	DRINKING WATER AND MUNICIPAL ASSISTANCE DIVISION ENVIRONMENTAL HEALTH SECTION POLICY AND PROCEDURE		DEPARTMENT OF ENVIRONMENTAL QUALITY
Original Effective Date: May 1, 2017 Revised Date: Reformatted Date:	Subject: Approved Methods to Winterize Distribution Piping Program Name: Public Drinking Water Supplies Number: DWMAD-399-030 Page: 1 of 5		Category: <input type="checkbox"/> Internal/Administrative <input checked="" type="checkbox"/> External/Non-Interpretive <input type="checkbox"/> External/Interpretive Type: <input type="checkbox"/> Policy <input type="checkbox"/> Procedure <input checked="" type="checkbox"/> Policy and Procedure

A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory; does not affect the rights of or procedures and practices available to the public; and does not have the force and effect of law. DEQ staff shall follow the directions contained in this document.

ISSUE:

Noncommunity water supplies (NCWS) that close for the winter without heat must protect their distribution system pipes from freezing. Most often, the pipes are winterized by draining and then blowing out the pipes with pressurized air. In some cases, this method cannot easily or inexpensively be done because of the way the system is constructed. In addition, some community water supplies (CWS) shut down a portion of their distribution system or have customers who close for the winter and are unable to drain their pipes.

As of the date of this policy, there is no antifreeze available that is certified as meeting the NSF/ANSI Standard 60: Drinking Water Treatment Chemicals. The Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), requires that all chemicals used in drinking water treatment meet NSF/ANSI Standard 60. This policy/procedure allows for the use of a pharmaceutical or food-grade propylene glycol antifreeze as an alternative to dewatering, when it is technically and economically necessary.

NOTE: Ethylene glycol antifreeze must never be used in drinking water distribution systems. Ethylene glycol antifreeze is the type used in automobile radiators. It is a poison and can be extremely hazardous if consumed by humans or animals.

AUTHORITY:

The Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and its Administrative Rules.

DRINKING WATER AND MUNICIPAL ASSISTANCE DIVISION
POLICY AND PROCEDURE

Number: DWMAD-399-030

Subject: Approved Methods to Winterize Distribution Piping

Page 2 of 5

DEFINITIONS:

Community Water Supply (CWS): means a public water supply that provides year-round service to not fewer than 15 living units or which regularly provides year-round service to not fewer than 25 residents.

Generally Recognized as Safe (GRAS): is an United States Food and Drug Administration designation that a chemical or substance added to food is considered safe by experts, and so is exempt from the usual Federal Food, Drug, and Cosmetic Act food additive tolerance requirements.

Noncommunity Water Supply (NCWS): means a public water supply that is not a community supply, but that has not less than 15 service connections or that serves not fewer than 25 individuals on an average daily basis for not less than 60 days per year.

Public Water Supply (PWS): means a waterworks system that provides water for drinking or household purposes to persons other than the supplier of the water, and does not include either of the following:

- I. A waterworks system that supplies water to only one living unit.
- II. A waterworks system that consists only of customer site piping.

POLICY:

The following, in ascending order of preference, are the methods that shall be used by a PWS to winterize distribution, customer site, or other piping connected to the PWS, including the requirements that must be met if the PWS or its customer uses a pharmaceutical or food-grade propylene glycol antifreeze:

1. The preferred method to winterize drinking water distribution piping is dewatering and blowout of the pipes from the source to the faucets, hose bibs or other outlets using pressurized air. Because dewatering is the preference, proposed seasonal systems shall be designed to be effectively dewatered by draining and using pressurized air.
2. If dewatering cannot be feasibly or effectively done, and as long as there is no antifreeze available that is certified as meeting the NSF/ANSI Standard 60, approval can be sought from the Drinking Water and Municipal Assistance Division (DWMAD) or local health department (LHD) to use antifreeze made from propylene glycol, with dipotassium phosphate added to inhibit bacterial growth. The following information shall be provided to the DWMAD or LHD for review:

DRINKING WATER AND MUNICIPAL ASSISTANCE DIVISION
POLICY AND PROCEDURE

Number: DWMAD-399-030

Subject: Approved Methods to Winterize Distribution Piping

Page 3 of 5

- a. Proof that the propylene glycol antifreeze is of pharmaceutical or food-grade quality, and the product contains no harmful or toxic substances. This proof can be obtained from the manufacturer's product information and the material safety data sheet (MSDS). Any antifreeze that is GRAS would meet this criterion.

If only a portion of the distribution system piping will be winterized using pharmaceutical or food-grade propylene glycol, and other sections of the distribution system will remain open and serve drinking water to the public, then backflow from the winterized portion to the portion in service is prohibited. Backflow shall be prevented by a physical separation of the piping or by use of appropriate cross-connection control assemblies in compliance with Act 399 requirements at all areas where the pipes connect. In instances where the piping system is supplied by a CWS, the water supplier must inspect the connection each year the winterization procedure is completed.

- b. Distribution piping that is winterized must undergo a start-up procedure prior to serving water to the public. A flushing and disinfection process must be a part of the start-up procedure. All NCWS owners or operators must certify that the start-up procedure was followed. The certification shall be documented on the Michigan Department of Environmental Quality, Start-Up Certification For Seasonal Noncommunity Public Water Supply form, and sent to the LHD prior to serving water to the public. This form is available on the DEQ's Noncommunity Web page at: www.michigan.gov/deqnoncommunitywatersupply. CWSs are responsible for following this start-up procedure for distribution piping they winterize, and for ensuring their customers follow proper procedures when restoring service so they do not cause microbial contamination that may have entered the dewatered piping from spreading into other areas of the distribution system.

NOTE: If antifreeze is used, then the solution must be disposed of properly when purged from the system. Discharges of antifreeze to the ground or surface waters are prohibited by law.

DRINKING WATER AND MUNICIPAL ASSISTANCE DIVISION
POLICY AND PROCEDURE

Number: DWMAD-399-030

Subject: Approved Methods to Winterize Distribution Piping

Page 4 of 5

PROCEDURES:

Step	Who	Does What
1.	PWS owner or operator	Requests approval from the LHD or DWMAD district office to use propylene glycol antifreeze to protect distribution piping from freezing. Provides information on the specific product to be used, and product information or an MSDS indicating the antifreeze is of pharmaceutical or food-grade quality.
2.	LHD/ DWMAD	Reviews product information and, if acceptable, approves the use of the antifreeze. Copies of the product literature and/or MSDS shall be kept with the PWS file.
3.	LHD/ DWMAD	Confirms that the appropriate cross-connection devices are installed, maintained, and certified, as required by Act 399. Documents the information in the PWS file.
4.	PWS owner or operator	When opening for the season or restoring service to the winterized portion, the PWS performs a start-up procedure on the distribution piping that includes a disinfection process. For an NCWS, completes the Start-Up Certification For Seasonal Noncommunity Public Water Supply form and sends it to the LHD prior to serving water to the public.
5.	LHD	Records the receipt of the certification form.
6.	PWS owner or operator	If a new antifreeze brand is to be used, seeks approval for its use from the LHD or DWMAD district office. If antifreeze will no longer be used to winterize the piping, provides notification of the change to the LHD or DWMAD district office.

DRINKING WATER AND MUNICIPAL ASSISTANCE DIVISION
POLICY AND PROCEDURE

Number: DWMAD-399-030

Subject: Approved Methods to Winterize Distribution Piping

Page 5 of 5

APPENDICES:

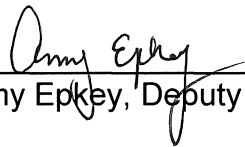
Start-Up Certification For Seasonal Noncommunity Public Water Supply form

DIVISION DIRECTOR APPROVAL:



Bryce Feighner, P.E., Director
Drinking Water and Municipal Assistance Division

ENVIRONMENT DEPUTY DIRECTOR APPROVAL:



Amy Epkey, Deputy Director



START-UP CERTIFICATION FOR SEASONAL NONCOMMUNITY PUBLIC WATER SUPPLY

*Issued under authority of the Safe Drinking Water Act, 1976 PA 399, as amended, MCL 325.1001 et seq., and its Administrative Rules (Act 399).
Failure to submit certification is a violation of Act 399 and may subject the water supply to enforcement actions.*

This completed form must be submitted to the local health department (LHD) **PRIOR TO PROVIDING WATER FOR PUBLIC USE**. All of the steps **must** be completed and deficiencies corrected prior to opening (keep a copy of the completed form for your records).

Supply Name:			
Water Supply Serial Number (WSSN):			
Anticipated Opening Date to the Public:		Anticipated Closing Date:	
<i>Details of the approved pre-opening start-up procedures can be found in the DEQ SEASONAL PUBLIC GROUNDWATER SUPPLY HANDBOOK.</i>			
Pre-Opening Tasks Completed	Yes	Not Applicable	Comments/Findings (Check the box if you provided additional comments on a separate sheet of paper)
1. Evaluated the Wellhead and Surroundings	<input type="checkbox"/>	X	<input type="checkbox"/>
2. Evaluated the Water System	<input type="checkbox"/>		<input type="checkbox"/>
3. Evaluated the System for Cross Connections	<input type="checkbox"/>		<input type="checkbox"/>
4. Looked at All Air Gaps and Backflow (BF) Preventers and Replaced if Necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Testable BF Preventer Assemblies Tested by Certified Tester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Flushed the Supply	<input type="checkbox"/>	X	<input type="checkbox"/>
7. Disinfected the Depressurized Portion of the System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If disinfected at the wellhead, Michigan registered well drilling contractor name:			
8. Collected Two (2) Pre-Opening Bacteriological Samples 24 Hours Apart According to Sample Siting Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dates Bacteriological Sampling Completed: (If using a private laboratory, it is your responsibility to submit the sample results to your LHD)			

9. I certify that I have completed the above-listed tasks in accordance with the <i>START-UP PROCEDURES FOR SEASONAL NONCOMMUNITY PUBLIC WATER SUPPLIES</i> for system-specific LHD-approved procedure(s). The information on this certification is complete, accurate, and true to the best of my knowledge. Any deficiencies observed were corrected and details have been provided above. <i>Submission of this certification each year to the LHD before opening to the public is required under Act 399, referenced above.</i>		
Name/Title (Please Print):		
Signature:		Date:
Telephone:	Fax:	E-mail:
Local Health Department Use Only		
Certification Reviewed By: _____		Date Reviewed: _____
Comments: _____		Approved: Yes <input type="checkbox"/> No <input type="checkbox"/>

Submit to LHD:



START-UP PROCEDURES FOR SEASONAL NONCOMMUNITY PUBLIC WATER SUPPLIES

Issued under authority of the Safe Drinking Water Act, 1976 PA 399, as amended, MCL 325.1001 et seq., and its Administrative Rules (Act 399). Failure to follow start-up procedures is a violation of Act 399 and may subject the water supply to enforcement actions.

*These procedures must be completed **PRIOR TO PROVIDING WATER FOR PUBLIC USE.***

Seasonally-operated noncommunity public water supplies must ensure the water is safe to drink before opening for the season. Follow the steps in the Michigan Department of Environmental Quality's (DEQ) Start-Up Procedures before serving water to the public. The local health department (LHD) may require additional steps specific to a water supply system. Start-up procedures may be completed by the water supply owner or someone qualified to work on water supply systems, such as a Michigan registered water well contractor, licensed plumber, or a water supply certified operator. Detailed information on each step is provided in the

[DEQ Seasonal Public Groundwater Supply Handbook](http://michigan.gov/documents/deq/Seasonal_Public_GW_Supply_Handbook_488526_7.pdf)

(http://michigan.gov/documents/deq/Seasonal_Public_GW_Supply_Handbook_488526_7.pdf).

1. Evaluate the Wellhead and Surroundings

Inspect the well for signs of damage – exposed wire, broken/loose cap, missing vent screen, or damage to the casing. Clear overgrown vegetation from around the well casing. Remove chemicals, fuel, or other potential sources of contamination from the well area.

2. Evaluate the Water System

Check the pressure tank and supply lines for leaks/damage. Check electrical lines for damage. Clear the area around the raw water sample tap. Remove unnecessary items from well house/well equipment room. Drain stagnant water from the pressure tank. Verify that filters and treatment devices are clean and operating properly. Eliminate dead-end piping.

3. Evaluate the System for Cross Connections

Verify that backflow preventers are on hose bibs, dump station towers, mop sinks, toilets, and ice machines.

4. Visually Inspect All Air Gaps and Backflow Preventers

Make sure air gaps are appropriate. Look for leaks at backflow preventer devices and assemblies; replace if necessary.

5. Test Backflow Preventer Assemblies

Assemblies must be tested at the appropriate frequency or no less than once every three (3) years by a certified tester.

6. Flush the Supply

Flush the well and distribution system until the water runs clear. The longer the flushing time, the better. Avoid the septic system area.

7. Disinfect the Depressurized Portion of the System

Disinfect the portion of the distribution system that was depressurized. A water supply owner may disinfect the distribution system using an approved positive displacement chlorinator or by pouring chlorine into a plumbing port in the well house or room. Only a Michigan registered well contractor can disinfect the well. Flush the system following disinfection until free of chlorine.

8. Collect Two (2) Pre-Opening Bacteriological Samples 24 Hours Apart

Collect pre-opening sample from the distribution system, as identified in the sample siting plan, and collect another sample at least 24 hours later. These samples do not count toward routine monitoring requirements. If both sample results are non-detect for total coliform, continue to the next step. **If a sample is positive for coliform or *E. coli* bacteria, contact your LHD for further instructions. Do not open your water system to the public.**

9. Certify and Submit Start-Up Certification Form to LHD

Complete and sign the *Start-Up Certification for Seasonal Noncommunity Public Water Supply* form and submit it to the LHD with the two (2) consecutive non-detect bacteriological sample results before opening to the public.

Additional Information:

The *Start-Up Certification for Seasonal Noncommunity Public Water Supply* form is available from the LHD and electronically from the DEQ's Noncommunity Water Supply web page (<http://www.michigan.gov/deqnoncommunitywatersupply>). The DEQ Seasonal Public Groundwater Supply Handbook (http://michigan.gov/documents/deq/Seasonal_Public_GW_Supply_Handbook_488526_7.pdf) is also available electronically on the DEQ Web site.

Hand Pump Wells

Hand pumps are not pressurized and are typically available for use year-round. If the hand pump is used seasonally, complete the start-up procedures and submit the start-up certification form to the LHD. Disinfection of seasonal hand pump wells is not required as part of a start-up procedure unless work was performed on the well.

Repairs/Service Work

Only a registered water well drilling contractor may chemically treat public water wells. Registered or licensed individuals may be required by law to perform work on the distribution system. Be sure to forward the details of specific work completed on the well or system to the LHD.

Pre-Opening (Special Purpose) Samples

Obtain non-detect results from two (2) consecutive pre-opening special purpose bacteriological samples according to the sample siting plan. This ensures the start-up procedures have eliminated potential contamination before serving water to the public. If coliform is detected, the water supply can correct the problem before opening and avoid triggering increased monitoring.

Sample Bottles, Forms, and Reporting

Water supplies that use the DEQ's Drinking Water Laboratory (Lab) may call 517-335-8184 to order bottles. The Lab automatically notifies the LHD with the results if the report is completed accurately. Circle "9-Other" for "Sampling Purpose" on the laboratory water analysis form for the two (2), 24-hour-apart pre-opening samples.

Write the Water Supply Serial Number(s) on each water sample form. Deliver/send the bottle(s) to the Lab to ensure the samples can be processed within 30 hours of collection; otherwise, the result will be invalidated and the samples must be recollected and analyzed.

Private laboratories may be used, provided they are certified by the DEQ for drinking water analysis. Laboratory certification lists for total coliform, inorganic and organic contaminants, and lead/copper are available from the DEQ's Laboratory Services Web site (<http://www.michigan.gov/deqlaboratoryservices>). Be aware that most private laboratories do not report the results electronically to the DEQ; therefore, it is the owner's responsibility to submit all analytical results to the LHD.

Questions regarding Seasonal Start-Up Procedures should be directed to your LHD. Please refer to A Guide to Local Health Department Personnel (http://www.michigan.gov/documents/deq/deq-wd-gws-lhdguide_206678_7.pdf).