

HISTORY VALIDATES AWWARF'S 1994 FINDINGS ON PVC PIPE PERFORMANCE: A LOOK BACK MORE THAN THIRTY YEARS LATER

In 1991 the AWWA Research Foundation (AWWARF) funded a research project on the performance of PVC municipal water pipe. Research was performed at Utah State University's (USU) Buried Structures Laboratory: Al Moser was the principal researcher, assisted by Kenneth Kellogg. The report was published in 1994 as AWWARF #90644 "[Evaluation of Polyvinyl Chloride \(PVC\) Pipe Performance](#)."

An article summarizing the study's assessment of PVC pipe was published in the Spring 1994 edition of PVC Pipe News entitled, "[Independent Study Sings the Praises of PVC Water Pipe](#)." More than 30 years have passed, so we thought it was time to revisit the report's conclusions to see if history has proven them to be valid:

PVC PIPE MAINTAINS STRENGTH OVER TIME

- "Material-related long-term problems occurring in PVC pipe are few and are decreasing with time. This finding is an indication that these problems are not a result of aging."

True:

- PVC is not subject to corrosion, so there is not a mechanism for material degradation over time.
- The allegation that PVC "[loses strength with time](#)" *has been thoroughly disproved*.
- 2012, 2018, and 2023 USU studies showed PVC to have the lowest break rate of the commonly used municipal pipe materials.

NO PROBLEM TAPPING PVC PIPE

- "Tapping problems associated with PVC pipe are decreasing with time as utilities gain more experience in tapping."

This was true 30+ years ago and is even more true today, primarily due to:

- Hardware: tapping machines, cutting tools, and tapping saddles and sleeves have seen major improvements since 1994.
- Procedures: tapping methods have also improved.
- Training: utilities and contractors have reduced tapping problems by training their personnel to use the correct hardware and procedures.

NOT VULNERABLE TO UV EXPOSURE OR CHEMICAL PERMEATION

- "Reported experiences with problems associated with exposure of PVC pipe to ultraviolet light or aggressive chemicals were low in number."

True again:

- UV exposure has been addressed most recently in "[UV Exposure Has No Practical Effects on PVC Pipe Performance](#)."
- Chemical permeation (including hydrocarbon-contaminated soil) through PVC pipe has proven to be a non-issue as well.

PVC PIPE'S WIDESPREAD USE NOT AN ACCIDENT

This research and other studies since 1994 have provided valuable information for PVC users and non-users alike. The take-away message is that PVC pipe's widespread use is not an accident — the pipe is a well-engineered product that continues to provide exceptional service for water transmission and distribution systems.

References: [Evaluation of Polyvinyl Chloride \(PVC\) Pipe Performance](#), 1994, AWWARF; [Water Main Break Rates in the USA and Canada: A Comprehensive Study](#), 2012, 2018, 2023 USU; [UV Exposure Has No Practical Effects on PVC Pipe Performance](#), PVCPA; [Impact of Hydrocarbons on PE/PVC Pipes and Pipe Gaskets](#), AWWARF; "[Independent Study Sings the Praises of PVC Water Pipe](#)," PVC Pipe News, Spring 1994