NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Materials Laboratory Division
Washington, D.C. 20594

May 8, 2018

MATERIALS LABORATORY FACTUAL REPORT Report No. 18-006

A. ACCIDENT INFORMATION

Place	:	Millersville, Pennsylvania
Date	:	July 2, 2017
Vehicle	:	Natural gas mechanical tapping tee
NTSB No.	:	DCA17FP006
Investigator	:	Roger Evans (RPH)

B. COMPONENTS EXAMINED

Gas-pipe meter-riser and sewer pipe for the house involved in the accident (206 Springdale Lane).

C. DETAILS OF THE EXAMINATION

Figures 1 and 2 show photographs of the as-received gas meter riser assembly and sewer pipe, respectively. According to purchasing information from UGI, the assembly was described as a Perfection double-seal base-leg meter-riser ½" CTS (SDR 7.0) yellow pipe 23"x23", ¾" male threaded end. The gas meter-riser was pressure tested on-site by UGI and the test showed no evidence of a leak. Visual examination of the gas meter-riser assembly revealed no evidence of a crack. The sewer pipe segment submitted was saw-cut at one end and contained a fracture at the elbow portion. The outer face of the pipe contained information indicating that it was a 4-inch diameter pipe, SDR-35, that was made from "PVC" (polyvinyl chloride). The inside diameter of the sewer pipe measured approximately 3.95 inches and the wall thickness measured approximately 0.12 inch. The thickness of the elbow portion measured approximately 0.3 inch. The straight portion of the sewer pipe in the area next to the elbow exhibited deformation and the outer surface in the deformed area showed evidence of bubbles, brown and black scorch marks, consistent with exposure to heat from a fire (see figure 2 and 3). Figure 4 shows a photograph of the elbow fracture face. The fracture face of the elbow contained radial lines that radiated away from the outer face of the elbow in the area indicated by bracket "X" in figures 2 and 4. The fracture propagated to the outer curved portion of the sewer in the general direction indicated by arrows. The fracture features on the fracture face were consistent with overstress separation, with no evidence of a pre-existing crack.

Frank Zakar
Senior Metallurgist

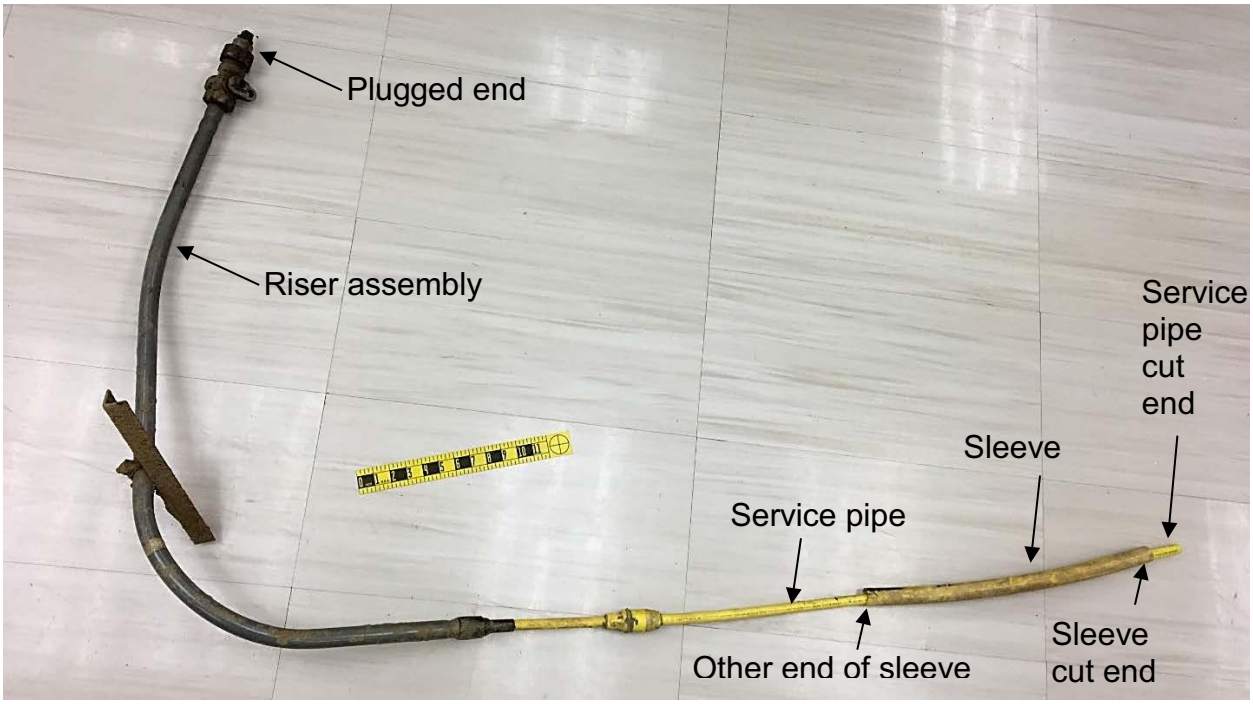

Figure 1. As-received meter riser assembly that was connected to the polyethylene service pipe.

Figure 2. As-received sewer pipe. The fracture in the elbow portion emanated from the outer face in the area indicated by bracket “X”. Figure 4 shows another view of the same fracture origin area indicated by bracket “X”.

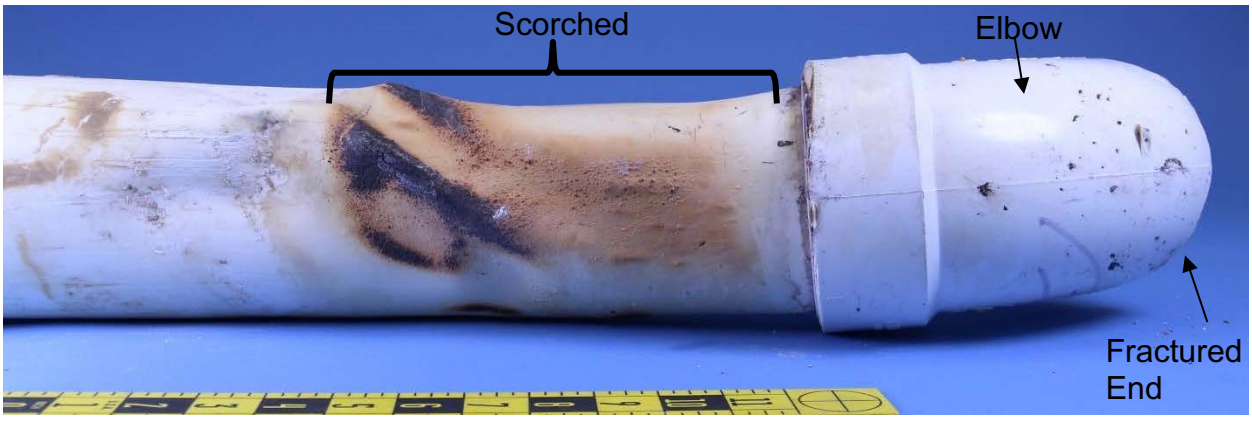

Figure 3. Photograph of a portion of the sewer pipe showing the scorched portion.

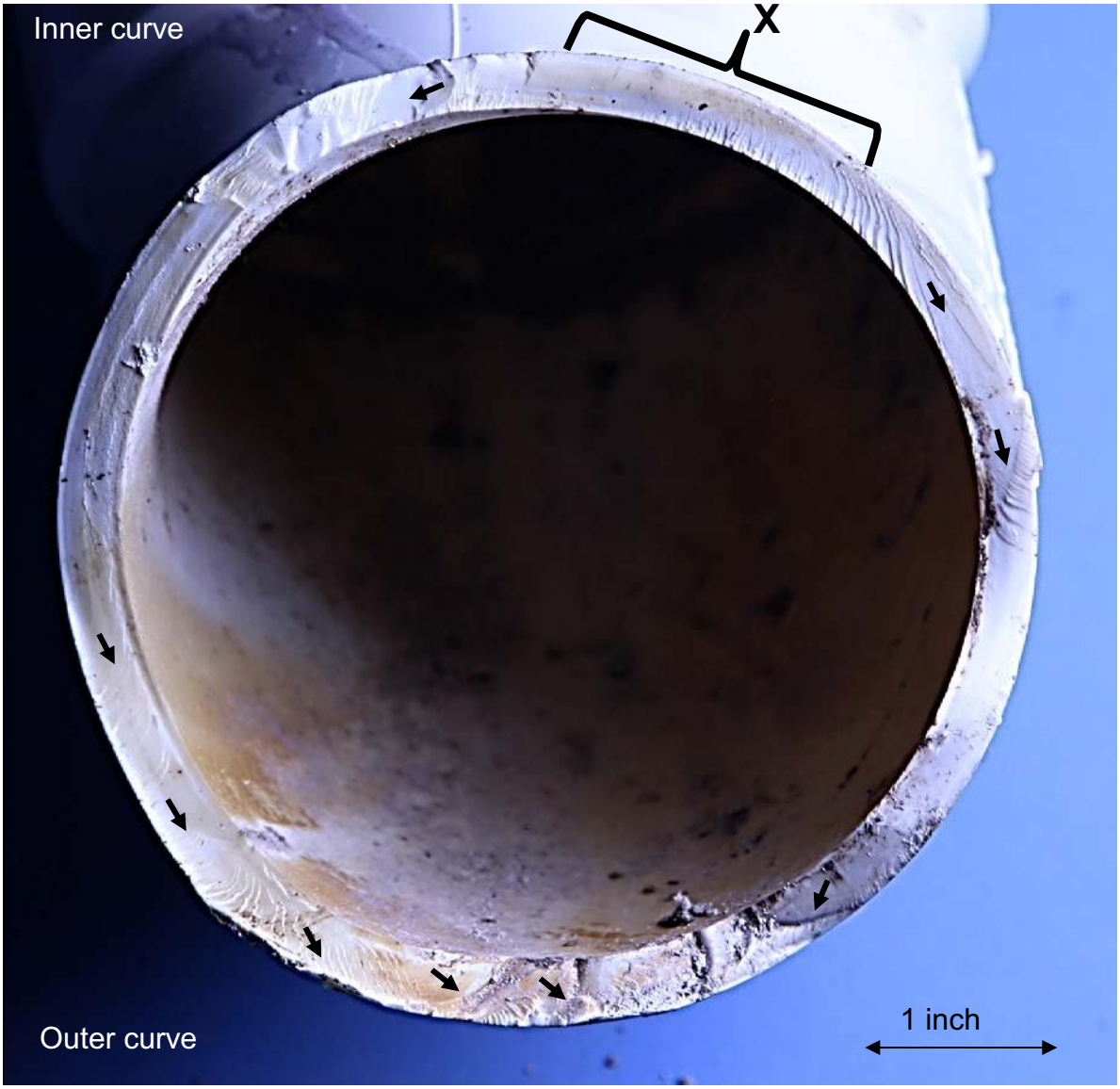

Figure 4. Photograph of the elbow facture face. The fracture emanated from the outer face in the area indicated by bracket “X”. Fracture propagation was in the general direction indicated by arrows.