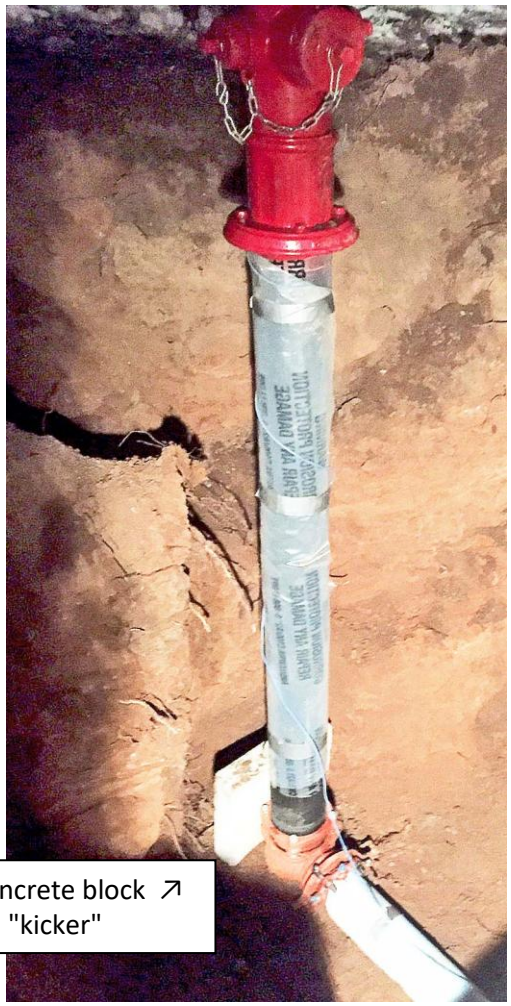
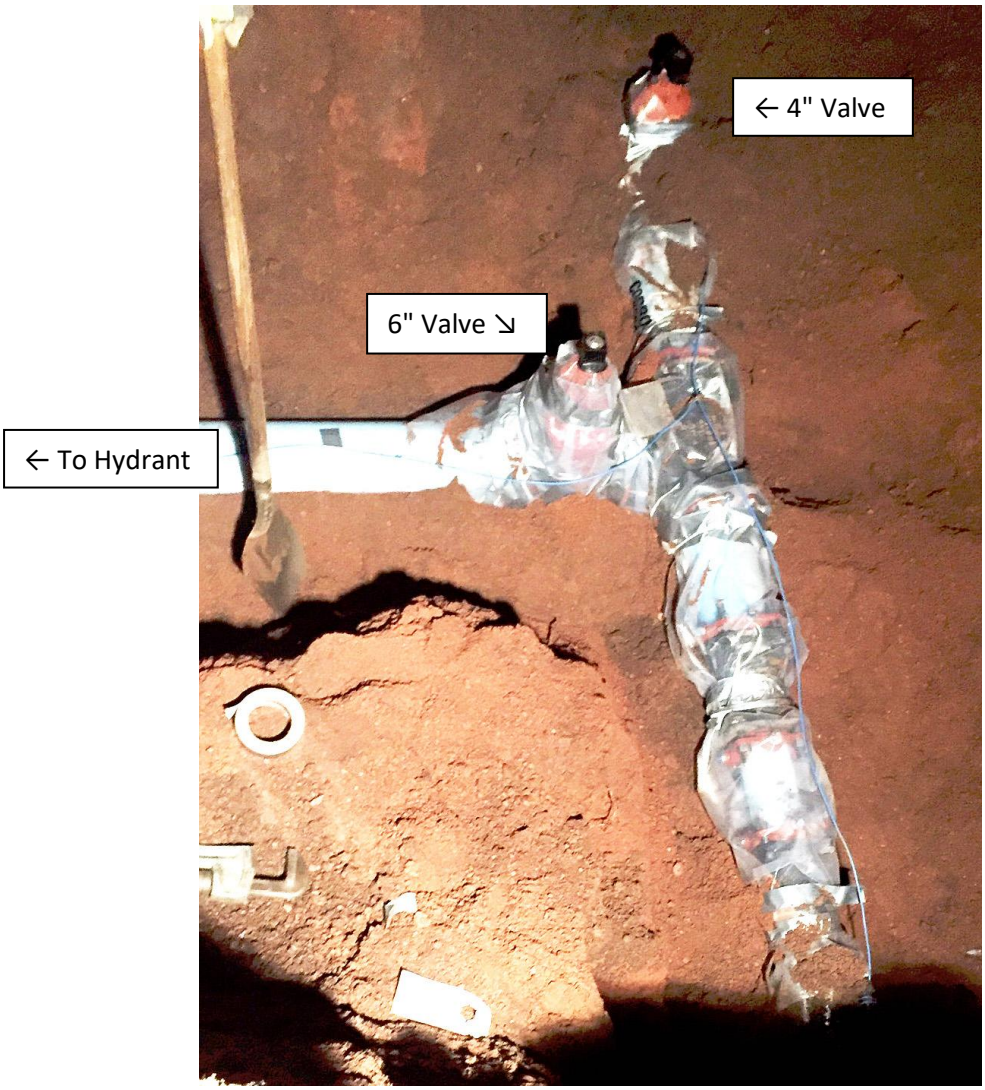
Report for April 2017

Travis phoned about 10 AM on the 5th, they were mobilizing to replace the defective hydrant on Lovell Gulch. We had every expectation that the job would put just 5 homes out of water having discovered the location of the valve that controlled flows from the northwest corner of Sunnywood Loop to the west end of Lovell Gulch. But, that valve could not be closed. So, they had to close the new valve at the west end of Sunnywood Ln. and our valve at the east end of Sunnywood. That took 18 homes out of water. That delayed the work at the outset. Then as the road cut was deep a traffic control subcontractor had to be employed and traffic further slowed the excavation which became larger than anticipated. We had expected to use a 2002 Mueller hydrant we had



in our yard but Travis had some doubts about its condition so we used a new hydrant in stock. In either case we wanted to replace the old 4" hydrant with one of these 6" hydrants. The new hydrant was connected to the old 4" Ductile Iron water main with a 6"x6"x6" Tee and then by reducers to the 4" main and with the addition of a 4" valve on the west side of the assembly. When the Apache Tr - Sunnywood Ln. Lateral is in place water will flow to this hydrant from both directions each supplied by 6" lines to significantly enhance our fire fighting capability for the 7 homes at the West end of the Gulch.

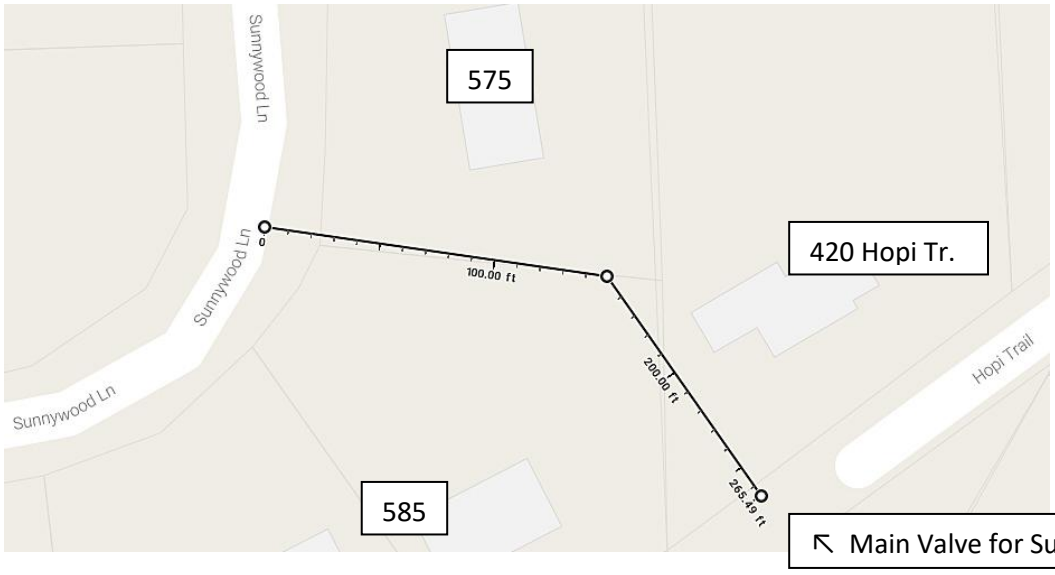


When the work was completed sufficiently to turn the water back on the valve at the East end of Sunnywood Loop could not be reopened. So, the other valve on Sunnywood Ln. is exclusively supplying Sunnywood Loop

and West Lovell Gulch Road. Now that we have equal pressure on both sides of the other gate valve we will attempt to reopen the valve, otherwise it will have to be replaced. The photo above shows the road cut.

The finished product:

Last year when attending to the first water main break on Sunnywood Ln. I had a conversation with a spectator who lives at 575 Sunnywood Ln. at the southeast corner of the road. He said the water main from Hopi Tr.



passed by the south side of his home. I search the location for valves at that time and there was an indication that was the case but the road was well frozen so I couldn't dig for the valve boxes. I did that on the 23rd. Bingo! we have valves and now we have a reasonable idea how the line from Hopi Tr. gets to Sunnywood - see map above and below. Our maps show the line on the west side of 585!

We will expose the valve pipes and see if they work. This is a very significant discovery as it will dramatically improve our control of flows to the neighborhood. Had we known about these valves we could have kept 80% of the neighborhood in water while excavating the recent breaks on Sunnywood Ln! The valves are located below.

Sometime back we experienced a spike in our EDB levels in Wells # 8 & 9. Of course there wasn't any way to know if we were see the up or down sides of a curve. That reality led to a study of pre-GAC treatment by "air stripping" that was reimbursed by the Forest Service. EDB can be gassed off out of water by bubbling air through the water. The process consists of flowing well production onto a bed in a container through which air is injected. The air absorbs EDB and is then vented into the atmosphere were dilution is the solution to this pollution. Air stripping is very effective for removing high concentrations of EDB but it is inefficient for removing low levels hence an air stripping system combined with a GAC filtration system has both significant safety and economic advantages. The engineering study estimated that the air stripping would pay for its self in 10 years by extending the life of the GAC while protecting against the possibility that a large spike in EDB levels could blow past the GAC filtration system to our customers. Given the Forest Service perception that they will be out of this picture as EDB levels have fallen below "regulatory action levels" this +/-$250,000 project has been shelved.

The GAC filtration system that CDPHE approved during 1997 included a plan for backwashing the GAC. Backwashing consists of disconnecting a GAC tank and sending filtered, Chlorinated water back and up through the tank. Until recently, the EDB and other contaminate enriched backwash could be discharged out onto the ground, but that is no longer allowed. If other disposal options are not available then the last resort is the sewer provided the sewer system owners/manager agrees. While this option is being perused it occurred to me that backwashing with air might be a beneficial option. One of the objectives of backwashing with water is to break up the GAC that has become compacted in the tank and as such no longer able to absorb EDB or other TOC's. Air in a pulse-collapse cycle could achieve the same result and have the advantage of gassing off some fraction of the EDB that has been absorbed. While I have found research papers on the subject of air backwashing and combined air and water backwashing I haven't found anything that directly addresses the efficacy of doing so for the removal of products such as EDB but the search is on and for those who might be able to give us guidance.

I hope Melanie can help us by introducing me to CSU's GAC system manager. Spring's Utilities is employing a large GAC filtration system for the Southern Deliver System. Moreover, we need their GAC supplier information to have then look at our GAC needs. If we can take advantage of that connection we might be able to decrease our costs for changing out our GAC.

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