

## HISTORY VALIDATES AWWARF'S 1994 FINDINGS ON PVC PIPE PERFORMANCE: A LOOK BACK ALMOST 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." [Click here](#) to read. This year marks the 29th anniversary 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 and 2018 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 29 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." [Click here](#) to read.*
- *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 U.S. and Canada: A Comprehensive Study, 2012, 2018, USU; UV Exposure Has No Practical Effects On PVC Pipe Performance, Uni-Bell; 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*