



OFFICE OF  
THE BOARD OF

# Water & Sewer Commissioners

3249 COUNTY STREET  
SOMERSET, MASSACHUSETTS 02726  
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August 8, 2023

## Water Turbidity and Discoloration

Periodically, Somerset Water Department receives complaints about water turbidity and discoloration (dirty water) from our customers in certain parts of town. Somerset Water Department would like to assure our customers that the quality of the water leaving our treatment facility, located at 3249 County Street, meets or exceeds all State and Federal regulatory agency water quality standards. Water quality is monitored in strict conformance to those standards to ensure that the water treated and supplied by our facility is always safe for consumption. **At no time does any unsafe and/or unclean water leave this facility.**

Turbidity/discoloration can occur when the clear, pristine water from the treatment facility enters our distribution system, of which, large sections are over 100 years old. Over time, the inside surface of these cast iron pipelines deteriorates (called tuberculation) and the water passing through picks up flaked off cast iron and other naturally occurring minerals in the water. As the pipe ages, the tuberculation worsens to the point that it will reduce the interior diameter of the pipelines. **Based on observations of our pipe interiors, the age of the pipelines in question, and the reports of turbidity/discoloration received, it is time for these 100-year-old pipelines to be rehabilitated or replaced.** The rehabilitation process involves in-place cleaning and lining with cement-mortar. Rehabilitation restores the pipelines to like-new flow capacity and eliminates the turbidity/discoloration problem where applied. Additionally, rehabilitation is a cost-effective alternative to pipe replacement, in some cases. There are several miles of pipeline in Somerset that consist of 2" galvanized steel. These aged pipelines must be replaced because they are rotted through and/or too small to meet proper water delivery standards. Additionally, there are miles of asbestos cement pipe that should be replaced due to constant breakage and inadequate size. Recently, the Board of Selectmen designated \$1,000,000 of ARPA funding to the Water Department to be used for replacement of water mains. This funding is a good start but much more will be needed to finish the job.

It should be noted that recent street repaving over some sections of our older pipelines, involving vibratory rolling, may have exacerbated the turbidity/discoloration problem. The vibration can cause the tuberculation to flake off and be carried away by the water flowing in the pipe.

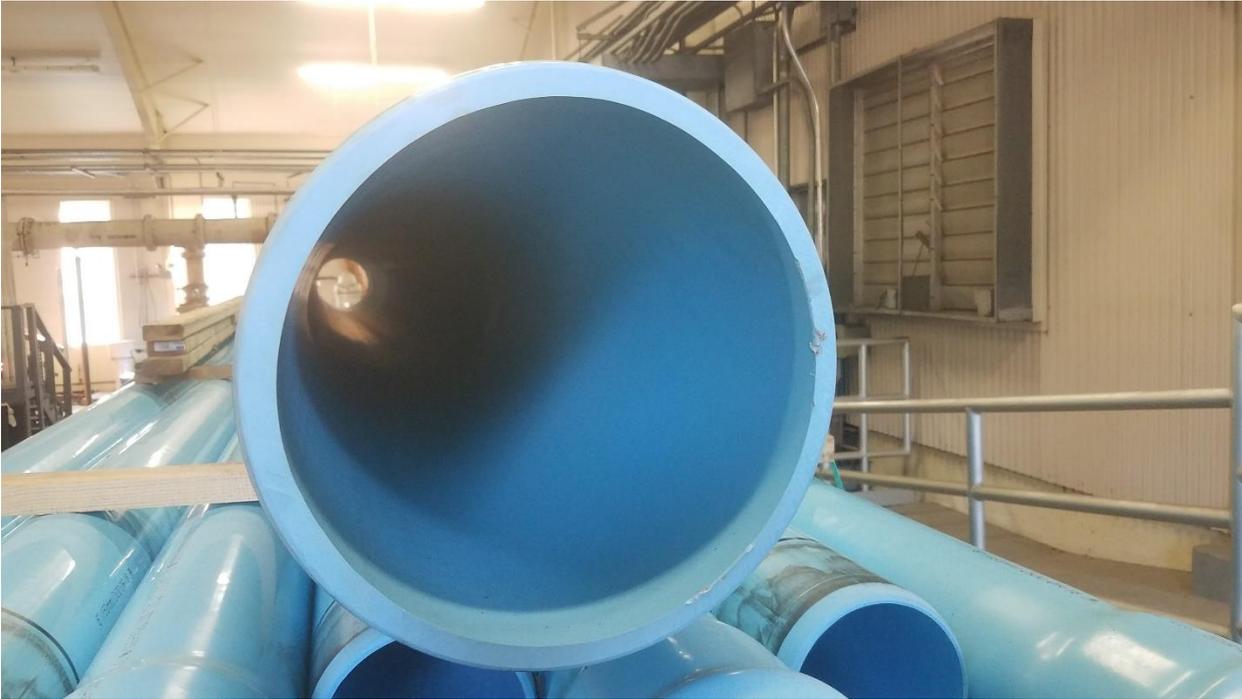
Somerset Water Department has implemented its annual water main flushing program. However, excessive flushing to reduce turbidity/discoloration presents its own set of problems, such as the need for increased chlorination. Somerset Water Department has embarked on a pipe rehabilitation program to address the water turbidity/discoloration problem related to our large bore water mains. If our customers have any questions, they should feel free to contact our office.

Paul A. Sylvia, P.E.  
*Superintendent of Water & Sewer*

100-Year-Old 12" Unlined Cast Iron Water Main with Tuberculation



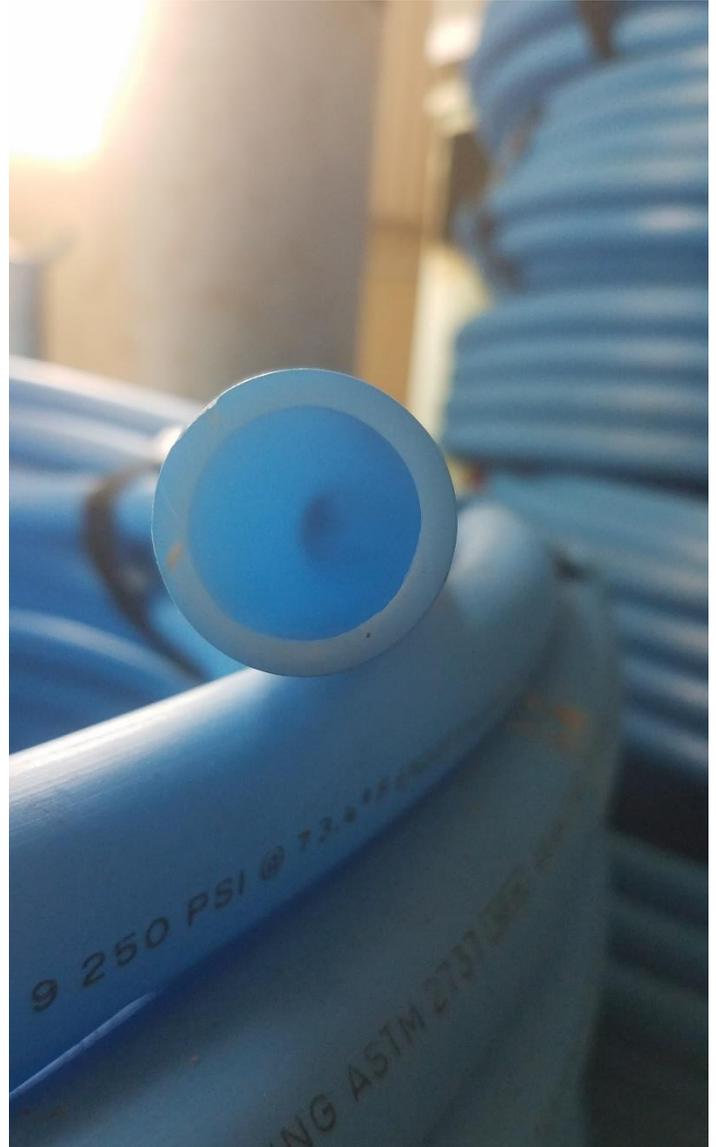
New 12" PVC Water Main



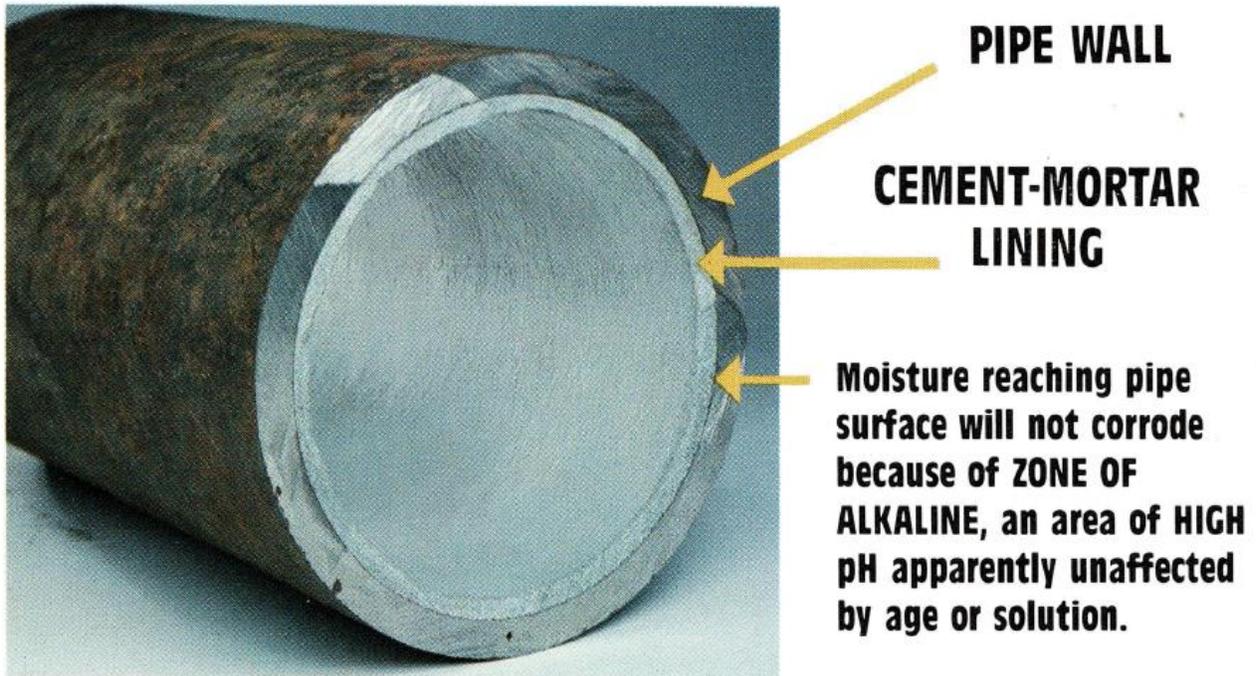
70-year old 1" Galvanized Steel Water Service Line



New 1" Polyethylene Water Service Line



## Cement-Mortar Lining of Existing Water Main



### INVENTORY BASED ON WATER MAIN INSTALLATION DATE

Year Built	Length (feet)	Length (miles)	Percent of Total
1927-1939	113,560	21.5	19.60
1940-1949	43,149	8.2	7.45
1950-1959	90,554	17.2	15.63
1960-1969	141,085	26.7	24.35
1970-1979	79,681	15.1	13.75
1980-1989	16,013	3.0	2.76
1990-1999	27,612	5.2	4.77
2000-2009	56,936	10.8	9.83
2010-2018	10,748	2.0	1.86
Total	579,338	109.7	100