

**AN ORDINANCE TO ADOPT WRITTEN POLICIES/PROCEDURES FOR THE WATER DEPARTMENT OF THE TOWN OF BRIGHTON, TENNESSEE.**

WHEREAS, To help insure the public safety; and

WHEREAS, To comply with Tennessee Code Annotated; and

WHEREAS, The Board of Mayor and Aldermen of the Town of Brighton finds it necessary to adopt written policies/procedures for the Water Department of the Town of Brighton;

**NOW, THEREFORE: BE IT ORDAINED BY THE BOARD OF MAYOR AND ALDERMEN OF THE TOWN OF BRIGHTON, TENNESSEE, THAT:**

Section 1. The policies/procedures listed below and attached to this ordinance, are adopted for the Town of Brighton's Water Department.

Flushing Program Plan

Distribution System Standard Operation Procedures

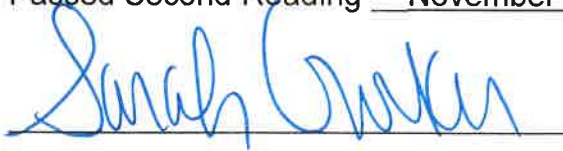
Standard Operation Procedure: Line Repair

Section 2. These new policies/procedures go into effect November 10, 2015.

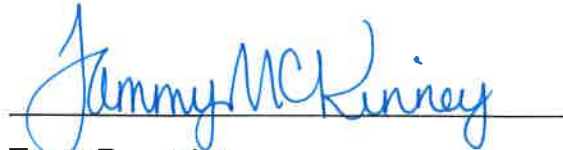
Section 3. This ordinance shall become effective upon final passage, the public welfare requiring it.

Passed First Reading October 13, 2015

Passed Second Reading November 10, 2015



Mayor



Town Recorder

**Flushing Program Plan  
For  
TOWN OF BRIGHTON**

**I. Goal**

The purpose of the flushing program is to provide a safe high quality water supply to the customers of the Town of Brighton. Debris can enter and accumulate in a water distribution system. Disinfectant residuals can deplete due to low usage and disinfectants may combine with materials in the system to form undesirable byproducts. Each of these situations may be corrected by an adequate flushing program.

**II. Plan of Action**

1. A systematic flushing of the entire distribution system will be conducted annually or more often if required to maintain water quality. Individual sites will be flushed as needed. The flushing program will ensure that:
  - a. Dead end and low usage mains are flushed periodically
  - b. Drinking water standards are met
  - c. Sediment and air are removed
  - d. The required free chlorine residual is maintained
2. Flushing will be performed by water system personnel and local firemen.
3. Following line repairs, main lines will be flushed to remove air and sediment from the repaired section of line. If disinfection is necessary to comply with AWWA standards, the line will be flushed to remove the high chlorine content. During flushing, water containing high chlorine concentrations will be flushed on relatively flat ground so as not to contaminate a receiving stream or body of water as per AWWA Standard C 651.
4. Flushing of individual or multiple sites may be necessary to resolve customer complaints concerning taste, odor or color. Flushing will be performed as needed to restore water quality.
5. Flushing will be performed so as to ensure a minimum velocity of 2 fps to adequately scour the interior of the main.

**III. Record Keeping**

Records of each flushing will be maintained by the Town of Brighton. These records will include the following:

- A. Date
- B. Time
- C. Location
- D. Persons responsible
- E. Length of flushing
- F. The free chlorine residual after flushing dead end mains
- G. Other information deemed as useful to the Town of Brighton

# TOWN OF BRIGHTON

## Flushing Record

DATE	HYD. NO.	LOCATION	START TIME	STOP TIME	TOTAL MIN.	FLOW G.P.M.	TOTAL FLOW GAL.	STATIC P.S.I.	Cl <sub>2</sub> RES. BEFORE	Cl <sub>2</sub> RES. AFTER	COMMENTS



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

**TOWN OF BRIGHTON  
DISTRIBUTION SYSTEM  
STANDARD OPERATING PROCEDURES**

**TOWN OF BRIGHTON  
DISTRIBUTION SYSTEM  
STANDARD OPERATING  
PROCEDURE**

Ver: 9.02.15

# **TOWN OF BRIGHTON DISTRIBUTION SYSTEM STANDARD OPERATING PROCEDURES**

The Operator in direct charge water distribution system shall at all times be operated within the capabilities of the system and in accordance with all state and federal guidelines. The “Rules of Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Water Supply, Chapter 1200-5-1, Public Water Systems” and “Chapter 1200-5-3 Rules Governing Water and Wastewater Operator Certification” will be followed at all times.

The Operator in direct charge is required by 1200-5-3-.04(3) to inform the Division of Water Supply in writing no later than August 01 annually of the name of the certified operator in direct charge of the Operator in direct charge water distribution system. 1200-5-3-.05(3) states that this “Person in direct charge” is the person “whose decisions and directions to system personnel control the manipulation of equipment and thereby determine the quality and quantity of the water supplied by a water treatment plant or a water distribution system.” Should any question arise as to the application of any of these rules, the “certified operator in direct charge” shall be notified immediately.

All personnel working in the water distribution system shall at all times adhere to the following guidelines. This SOP shall only be used by persons who have received training in the operations and maintenance of the distribution system. Untrained persons shall not attempt to operate or manipulate the distribution system in any manner. While these guidelines do not cover all of the rules discussed above, they do cover many of the circumstances, which may arise on a daily basis.

## **Routine Operations**

- 1) All storage tanks shall be visually checked each week .
- 2) The free chlorine residual in the distribution system shall be maintained at no less than .2 mg/l. Under no circumstances shall the free chlorine residual be allowed to fall below 0.2 mg/l. Dead-end lines shall be flushed at any time the free chlorine residual falls below 0.2 mg/l in accordance with the Town’s Flushing Program Plan.
- 3) The pressure in the distribution system shall always be maintained at a minimum of 20 psi.
  - a) If low pressure complaints are received, first check for a problem on the customer’s plumbing. If the customer’s pressure is low, pull the meter and check the pressure at the curb stop.
  - b) If the low pressure exists in the distribution system, check tank levels first.
    - i) If tank levels are low, check the master meter located at Brighton-Clopton and Old Memphis Roads.
      - (1) If water is properly flowing through the master meter, check for main line leaks in the area with low pressure. If no apparent leak is found, start closing valves on the line serving the affected area. Leave the valve closed for 3-5 minutes then open slowly. If the sound indicates that a large volume of water is required to restore pressure, check the next downstream valve. Once a valve is found that does not show a large

# **TOWN OF BRIGHTON DISTRIBUTION SYSTEM STANDARD OPERATING PROCEDURES**

amount of water needed to restore pressure, start searching for the leak between this valve and the last valve indicating a leak.

- 4) All flushing shall be done in accordance with the Flushing Program Plan and be recorded on the forms provided by the operator in direct charge of the distribution system. Completed flushing forms shall be filed in the "Hydrant Flushing" folder in the supervisor's office.
- 5) Fire hydrants shall not be placed on mains less than six inches in diameter.
- 6) New service taps on existing mains that must be uncovered to make the tap, shall be flushed and the free chlorine residual measured before connecting the service line and shall be recorded on the work order and the new tap records form. These forms shall be filed at the utility office.
- 7) Any service work performed on the distribution storage tanks shall be documented. This information shall be filed in the appropriate tank's maintenance file. A professional inspection shall be performed on each tank every five years.
- 8) Water samples shall be collected and analyzed for free chlorine residual on all regularly scheduled workdays. These samples shall be taken from various points in the distribution system within each zone, according to the Water Sampling Plan so that the entire distribution system is represented by each month's samples.

## **Line Repairs**

- 1) Newly constructed or repaired water mains in the distribution system shall be disinfected in accordance with the Standard Operating Procedure for Line Repair.
  - a) If a repair requires that the main be dewatered or depressurized, operators shall follow the SOP for line repairs.
- 2) A Leak Repair Log form shall be completed following each leak. The forms are in the utility office. Completed forms shall be filed in the "Leak Repair Log" folder.

## **Cross Connection Control**

No cross-connections can be allowed to exist within the distribution system.

1. All system personnel shall report any cross-connections found to the operator in direct charge or the supervisor of the distribution system.
2. Cross connection inspections will be performed by the operator in direct charge or his designee.
3. Inspections and testing shall be performed in accordance with the Town's Cross Connection Control Plan.

## **Customer Complaints**

1. All customer complaints shall be investigated as soon as possible.
  - a. If the customer complains of low pressure, take a pressure reading on the customer's plumbing. If the low pressure exists in the distribution system, refer to item 3 under routine operations.

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- b. In the complaint is taste and odor related follow these steps:
    - i. Test the chlorine residual at the customer's residence.
    - ii. If the chlorine level is below 0.2 mg/l, test the chlorine residual on the main line.
    - iii. Visually check the water for obvious problems.
    - iv. Smell to see if there is an obvious odor.
    - v. If the main line chlorine residual is low or if taste or odor problems exist, the main line shall be flushed in accordance with the Town's Flushing Program Plan.
    - vi. Collect a total coliform sample and take to Poplar Grove Utility District Lab for analysis. This sample shall be marked "distribution".
  - c. If the complaint is related to cloudy water, black specks in the water, white particles in the water, air in the line (this may cause cloudy water) or other issues dealing with the appearance of the water, follow these steps:
    - i. Visually inspect the customer's water by drawing a sample from a faucet inside the house. Placing the sample in a white foam cup may help in seeing the problem.
    - ii. If specks are found, inspect the material to determine if it is hard, soft, greasy, etc..
    - iii. If the water contains white specks or particles determine if the problem exists in faucets with hot water only.
      1. You can sometimes determine this by looking in the toilet tank since it contains only cold water.
      2. White specks or particles in hot water lines only often indicates a deteriorating "dip tube" in the water heater.
    - iv. Check the water before the customer's plumbing by pulling the meter or checking a nearby hydrant or blowoff.
    - v. If the problem is present in the main, the main line should be flushed in accordance with the Town's Flushing Program Plan.
    - vi. If you can not determine the source of the problem or if the problem is not covered in this SOP, contact the operator in direct charge so that he may determine the cause of the problem.
    - vii. If the complaint can not be resolved by flushing or the source of the problem can not be determined, the operator in direct charge should be contacted to determine if a bacteriological sample should be collected.
2. All customer complaints shall be logged on the customer complaint forms, which are located in the utility office. The following information should be completed on the customer complaint form:
- a. Customer Name
  - b. Customer Address
  - c. Nature of complaint
  - d. An explanation of the complaint
  - e. Type of action taken
  - f. Comments on the resolution of the complaint

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- g. Was the problem solved
  - h. Any further comments
  - i. The signature of the person handling the complaint
  - j. Date of resolution
3. A copy of the completed complaint form shall be given to the office staff and a copy shall be filed in the supervisor's office Customer Complaint Log.

**Water Analysis**

1. Free chlorine residual, using the DPD Method, is the only analysis to be performed by system personnel. .
2. Five samples shall be collected and taken to the Poplar Grove Utility District Lab for microbiological examination each month. Each sample shall be taken in accordance with the Town's bacteriological sampling plan. The procedures for sampling, given in the bacteriological sampling plan shall be followed.
3. All samples for lead and copper testing and disinfection byproducts testing will be collected by the supervisor or his designee.

**Reporting, Record Keeping and Public Notification**

The Operator in direct charge will be responsible for each of the following:

1. All reporting to the Division of Water Supply, including but not limited to the Monthly Operations Report and the Pumpage Report.
2. All record keeping will be performed by the supervisor.
3. All public notification. If the operator in direct charge is not present, he shall be contacted before any public notification is done.
4. The Operator in direct charge will update all plans including but not limited to the Emergency Operations Plan, Bacteriological Sampling Plan, Flushing Plan and Vulnerability Assessment.
5. All plans for new construction will be approved by the Operator in direct charge before being submitted to the state. The operator in direct charge will work with the district's engineers to ensure that the state is notified of the start date for new construction.

**Situations Not Covered**

At any time that a distribution worker does not completely understand these guidelines or any of the rules, which govern this system, he/she shall contact the operator in direct charge for clarification. Any operator, who feels that he/she cannot comply with the SOP shall contact the operator in direct charge.



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Remember, the health of our family and friends depend on a safe water supply. If any distribution worker sees work that is not being performed properly, he/she shall report this to the operator in direct charge of the distribution system.

# TOWN OF BRIGHTON

## Standard Operating Procedures: Line Repair

We recognize that chlorine is an effective disinfectant for only some of the contaminants that may enter a line during a leak. Chlorine is ineffective for chemicals, cryptosporidium many other bacteria as well as other possible contaminants.

Therefore the primary concern during repairs will be to maintain the integrity of the line. This will be accomplished by the following procedures.

1. Valve off the line downstream from the leak.
2. Reduce the flow upstream from the leak but allow enough flow to maintain a positive pressure at the leak site.
3. Cover shall be removed from the line at the leak and a hole approximately 18" lower than the line shall be dug. Excess water shall be pumped or dipped from the hole until all cover is removed 360 degrees from the pipe at the leak.
4. If the leak can be repaired with a full circle clamp, repairs will be made the line will be flushed and service restored. No further action will be taken.
5. If the line will have to be cut and a section replaced, the following actions will be taken.
6. Upstream valve will be closed and excess water will continue to be pumped from the leak site and all cover will be removed 360 degrees from the pipe at least 18" in both directions from the cut sites on the pipe.
7. The surrounding area will be checked for signs of broken sewer or septic lines and animal waste. If present, special care must be taken and the some of the 1% hypochlorite solution should be scattered around the work site.
8. Work can now proceed with the cutting of the pipe. Once the defective section is removed, both ends of the remaining pipe should be checked and any debris from pipe cuttings or other sources should be removed.
9. The new section of pipe and both ends of the remaining pipe should be swabbed with a bleach solution and repairs completed.

10. Upstream and downstream valves will be opened and the nearest flushing site downstream from the downstream valve will be opened. The line will be vigorously flushed at a velocity of at least 2 ft. per second. Example (if the flushing point is 3000 ft. from the leak site and the line is flushed at 2ft. /sec. then it will take 1500 sec. or 25 minutes before the first water from the leak site begins to appear.)
11. After the line is flushed a single bacti sample shall be obtained immediately. If the line is looped and the direction of flow cannot be determined, a bacti sample from both directions of the leak will be obtained. Samples shall be coded "D". Necessary arrangements will be made with a certified lab to run tests within the 30 hour time limit for late in the day, holiday and weekend samples. If the sample is negative no further action is required. If the sample is positive, then the original site will be resampled and 3 routine samples downstream from the leak area at customer homes will be obtained within 24 hours of notification of the positive sample. The original site sample will be coded "D" and the three additional samples will be coded "D", and be considered routine distribution samples for compliance purposes. If all 4 are negative no further action will be taken. If the sample from the original site is positive and the other 3 are negative, we will ask the state to invalidate the sample as site specific due to a contaminated tap and no further action will be taken. If any of the additional sample sites come back as positive, the state will be immediately notified and action will be taken as per their guidance. Also if the repeat sample is fecal coliform positive or E-coli positive or if the repeat sample is total coliform positive following an initial total coliform positive result, then a Tier-1 Boil Water Notice will be issued.
12. If it is suspected that the line may have had contaminants enter the line that can not be removed, 25mg/liter chlorine will be added to the line in addition to all of the above procedures. The 25mg. /liter dose will be calculated based on upstream closed valve to downstream closed valve distance per the attached leak repair log. This concentration should be held for 30 minutes before flushing.
13. Service line leaks on 2" or smaller service lines will not have any samples taken or additional disinfectant added. The leak will be clamped off to prevent any contaminant from entering the main line. The service line will be flushed and a chlorine residual will be taken the same as a new installation. Service line leaks on lines larger than 2" will follow main line leak procedures.

14.A "Leak Repair Log" will be kept on all leaks. A separate log will be kept for de-watered main leaks ("De-Watered Mains Log"). Any bacti sample results will be attached to a copy of the original work order filed by the office staff along with the "Field Data Sheet", which will be completed by the supervisor in charge of that particular repair job.