Report for December 22, 2016

Sunnywood Ln. Water Main Break

Several weeks ago we detected a significant increase in demand or in our leaks. All water systems leak it's just a matter of percentages. Then overnight Wednesday the 14th the loss rate increased alarmingly and by Thursday evening we began having difficulty maintaining our tank at better than 9 feet with Wells #8 and 9 producing more than 80 GPM (gallons/minute). Well #8 is our largest well but of late its intermittent use had drawn in a significant level of silt which plugs our 10 micron bag filters – three large units in parallel – so I was in the water plant changing out the filters while taking 125 GPM from the City of Woodland Park to help get the tank back up above 10 feet when I got a call from 600 Sunnywood Ln. the leak had broken through to the surface opposite 680 Sunnywood Ln.

Water was flowing into and down the ditch toward 67 some 300 to 400 feet east of the break on this line that occurred back in January.

I had a look, phoned the District's excavator, Mark Lamb, and proceeded back to the water plant for the valve key and then to Hopi Tr. where the valve is located that shuts down all of Sunnywood plus one home at the end Hopi. Our excavator was unable to get equipment on site until Saturday morning and in any case, he is required to call for other utilities to locate their facilities to avoid digging up gas lines etc. As we live in Sunnywood at the northeast end of that system and at the highest elevation on Lovell Gulch my wife could read a water pressure gauge in our house while I tried to minimize the leak as far as possible without shutting off the water altogether. It is essential that a leak continue to flow water to prevent drawing in water, mud and gravel from the area surrounding the leak. As the leak at this point was on the order of 30 or more GPM we couldn't minimize the flow very much. At about 9 PM Friday night I made another attempt to adjust the flow to minimize the loss rate overnight with the pressure at our house of about 30 PSI.

The excavation began a bit after noon and proceeded quickly. In about an hour the leaking pike was exposed. The Sunnywood Ln, Loop and Lovell Gulch Road water mains are 4" ducal iron pipe installed about 1972. These are very high quality, exceedingly durable pipes with a rubber like lining and an exterior coating that is highly rust resistant. The wall of this pipe is about ½ inch thick! Unfortunately, this pipe was poorly "bedded" in 7' deep ditches throughout much of Sunnywood. Over time the poor installation work and the consolidation of the road bed by traffic has placed this pipe under enormous stress. So, just as we saw with the January break, this break was the result of a crack that very nearly broke the pipe apart. As water began seeping through the crack at something like 90 PSI it quickly scoured a significant hole.

Nearly 2' of pipe was cut out of the line including the break and a valve was inserted in that space to provide us with greater control of water flows in the future on Sunnywood Ln. As a matter of fact, we plan to install a "lateral" that is a 6" pipe to connect the Apache Tr. water main to the Sunnywood Ln. water main. This new valve and the valve we installed while repairing the January break will isolate the section of the water main where the lateral will enter the Sunnywood Ln. water main so that work will not require shutting down the whole of Sunnywood again. In the future, these valves will allow us to direct flows West on Sunnywood Ln. to Sunnywood Loop and on to Lovell Gulch Road or, East on Sunnywood Ln. to Sunnywood Loop and Lovell Gulch. So, the cost of these repairs has not been without its utility going forward.

I want to be clear about something *very* important. Throughout this event we were in constant communication with our Water System Operators. We are required to have a licensed "Operator" to manage our system. We contract with Treatment Technologies, a manager of over 90 water systems in Colorado to provide that service for us. Working in this way, the Operator could schedule his time to be here at the critical sanitary steps in this process thereby significantly minimizing our costs and the Operator's weekend time. As the Hope Tr. valve was slowly opened to restore the flow and pressure to Sunnywood the operator opened hydrants to flush the pipeline of sediments and to draw samples for testing. Incidentally, the valve, pipe and fittings were sanitized with Chlorine before they were installed.

The photo to the right was taken while we were flushing the Sunnywood Loop hydrant. Unfortunately we flooded the driveway of the home next to the hydrant in spite of our best efforts to deflect the flow into the ditch. We put a lot of ice melt on the drive the next morning having made an ice skating rink of the driveway.

During the flushing, we discovered that 2 of the 5 hydrants in Sunnywood have become inoperative. The one on Sunnywood Ln. had been leaking and was frozen and the other, on Lovell Gulch, could not be turned on. These require maintenance or replacement.

Chippewa Tr. Service Line Break

While this work was underway we received word of a second leak at 1401 Chippewa Tr. I raced there and found a very large flow of water in the ditch on the east side of the road. There were 3 eruptions in a row parallel with the road fully 4' feet apart in front of this home. The size and dispersion of the leak suggested another water main rather than a service line break. Mark Lamb joined me, we pondered the situation and

concluded there was very little we could do at that point, the Sunnywood break was an on-going priority and the homeowner's service line valve was 10 or more feet away toward the house and therefore of no consequence.

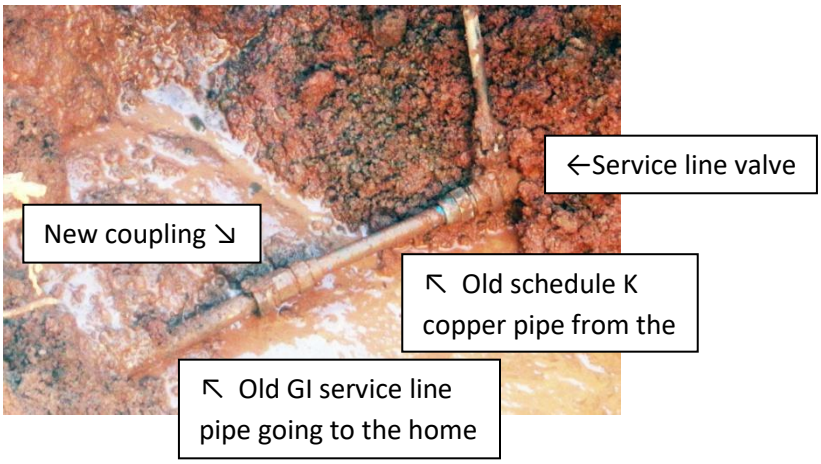
I took the opportunity to set temporary markers for both valves, see photos. I'll drive then in place in the spring. Filling the Sunnywood excavation with dry earth, hauling off the highly saturated dirt, virtually a slurry, compacting the fill and grading the road took until well after 7 PM so work on the Chippewa Tr. leak would have to be pushed off until Sunday. While this work was drawing to a close I worked to remove the valve caps on Chippewa to isolate that leak. They were frozen in place. Unfortunately, the valve above the leak in Chippewa near Kelly's Road was full of water and frozen to an uncertain depth so we could not easily isolate and slow down the leak over Saturday night.

Sunday morning I started in chipping the ice from the valve pipe with a crowbar. It took over an hour to break through the ice at a depth of over 2' so this valve above the leak could be closed. Incidentally, this is the only counterclockwise closing valve in our system as far as we know. With this valve closed and the one where the Navajo Tr. main enters Chippewa substantially closed the excavation could began Monday morning.

While the excavation was underway Monday morning a second service line valve was discovered buried in the roadside ditch! This maybe the only service line in our system with two valves. The valve was closed and the leak stopped. Now it was clear this was a service line rather than a water main issue.

Service Line Issues: In our system as well as that of Woodland Park and Colorado Springs, homeowners "own" their service lines from water mains to their homes. This "ownership" however is not without limits. Homeowners cannot operate their service line valves and they cannot replace, move or upgrade these lines without District approval and oversight. When leaks occur in or by the road before the homeowner's service line valve the District is obliged to take actions to stop the leak as soon as possible and we do. A road side leak can compromise a road and endanger traffic and road damage is considerably more costly to repair. If a service line leak occurs out in a yard and can be shut off by a service valve or if the leak is negligible the homeowner can be given a reasonable period of time to make repairs. This is a more-or-less standard practice of public water utilities. Some systems take ownership of the service line from the main to the edge of a property or to a property's "curb stop." Following an incident several years ago your board decided to take ownership of the bracket (called a "saddle") and ball valve (called a "corporation stop") that is attached to a water main and to which a service line is attached. If the saddle or corporation stop fails, the District will bear the cost to restore service without charge to the homeowner. Beyond this, boards have concluded it would constitute too great an increase in rates to assume responsibility for service lines from the main to a "curb stop" or to a property's edge. The service line, valve and break were excavated. The break occurred where the copper line from the water main joined a very old steel pipe with a brass coupling. The steel pipe had rusted away and dissolved as the result of bi-metal galvanic action. The photo shows all that remained of the steel pipe where it plugged into the brass coupling, just a finger of metal.

Anyone with a house built before about 1980 may have a steel service line. These lines are also referred to as “galvanized iron” or “GI” pipes. Galvanizing a steel pipe extends it useful life but these old service lines have outlived their utility. You may find a copper line enters you home in the crawl space or through the floor in a utility room. That does not signify that the line outside from the home to the property edge by the road isn’t a steel pipe. It was a common practice in the 50’s, 60’s and 70’s to use more durable copper pipes at both ends of the service lines where the lines go under a structure and under the road because replacing lines in these locations is far more costly. We urge owners of homes built before 1980 to determine if they have a steel service line and if so to get it replaced as soon as possible because, as in this case, the excavation and repairs we have just made will be charged to the homeowner. Moreover, the homeowner is also responsible for the water loss and will have to pay to re-excavate this site to replace the steel pipe greatly increasing their cost.



Service line insurance is available. AARP has begun offering this insurance. Two such companies are:

American Home Shield® - HomeWarranty.AHS.com
Sewer Line **Coverage - ChoiceHomeWarranty.com**

Kent Brady, District Project Manager