

HISTORY VALIDATES AWWARF'S 1994 FINDINGS ON PVC PIPE PERFORMANCE: A LOOK BACK TWENTY 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." <u>Click here</u> to read. This year marks the 20th 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:
 - o PVC is not subject to corrosion, so there is not a mechanism for material degradation over time.
 - o The allegation that PVC "loses strength with time" has been thoroughly disproved.
 - o A 2012 USU study 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 20 years ago and is even more true today, primarily due to:*
 - o Hardware: tapping machines, cutting tools, and tapping saddles and sleeves have seen major improvements since 1994.
 - o Procedures: tapping methods have also improved.
 - o 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:

- o UV exposure has been addressed most recently in "UV Exposure Has No Practical Effects On PVC Pipe Performance." <u>Click here</u> to read.
- o 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 takeaway 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, 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

