hazards to contractors, workers and volunteers include:

- Chemical exposure to skin and eyes and/or inhalation of chemicals.
- Entry into confined spaces with oxygen depletion.
- Falls from heights while servicing equipment.
- Electrocution from faulty electrical equipment, not properly tagged out

To address the above health and safety concerns TID shall:

- Specify an appropriate Water Quality Testing Plan, monitor and report the results.
- Take action for any contamination, including issuing a Boil Water Advisory or Do Not Consume Water Advisory as necessary.
- Make available Material Safety Data Sheets (MSDS) for all chemicals.
- Ensure appropriate safety warnings are posted at all sites.
- Ensure all facilities have appropriate safety and security protection.
- Ensure appropriate training and certification of the Watermaster.
- Ensure all trustees and volunteers are familiarized with operational protocols to the extent necessary to safely operate the water system.
- Maintain appropriate liability insurance at all times.

Contractors shall:

- Provide all necessary safety equipment and training for the work being done.
- Do all the work to industry standards and comply with all legislation and regulations, including WorkSafeBC.

Volunteers and workers shall:

- Hold regular safety meetings to assess and review hazards of the work and job site.
- Immediately report any water quality problems and possible breaches of contamination to the Watermaster.
- Wear personal protective equipment: safety footwear, eye protection, gloves and high visibility clothing.
- Review MSDS sheets before handling any chemicals to understand the hazards.
- Wear face protection, rubber gloves and a proper apron when handling chemicals.
- Wear fall protection when working at heights.

SPECIFIC EMERGENCY RESPONSES

- **In all cases set forth below it is imperative that the Watermaster and the Head of Maintenance are contacted immediately.**

- **Once contacted it is the further responsibility of the Watermaster and the Head of Maintenance in all cases set forth below to contact the remaining Trustees as soon as practical.**

Contaminated Drinking Water:

- Report ALL instances of possible water contamination to the Watermaster, the Head of Maintenance and Vancouver Island Health Authority (VIHA), Environmental Health Officer (EHO), Gloria Yu.
- See **BOIL WATER ADVISORY** (PAGE 7)
- See **DO NOT CONSUME WATER ADVISORY** (PAGE 8)
- DO NOT OPERATE SYSTEM UNLESS APPROVED by the Watermaster, the Head of Maintenance, VIHA and EHO.

Turbidity:

- Report to the Watermaster and the Head of Maintenance.
- If not associated with main flushing, check to see if more than one property is impacted.
- Advise residents to flush lines by running tap.
- Test for contamination, may need to flush part or all of the water mains.

Fire: **Emergency 911**

- Report to the Watermaster and the Head of Maintenance.
- Shut off valves connecting affected area.
- If it can be done safely, turn off electric supply.
- Check that the valve feeding the 6” line to the draughting hydrant is open.
- See **FIRE PROTOCOLS** (Page 10)

Loss of Source – Drought or Water System Damage:

● In the event of noticeable water turbidity, off-putting water taste, reduced water pressure, and/or reduced water level readings, residents should be aware that this could be an indication of a pump or water system malfunction, or indications associated with drought conditions. If any of these indications occur, the first step is to **Report to the Watermaster and the Head of Maintenance (See Emergency Contacts Section).** The Watermaster and the Head of Maintenance will, if deemed of sufficient concern, notify the Environmental Health Officer contact for the Vancouver Island Health Authority (See External Contacts section).

● In the circumstance of a drought resulting in the 6 TID wells not producing any water, the 2 concrete reservoirs hold at capacity in aggregate 2,273 cubic meters of potable water (approximately 500,000 Imperial Gallons). Of this, approximately 200,000 Imperial Gallons are generally reserved for fire-fighting purposes. The remaining 300,000 Imperial Gallons are stored for domestic use. This storage should greatly diminish the need to pursue an alternate source of potable water in the event the 6 wells stop producing for a limited period of time.

- 300,000 Imperial Gallons/94 residences* = 3,191 Imperial Gallons per residence @ an average 60 Imperial Gallons per day per residence = 53 days (approximately 2 month's supply). This conservatively assumes all residents are on island and consuming water for the entire period.
- There are also 4 header tanks which hold at capacity approximately 33,000 Imperial Gallons.

*Note: There are no water consumers other than the 94 residences which make up the improvement district and thus no priority users.

● Additionally, conservation is key to ensuring a stable water supply. To aid in conservation efforts, the Trustees have established rules for water use under By Law #11:

- Water is only to be used for **essential domestic purposes.**
- Any **outside use of water is not permitted** except for fire suppression.
- Guidelines established for acceptable use of domestic water are as follows:
  - 2 person household: 60-70 Imperial Gallons per day (272-318 liters per day)
  - 4 person household: 110-130 Imperial Gallons per day (500-590 liters per day)
  - This usage is for days in residence; part-time residence usage should be lower on a weekly or monthly basis.
  - In the event of an ongoing drought which threatens the existence of water supply to the Improvement District, the Trustees may consider further reducing the usage restrictions and notifying the residents accordingly.

● All residences are metered and meter readings are recorded monthly to determine individual resident usage and the presence of leakage. All residents using in excess of 40 Imperial Gallons per day (significantly less than the stipulated guidelines) are notified of the amount of their usage and, if in excess of the stipulated guidelines, reminded they are not to exceed the guidelines. The Trustees reserve the right to shut off a resident's access to water in the event of flagrant flaunting of the water use guidelines.

● Each residence has a Shut Off valve which must be turned off if the property will be vacant for 72 hours (3 days) or longer. This helps to prevent water loss due to undetected leaks.

● Residents are encouraged to harvest rainwater by an active program whereby posting signs which proclaim water harvesting at such residences are delivered to residents (for display purposes) who have established to the Trustees satisfaction they are harvesting rainwater or water from an alternative source.

If, despite the above conservation efforts and concrete reservoir storage capacity, the drought conditions or water system malfunctions call for further remediation measures,

the following measures should be considered:

- The Watermaster or Head of Maintenance should consider shutting down affected Pumps to protect their integrity.

- The Watermaster or Head of Maintenance should consider closing Line Valves at affected wells.

- The Trustees should, if deemed necessary, authorize the purchase of a bulk water supply (See Bulk Water Haulers listed in the External Contacts section). Should this be necessary the concrete reservoirs are easily accessible to truck hauling supply.

- The Trustees should, if deemed necessary, authorize the purchase of a bulk bottled water supply from the local Tru Value or, failing that, authorize the purchase of a bulk bottled water supply from an alternate off island source (See Bulk Bottled Water Suppliers listed in the External Contacts section).

- The Trustees should consider whether or not to issue a Boil Water Advisory (see Protocols section) or a Do Not Consume Water Advisory (see Protocols section).

Additional precautionary measures:

- At all times there should be a fully functional back up pump on site to replace a damaged or malfunctioning pump.

- The Watermaster or Head of Maintenance monitors water levels of the 2 concrete reservoirs at least three times per week during the winter months and daily during the summer months. Water levels are monitored by depth sounder readings and in the event of a power failure can be physically observed and calculated.

- The 4 header tank levels are continuously monitored by the Watermaster or Head of Maintenance by telemetric equipment. The telemetric equipment system has an integrated cellular phone, which has the capacity to phone or text the status of header tank water levels to the Watermaster or the Head of Maintenance. The system is battery powered and is charged by a photovoltaic (solar) panel.

- This ERP is posted on the improvement district website (Trincomaliwater.com) for access by all residents.

- The TID website allows for Alerts to be posted putting residents on notice of emergency situations which include special drought conditions, water system malfunction, Water Boil Advisories, and Do Not Consume Advisories.

- Although it has never been exercised, in the event of a complete storage tank pump failure or restricted access to the storage tanks the Watermaster and the Head of Maintenance may, by opening and closing specific valves, pump untreated well water directly into the distribution system and up to the header tanks. All the well pumps'

capacities have been upsized to make this possible. In this scenario, residents would need to be advised about potential poor water quality (and possibly a Boil Water Advisory).

● In addition to website Alerts, emergency communications to all residents are managed via a current and regularly updated email data base as well as postings on the two Improvement District notice boards.

● The Trustees should, when deemed appropriate, contact as many of the 5 Pender Island Neighbourhood Emergency Program Contacts (Trincomali) as possible (See Pender Island Neighbourhood Emergency Program Contacts listed in the External Contacts section).

Seismic Event (Earthquake) possible or actual in ground pipe damage:

- Report to the Watermaster and the Head of Maintenance.
- Isolate Concrete Reservoirs, close valve 1 and 2 (in ground in front of door to pumphouse).
- Close the Header Tank, 6” valve in the ground, south side of the Header Tank Building.
- Close all the valves in the reservoir pumphouse.
- Close the main valve into the distribution main in the ground, the most northerly on the back side (easterly) of the pumphouse, marked with an ‘A’.
- Shut off pumps at all wells, even if hydro power is out.
- Selectively close line valves to identify leaks.
- See Boil Water Advisory and Do Not Consume Water Advisory
- Test for contamination, may need to flush Mains.

Flooding at Well:

- Report to the Watermaster and the Head of Maintenance.
- Shut down well.
- Determine source, divert water to ditch.
- Test for contamination from bacteria, nitrates.

Significant Leak:

- Report to the Watermaster and the Head of Maintenance.
- On residential property, observe if meter is turning, compare meter reading to previous month, talk to resident to identify out of the ordinary use. Close affected curb-stop if necessary.
- Watermaster and volunteers to locate main leaks using visual methods or specialized tools.
- Selectively close Line Valves to identify section. The Line Valves to Lower Plumper, Trincoma and Bedwell each have meters and pressure gauges.
- Do not depressurize any main if it can be avoided, less than 30 psi can allow contamination to enter.

- When leak is fixed, test before return to service. Flush main if required.

Vandalism or Break-in at Well, Treatment Plant, Header Tanks or Reservoir:

- Call Police **Emergency 911**
- Report to the Watermaster and the Head of Maintenance.
- Without disturbing evidence or after police leave, investigate for possible contamination and take appropriate remedial action including informing VIHA for further guidance and actions.

Extended Power Failure:

- Report to the Watermaster and the Head of Maintenance
- The Header Tanks have at least a 4-5 days of supply. The monitoring system operates on a battery recharged by a photovoltaic (solar) panel and has a built-in cellular phone. If phone access is not available, there is an outside pressure gauge on the south end of the header tank building.
- If it is necessary to replenish the Header Tanks, TID has a small portable propane generator and a full BBQ propane tank in the storage shed, which the 1.5 hp pump can be plugged into.

Pandemic:

- Work with VIHA and all other Government Agencies to determine what and when the PANDEMIC PROTOCOLS need to be applied.
- Restrict access to all buildings and facilities.

Chemical or Fuel Spill:

- Report to the Watermaster and the Head of Maintenance
- Ensure Fire/Rescue deploys Hazmat protocols.
- Shut down impacted well and main sections.
- **Flush and test for contamination.**

Boil Water Advisory (BWA) Protocols

1. Report **ALL** instances of water contamination to VIHA Environmental Health Officer (EHO): **Gloria Yu**, phone 250-519-3401, Emergency: 1-800-204-6166.

2. Report to the Watermaster and the Head of Maintenance:

Situations that may require a 'Boil Water Advisory':

- Broken Water Main.
- Treatment failure, e.g., plugged filter or Ultraviolet (UV) lamp or unit shutdown.
- Header Tank complete emptying.
- Backflow or siphonage into the water system.

- Seismic Event (Earthquake).
- Intrusion of any Well building, Header Tank building, Pumphouse or Reservoir.
- Presence of indicator bacteria, such as fecal coliform or E. coli in water sample.
- Declare and issue a Boil Water Advisory, in consultation with the Watermaster, Head of Maintenance, Trustees and the EHO.
- Distribute the Boil Water Advisory directly and/or in cooperation with the Pender Island Emergency Program, Trincomali coordinator.
- By email, Website notice or alert, posted on the 2 bulletin boards, by telephone, and hand delivered.
- To use water under a BWA, it must be held at a rolling boil for at least 1 minute.
- The BWA can be lifted or canceled by approval of the EHO after the cause is identified and rectified and 2 negative bacteria samples, 24 hours apart, are returned from the testing laboratory.

DO NOT CONSUME WATER (DNC) Protocols

1. Report **ALL** instances of water contamination to VIHA Environmental Health Officer (EHO): **Gloria Yu**, phone 250-519-3401, Emergency: 1-800-204-6166.

2. Report to the Watermaster and the Head of Maintenance:

Situations that may require a 'Do Not Consume Advisory':

- Intrusion of any Well building, Header Tank building, Pumphouse or Reservoir.
- Presence of chemical or other hazardous materials which, if consumed, could cause a serious health risk.
- Declare and issue a Do Not Consume Advisory, in consultation with the Watermaster, Head of Maintenance, Trustees and the EHO.
- Distribute the Do Not Consume Advisory directly and/or in cooperation with the Pender Island Emergency Program, Trincomali coordinator.
- By email, Website notice or alert, posted on the 2 bulletin boards, by telephone, and hand delivered. There are at present (June 2021) 2 residents that do not have email access to the internet.
- The DNC can be lifted or canceled by approval of the EHO after the cause is identified and rectified and 2 negative bacteria samples, 24 hours apart, are returned from the testing laboratory.

Pandemic Plan (PP) Protocols

1. Consult with VIHA to identify when to activate the Pandemic Plan (PP).

2. Ensure that the Watermaster, the Head of Maintenance, the Trustees and all volunteers are aware of the PP and do not report for work if they exhibit symptoms or are ill.

3. Restrict access to all facilities to only those authorized to work or be at the facilities.

- No person returning from vacation from any identified zone of infection or has been exposed to a person identified as being infected may work at or enter any site until they have completed the recommended self-isolation or required quarantined period,
- No person shall work at or enter any building or facility if they are not feeling well or are exhibiting symptoms consistent with the infection,
- Persons working for or volunteering for the TID should avoid unnecessary off-island travel, in particular outside of the Vancouver Island Health region.

4. Weekly, or if an operator, trustee, volunteer or contractor working at TID has begun exhibiting symptoms, the following procedures shall be put in place.

- All common touch surfaces which include work desks, valve handles, control panels, switches, doors handles and locks shall be washed with soap and water, then disinfected with a bleach solution of 500 mg/L, which is 1:100 bleach water dilution (10mL of household 5.25% bleach in 1 L of water).

5. While at any TID building or facility, operators, trustees, volunteers and contractors shall:

- wear appropriate face masks or coverings,
- maintain social distance of 1 metre,
- disinfect their hands before entering,
- wipe down all work surfaces with a bleach solution.

6. If a continued flow of potable water cannot be ensured, immediately report the situation to the trustees and VIHA, EHO, and after consultation, issue a BWA or DNC as necessary.

7. Keep residents informed by email, Website notice, or alert posted on the 2 bulletin boards, by telephone, and if deemed necessary, hand delivered.

TID Facility Fire Plan (FFP) Protocols

1. **Emergency 911** ask for fire fighting services and give as precise of location as possible:

- Concrete Reservoir and Pumphouses, 7925 Plumper Way.
- Header Tank Building, located on 7956 Pirates Road, accessed from last driveway to the north, just before Pirates Road becomes Plumper Way,
  GPS coordinates N 048° 44’ 33.60” W 123° 14’ 40.14”
- Well #1, at the northern end of Bedwell Drive, on the south side road right-of-way,
  GPS coordinates N 048° 44’ 30.72” W 123° 14’ 21.66”
- Well #2, locate on 7912 Bedwell Drive, accessed from 7912 Bedwell Drive,
  GPS coordinates N 048° 44’ 33.00” W 123° 14’ 25.02”

- Well #3, located on 7912 Bedwell Drive, accessed from 7912 Bedwell Drive,
  GPS coordinates N 048° 44' 34.44" W 123° 14' 27.42"
- Well #4, locate on 7912 Bedwell Drive, accessed from 7912 Bedwell Drive,
  GPS coordinates N 048° 44' 36.54" W 123° 14' 27.84"
- Well #5, located on 7956 Pirates Road, accessed from 7956 Pirates Road,
  GPS coordinates N 048° 44' 35.46" W 123° 14' 36.78"
- Well #6, located on 7956 Pirates Road, accessed from 7956 Pirates Road,
  GPS coordinates N 048° 44' 37.14" W 123° 14' 36.78"

Report to the Watermaster and the Head of Maintenance

2. **Do not enter a burning building**, but if possible:

- Turn off power and
- Shut off valves.

House Fire or Wildfire Plan (HFP) Protocols

1. Call Pender Island Fire Rescue (PIFR) and **Emergency 911**.
2. Report to the Watermaster and the Head of Maintenance
3. Check that the valve feeding the 6" line coming from Concrete Reservoir #2 to the draughting hydrant is open. This hydrant is the priority source of water for PIFR.
3. Turn on the pumphouse pumps to supply maximum water to the system in case PIFR decide to hookup to any of the 5 other lower capacity fire hydrants.
4. If it is possible in cooperation with the fire fighters, turn off the curb stop to the house on fire.

Windstorm Damage Plan (WDP) Protocols

1. Report to the Watermaster and the Head of Maintenance
2. The main concern in a windstorm is falling trees and branches, damaging building roofs.
3. Uprooted trees could damage in ground Mains and/or the well manifold. Follow the list outlined under Seismic Event (earthquake).

TID Equipment Available for Emergencies

1. A small, low-capacity sump pump, 120 volts ac.
2. A large, Honda, WX 30X 'trash pump' gasoline, 5.9 kw engine, 3 inch input, 25' suction line, 3inch discharge line, 50' long, over 1200 L/minute, mounted on a 4 wheeled wagon.
3. 3500 watt converted to propane generator, switchable, 240 volts or 120 volts.
4. Pender Island Emergency Program VHF radio.
5. A non-sanctioned marine radio.

6. A full 20 lb. propane tank with hose attachment.


Well # 6
Well # 5
Well # 4
Well # 3
Well # 2
Well # 1
Tank
Storage Cisterns