

**CITY OF WAUPACA, WISCONSIN**  
**WATER DEPARTMENT**  
**WATER SERVICE LATERAL THAWING RULES AND PROCEDURES**  
**(prepared February 24, 2015)**

*Pursuant to Wisconsin Public Service Commission 185.88 rules on Frozen Laterals:*

Thawing of a customer's lateral shall be at the utility's expense if:

1. The freeze-up is a direct result of a utility disconnect and the disconnection occurs during a time when conditions are such that freeze-up could reasonably be expected to occur or;
2. The customer's portion of lateral is electrically conductive and:
  - a. It is the first thaw for the customer at the location and;
  - b. The utility has not provided the customer with seasonal notice of the corrective actions to be taken for a known condition.

Lateral thawing shall be at the customer's expense if:

1. The customer's lateral is not electrically conductive and the freeze-up is not a direct result of a utility disconnect as set forth in sub.[\(1\) \(a\)](#) or;
2. The customer neglected to provide or maintain proper insulation or protection for the lateral according to standard accepted practice, or specific utility instructions on, for example, the required depth of burial needed to prevent freezing, or;
3. The utility advises the customer of the corrective measures to be taken and the customer does not follow the utility's advice. (See s.[PSC 185.35 \(7\)](#) for bill adjustment where a utility requests a customer to let water flow to prevent freezing), or;
4. The utility disconnects for a dangerous condition.

## Ownership of Laterals:

Utility facilities such as water mains are located in the street corridor also known as the public Right-of-Way (ROW). Regarding water utilities, everything within the ROW is for a municipality to maintain and everything on private property is for the property owner to maintain. That means municipalities are responsible for the ROW part of the lateral, which is from the main in the street up to the property line, and property owners are responsible for the part of the lateral that lies within the private property.

The outside curb valve is ideally located right at the ROW/private property line but sometimes it must be located on one side or the other to avoid an obstacle such as a sidewalk or tree. Wherever the curb valve is, that becomes the dividing point between the utility and the property owner's parts of the lateral.

The utility may request the assistance of its customers, for example requesting water to be run to prevent freezing of any portion of the lateral; but if the utility does not obtain that assistance from its customers, the utility is not absolved of its responsibility to keep its own facilities in working order. The responsibility for thawing the lateral would fall to the customer if it was the customer's portion that froze or if the customer did not take the preventive actions the utility requested.

**CITY OF WAUPACA WATER DEPARTMENT**  
**WATER SERVICE THAWING RULES AND PROCEDURES**

**Before Thawing:**

1. Have the customer sign the “Approval of City of Waupaca Water Service Lateral Thawing Services” form. The city shall not perform or offer to perform any lateral thawing that the city is not responsible for.
2. Assess the ability to use a Hot Water Pulse Jet De-Icer Line Thawer (or similar piece of equipment). Only proceed with electrical current thawing procedures if the non-electrical thawing device use is expected to provide for limited thawing results.
3. Under no circumstances should any pipe thawing activity take place without a knowledgeable city employee in attendance during the entire time. Failure to follow proper procedures and to use good judgment can result in severe personal injury, fire, explosion, damage to wiring which may make it unsafe, damage to pipes, burning up the welder or other hazards. All persons that may have the ability to come in contact with the thawing operation should be made aware of the dangers and told to stay a safe distance away at all times.
4. Assess the property to determine which side of the water service lateral may be frozen (lack of snow cover, lack of depth of customer’s service, etc.).
5. Inspect the water service to determine the pipe material and that it is electrically conductive. Electrical pipe thawing by electrical current cannot be accomplished on non-conductive pipe material.
6. Assess the property and surrounding properties on which would be the closest point to which to attach the outside welding cable (curb box, main valve or fire hydrant). Do not attempt to thaw pipes by making connections to neighboring houses.
7. Isolate the frozen section of pipe. This can be done by turning various faucets on until the specific frozen areas are determined.
8. Disconnect the water meter and the by-pass ground conductor around the meter making sure it is isolated electrically from the supply piping.
9. Disconnect **ALL** other ground conductors and electrical bond connectors that are connected to the supply piping. Also look for any other connections, metal

contact, pipes or anything else metal or non-metal touching the water service. As an example -water service taps for refrigerators, gas service or insulation / floor truss touching the water service.

10. The frozen section of pipe must complete the electrical circuit from the welder. Always be certain that there are no insulated joints or plastic pipe sections that could prevent the electric current from passing through the frozen section of pipe. Such interruptions will cause the current to flow through alternate paths if they complete the circuit. These alternate paths could take the form of gas pipes, neutral conductors or grounding wires of the electrical system which may not have sufficient electrical capacity, causing them to burn open (and therefore not be able to perform their intended function in the future) or become so hot as to cause a fire hazard or explosion. Further, even if the frozen section does complete the electrical circuit these same types of alternate paths may still be in electrical parallel and draw current from the welder. Under these conditions they will need to be *temporarily* disconnected during the pipe thawing operation.
11. Both cable connections should be as close to the frozen area as possible. A small empty pipe in the circuit could get hot before a larger frozen pipe thaws. This could melt solder in copper pipes, causing water damage, or the empty pipe may become so hot as to become a fire hazard.
12. The cables to be used must be large enough to handle the current, should be in good condition and should be kept as short as possible.
13. Except when actually thawing, turn the welder off. Follow all instructions and safety precautions for the welder including those related to the hazard of electric shock. Also, failure to do this may cause arcing when the cables are connected and result in a hole in the pipe.
14. The connection to the pipe must be good. Clean the pipe, preferably by sanding with coarse emery paper, before connecting. Bad connections may cause arcing and result in a hole in the pipe. Poor connections will overheat, resulting in loss of thawing current.
15. Connect the inside welding cable to the supply side of the meter.
16. Connect the outside welding cable to the chosen point on the street end of the frozen lateral.

17. Be sure the supply valve is open so there is water pressure on the frozen section. Open a faucet on the other side of the frozen section so that when the heat melts a thin layer of ice next to the pipe, the water can flow. The continued flow of water will melt the remaining ice.
18. Before turning the power source on, be certain to properly adjust its output so it will not be overloaded. Pipe thawing involves heavier sustained loads than welding. Because pipe thawing establishes close to a short across the welder terminals, actual amperes drawn are always greater than indicated by the current control dial. Therefore, specific pipe thawing instructions for each type of welder must be followed.
19. Also, since the welder may overheat if it is overloaded, leaving the machine in a cold place or outside will help to keep it cool.
20. Uncoil the cables. Keep the cables off of rugs and polished surfaces that may become damaged by heat. Do not lay cables on metal objects.

#### **During Thawing/Heating of the Pipe:**

1. Make sure a fire extinguisher is easily accessible.
2. All persons not city employees shall stay a safe distance away from the thawing operation at all times, including cables and generator. Do not begin thawing with an electrical procedure without all persons a safe distance away.
3. Start welder at low current feed (150-200 amps). Watch for a jumping needle on the gauges (indicates poor or no continuity). **If this is observed, STOP the thawing process.**
4. If there is a good connection, monitor current flow into the circuit (frozen lateral) closely; use an ammeter at **EACH** end of the pipe section being thawed (a hand held ammeter inside and gauges on the welder outside).
5. Do not move the clamps while current is flowing.
6. Do not leave the thawing procedure unattended.
7. Make sure that an unfrozen faucet stays open and that system pressure is kept on the frozen section.

8. **The monitored current flow must match exactly with the output from the generator/welder.**
9. **If the current flow doesn't match exactly, STOP the thawing process. Current may be flowing to unintended locations such as a neighboring property.**
10. If current flow does match, you may turn up the current feed at this time. The maximum feed should be no more than 18 Volts and 400 Amps.
11. Constantly monitor the line being thawed for changes in condition including temperature, as well as monitor the welder and its cables. If excessive temperatures are experienced cease the thawing operation. Be very careful of electrocution during the welder run operation.
12. As soon as water starts to flow, turn the welder off and allow the continued flow of water to melt the remaining ice.

#### **When Thawing is Finished:**

1. Be sure the welder is off before removing leads. After the welder leads are removed from the pipe, be sure to reconnect any wires of the electrical system which were disconnected, and recheck the grounding system to make certain it will perform its intended function.
2. Reconnect all service grounds FIRST and then the water meter.
3. Read the water meter and direct the customer to run a small pencil thin stream of water to prevent further freezing of the lateral until further notice.
4. Record all employees involved, dates, times, approvals signed, connection points, gauge readings and other comments for this property on a running water service lateral pipe thawing log sheet.

**CITY OF WAUPACA, WISCONSIN**  
**WATER DEPARTMENT**  
**WATER SERVICE LATERAL THAWING**

**Approval of City of Waupaca Water Service Lateral Thawing Services**

I certify that I am the owner of the building at the address listed below.

I request and approve the City of Waupaca, Wisconsin Public Works Department to thaw my frozen water service lateral at the below listed address. I have read and understand the thawing rules and procedures. I hereby waive any responsibilities for damages against the City of Waupaca, Wisconsin that may occur as a result of this work. I understand that all persons shall stay a safe distance away from the thawing operation and follow city staff instructions during the operation. I have informed all persons and tenants of the property of these requirements.

Address: \_\_\_\_\_

Owner's Name: \_\_\_\_\_

Business Name (if applicable): \_\_\_\_\_

Date: \_\_\_\_\_ Mobile Phone Number: \_\_\_\_\_

Owner Signature: \_\_\_\_\_

All Tenants Names (if applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

City Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_