

City of Frostburg

Water Conservation Plan, Best Management Practices, and Water Audit

The City provides treated water to its 9000 Frostburg residents. The City also provides water to several satellite communities outside the City limits with a population of 3000 people. Allegany County owns, operates, and maintains these water distribution systems. Therefore, the total population served (City of Frostburg + Allegany County communities) is approximately 12,000 people.

The City of Frostburg employs water conservation as a standard practice within Frostburg's Water Distribution Department, Water Treatment and Supply, and also in the City Administration. The following is a list of specific water conservation practices employed in the City of Frostburg.

1. Water pressures and flow monitoring are performed on a daily bases. Evaluation and comparison of this data are continually performed by personnel at the Frostburg raw water pumping facilities and also at the Frostburg Water Treatment Plant. Loss in static pressure, a change in total head, and/or a change in flow would indicate a possible leak and loss of water.
2. The Frostburg Water Department personnel routinely walk the transmission lines for signs of leaks.
3. Storage tanks, both raw water and clear water, are regularly monitored and are tested for leaks. If a leak, crack, or deteriorated joint would be found, immediate repair would be planned and initiated.
4. A third party audit was performed on the Water Distribution System by the University of Maryland, Center for Environmental Finance, by Jean Halloway in 2003. Annually, thereafter the City Finance Department has conducted water audits in January for the prior calendar year.
5. The City conducts an annual water audit using the MDE guidelines. The latest (2015) water audit is attached.
6. The City of Frostburg Water Treatment Plant's personnel monitor transmission and distribution flows continually. Particularly, low "night-time" flows are closely watched. Increases in low flows are an indicator of leaks. If a leak in the Water Distribution System is suspected, the Distribution Department will search for it until it is found. Many valves have been installed in the system, allowing subdivision of the flows and aids in finding a leak. Also county master meter satellite communities are put on alert if a major leak occurs, so they may be on the look out also.
7. The Water Billing System is programmed to alert the Frostburg Billing Administration of unusual high meter readings. Immediately, the administration would alert the customers of a possible leak.
8. Water Conservation Billing rates are in effect in Frostburg, which encourages the customer to use less water.
9. The City of Frostburg has an aggressive line replacement program in effect both in the transmission and distribution parts of the Frostburg water system. Over the last

35 years, Frostburg has replaced over 75% of its distribution main lines and almost 100% of its raw water transmission mains. Each year, the Frostburg Water Department identifies the lines with the most problems (usually recent leaks and breaks) and prioritizes them, and then replaces them. Some of this work is done in house and some of this work is done contractually.

10. The City of Frostburg's Water Department samples any suspicious groundwater and analyzes it for chlorine, fluoride, nitrate, and bacteriological content. This analysis helps to determine whether or not it is natural groundwater, portable water leakage, or sanitary leakage.
11. The City of Frostburg's Police Department, Recreation Department, and Street Department are cross trained to be on the look out for possible water leakage throughout the City, particularly in any City street. They know to contact the Water Department right away if a possible leak is found.
12. The City annually contracts with a leak detection company to survey, monitor, and search for leaks throughout the Frostburg water transmission and distribution systems. Attached is Frostburg's latest leak detection report dated August 2016 from Water Loss Systems, Inc.
13. The City of Frostburg also has a written policy, ready to be implemented, during water emergencies such as droughts, major malfunctions, catastrophic, or other systematic problems warranting water conservation and/or a water rationing.
14. The City of Frostburg has metered all formerly unmetered public facilities such as the fire departments, police department, Parks and Recreation facilities, City Hall, community center, and the swimming pool. Fire hydrant flushing and any large fire hydrant use can be accurately estimated using the flow meter at the Frostburg Water Treatment Plant.
15. The City is testing and calibrating master meters on a routine basis. Satellite customers (at the master meters) are required to test and calibrate their meters at least once every two years or more often, if necessary. The City recently passed Resolution #2011-28. This requires the testing of all master meters within the City limits on a periodic basis.
16. The City, on a daily basis, monitors and records the formulated water low flow leaving the Frostburg Water Treatment Plant (WTP). Low flow in Frostburg's water system normally occurs between 2 a.m. and 4 a.m. An example of the strip chart for 1-17-2017 is attached. This information is presented by the WTP's superintendent to the Frostburg Water Department and also to the City Engineer. The City in cooperation with Allegany County is presently developing a historical record of sub-low flows for the master meters serving the satellite communities of the County.
17. The City, in June of 2008, conducted a "Water Supply Study Update" through the consulting services of Whitman, Requardt and Associates, LLP. A water demand forecast as well as a raw water safe yield analysis was developed as part of the study. Pertinent pages of this study are attached.

Updated Water Audit (Actual for Calendar Year 2015)

- The City of Frostburg has been aggressively metering all public water uses, which includes all public buildings and facilities, the community parks, and the community swimming pool.
- The City of Frostburg recently initiated a new project to comprehensively map the City's water system. The GIS project will map all transmission and distribution mains, valves, tees, fire hydrants, etc. in the system and be used to determine where critical repairs, upgrades and new valves are most needed. This project will be the first step in conserving water when inevitable water main breaks occur.
- The unaccountable water use in the Frostburg Water Distribution System (metered finished water produced at the Frostburg Water Treatment Plant less all metered and accounted for water consumed in the Water Distribution System) is 7.96 %.
- Calendar Year 2015 metered finished water leaving the
Water Treatment Plant 314,754,000 gallons
- Calendar Year 2015 sum of all metered and other accounted
for losses of water consumed in the Distribution System 289,715,000 gallons
- DIFFERENCE (LEAKS) (7.96%)** **25,039,000 gallons**