# THE TOWN OF FORT FRANCES
# Section: Operations and Facilities
# SOP: Thawing Frozen Water Services Using the DBH Machine

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## 1. PURPOSE:

To provide a procedure which outlines the events, operation, and responsibilities of Town employees for thawing frozen water lines using the DBH Thawing Machine.

## 2. RESPONSIBILITY:

All individuals in the Operations & Facilities Division workforce, at all levels and functions, are responsible for understanding and carrying out the responsibilities and duties outlined in the policy.

## 3. PROCEDURE:

### A. General:

1) Once notified by the Owner or Authorized Representative of a frozen water service, a Work Requisition form (Frozen Waterlines) is to be filled out by the Secretarial Staff or by the person who received the telephone call. A copy of any pertinent information from the Property Files, such as curb stop location, and maintenance card are to be attached to the form and given to the Thawing Crew, Working Foreman or Designate. If notification is received after hours it will be the responsibility of the on-call person to fill in the appropriate form.

2) The Secretarial Staff or Designate will notify the Thawing Crew of the situation. The crew, along with the Work Requisition (Frozen Waterlines) form will be dispatched to the address of the frozen water service.

3) No worker shall at any time remove any of their personal protective equipment when entering or working within a building or house, such as boots, gloves, etc. If

necessary the crew will remove outside footwear (steel toe boots) and utilize a clean pair of rubber boots (steel toe) to avoid damage or staining any flooring (for example rugs).

4) Once at the work site, the crew supervisor is to present and have the Owner or Authorized Representative read and sign the Work Requisition (Frozen Waterlines) form. If the Owner or Designate is not willing to sign the form, work will not be performed.

5) If the Owner or Authorized Representative has any questions regarding the work procedures, costs or other such matters the supervisor of the crew shall direct their inquires to the Environmental and Facilities Superintendent or Designate.

6) Once the work has been completed the crew supervisor is to fill out, in detail "factual information" in the appropriate section of the form and submit it to the Environmental and Facilities Superintendent.

7) All pertinent information regarding the frozen water service will be logged by the Water Distribution Operator in the water distribution logbook. Also, information will be recorded In the GIS database and in the respective property files within the Operations & Facilities Division – Public Works Office.

**B. DBH Thaw Machine Operational Procedure:**

1) Where possible, the DBH Thaw Machine should be parked on a level surface to minimize wear on components.

**Before Starting DBH Machine:**

2) The operator should perform a "walk around" to ensure that the unit is clear of hazards. Any obvious damage should be reported immediately. The operator should also familiarize him/herself with the operating manual located on top of the control panel.

3) Check all fluid, oil, coolant and fuel levels:

   - Oil level should be between the add and full marks of the dipstick located on the left hand side of the engine.

   - Coolant should only be checked on a cold engine, and the radiator cap should be removed slowly to release any pressure that may have built up. Coolant should be within 15 mm of the bottom of the fill pipe.

   - Fuel level should be checked in the tank on the right hand side of the engine. This piece of equipment uses dyed diesel.

4) Ensure that the main breaker handle is in the "OFF" position.

**Starting DBH Machine:**

5) While holding the OIL PRESSURE BY-PASS button, turn the ignition key to the start position and hold it there until the engine starts then release the key. When the oil pressure begins to climb, release the OIL PRESSURE BY-PASS button.

Notes:

a) The key should not be held on start for more than 30 seconds without allowing the starter motor to cool.
b) If the oil pressure does not begin to rise within 15 seconds, shut the unit off and report the problem.

6) Check the engine ammeter to ensure that the starting battery is charging.

7) Allow the engine and components to warm up for several minutes before putting the unit into service.

8) Turn the main breaker switch to "ON". The green "STANDBY POWER" light should be on.

**Thawing Procedure:**

1) Press the "THAWING STOP" button, and make sure that the "PIPE THAWING" light is not on.

2) Operator is to check using an ammeter for stray current running through internal water piping. Where more than 15 amps of current are recorded the cable connects are to be relocated to a new position or the service line disconnected from the remainder of the house nearest the main water valve.

3) Plug one cable into each of the two L/R receptacles on the panel, starting at number "1". Extras may be added to lengthen cables to cover more distance as required. Connect the clamps to the pipe.

Notes:

a) Do not allow the cables to form loops on themselves as this may prevent the pipe from thawing.
b) When connecting to a hydrant, connect to the barrel, not the operating nut. If necessary, remove a port cap to get a good connection.
c) If the building is part of the Town's I.C.I. sector, the Fort Frances Power Corp. is to be contacted to determine if the building uses 3 phase power. If it is determined that 3 phase power is supplied to the building, an electrician must also be called in to ensure that the system is safe for connection of the thawing machine to the water service line.
d) Out of Town: An electrician shall be present at all locations to be thawed to determine if 3 phase power is supplied to the building and to ensure that the system is safe for connection of the thawing machine to the water service line.

4) The thawing machine is now ready.

5) The following sequence of steps must be performed in order to determine which party is responsible for costs:

a) The Crew shall first try thawing from the building to the curb stop at the property line. If successful, the property owner or tenant will be responsible for 100% of costs incurred.

b) If the Crew is unable to make a proper connection at the curb stop, or if they are unable to locate the curb stop, the crew should then try thawing from the house to the water main. If successful the property owner would be responsible for 50% of the costs incurred.

c) If the Crew can make a proper connection between the house and the curb stop, but are unable to thaw the line, they would then try to connect between the house and the water main. If successful, the Town would absorb all costs.

6) Push and release the yellow "A" button

7) Push the "THAWING START" button. If the 0-800 ammeter needle doesn't move, push the "STOP" button and clean all connections. Reconnect the cables and try again. If this doesn't fix the problem, choose another location to connect the cables.

Note:

a) Do NOT connect to an outside garden hose bib.

8) Push button "A", then "THAWING START" button. If a reading of at least 300 amps is not obtained, output will stop and the red "DANGER! RELOCATE OUTSIDE CONNECTION" light will flash. While a reading of 300 to 500 amps will work, ideally a reading greater than 400 amps is preferred.

9) If the reading is greater than 100 amps, and the machine disconnects, then push "THAWING STOP", press the yellow "B" button, then press the "THAWING START" button. If this fails to get the desired amperage, then repeat the procedure substituting the yellow "C" button, then the "D" button, and so on.

10) If buttons "A" to "G" have been tried without success, then clean the contacts again and add more cables evenly to each side of the panel, continuing from number "2". If the crew is unable to establish an adequate connection, other means of thawing the line will have to be used.

11) If a connection is successfully made, and the crew has begun the thawing process, the outgoing and incoming amperages should be checked against each other to determine how much power is possibly being lost to the ground connection in the building. The machine will continue to thaw for a period of 30 minutes after which it will automatically stop. If the pipe still hasn't thawed, allow the machine to cool for 30 minutes before turning it on again.

12) If the amperage exceeds 500 amps, then output will stop and the "ADD TWO CABLES" light will come on. Add cables evenly to both sides of the panel in numerical order and try again.

13) Once the thawing procedure has commenced, the machine will "Thaw" for 30 minutes, then stop for 30 minutes (duty cycle). If the water service hasn't thawed in 2 hours total time, then other means of thawing the service must be explored.