



Date: 8/14/2020

To: Don Vaughan
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Subject: White Rock Pressure Reduction Valve Test

Four Pressure Reduction Valves (PRVs) were installed at the White Rock Water System in 1992 due to large elevation changes throughout the system; the system ranges in elevation from 615' to around 325'. Before PRVs were installed, the pressure at the low point (45 Rocky Point Dr.) was 171 psi with a pump house discharge pressure of 45 psi.

In 1992, the pressures were tested at 9 different houses to determine the effectiveness of each PRV. These locations were selected to provide a picture of the water pressure throughout the distribution system. These same houses were tested on June 18, 2020 to determine the condition of each PRV. Table 1 compares the pressure readings from 1992 and 2020. The table also provides the approximate elevation at each location. Figure 1 shows a layout of the distribution system and the location of each PRV.

Based on the results shown, it appears that neither of the two PRVs at the top of the system are working. The down stream sample locations are both 20 psi higher than the houses upstream of the PRVs in question; they are also over 25 psi higher when compared to the pressure recorded in 1992. That 25 psi difference is observed throughout the system downstream of the two PRVs when comparing the 1992 and 2020 pressure readings.

Given the low reading at 45 Rocky Point Dr (65 psi at the bottom of the system), additional pressure readings were collected on August 5, 2020. Pressures were recorded at an additional six locations and are included in both Table 1 and Figure 1. When collecting the reading at 44 Rocky River Point Drive, the home owner stated that he had a pressure regulator inside his home. The pressure regulator had gauges on either side, 120 psi coming from the distribution system and 70 after the regulator.

Based on this information, it is assumed that both 45 and 46 Rocky Point Drive also have pressure regulators inside their house. Unfortunately, neither homeowner was present to confirm.

In conclusion, the pressures in the system have increased by over 25 psi in some locations in the distribution system compared to when the PRVs were first installed. Based on the readings throughout the system, it is apparent the PRVs 1 and 2 have failed. The system now has several houses with pressures well over 100 psi. It is recommended that PRVs 1 and 2 be replaced and the other three monitored annually.



Table 1 – Pressure Variations Throughout the Distribution System

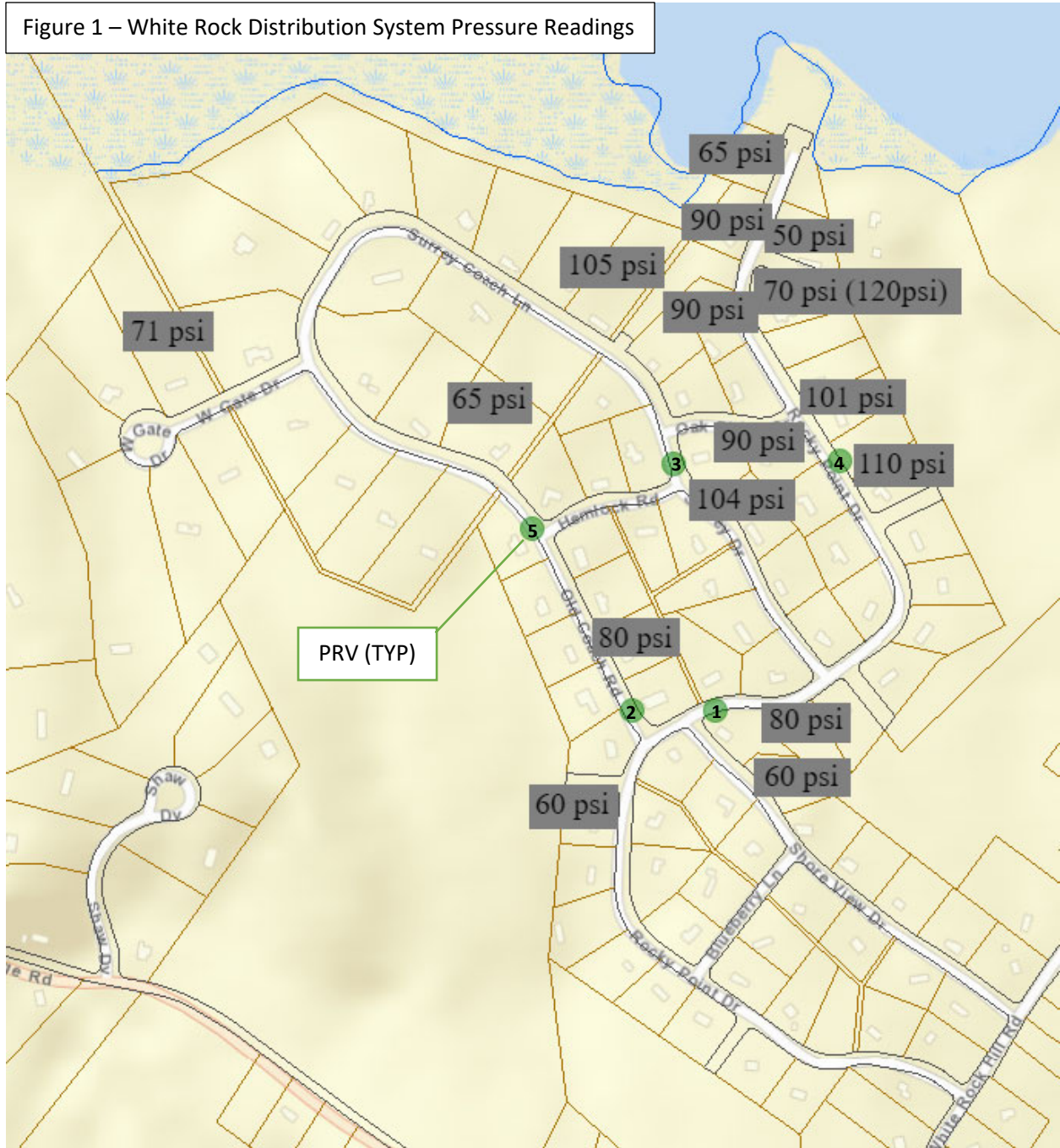
Address	Approx. Elevation	Location	1992 Data (psi)	2020 Data (psi)
12 Shore View Drive	540	Upstream PRV #1	60	60
22 Rocky Point Drive	510	Downstream PRV #1	54	80
34 Rocky Point Drive	430	Upstream PRV #4	86	110
38 Rocky Point Drive	405	Downstream PRV #4	80	101
45 Rocky Point Drive*	350	Bottom of System (Downstream PRVs 4/3)	66	65
6 Surrey Drive	440	Upstream PRV #3	74	104
23 Surrey Drive	370	Downstream PRV #3	84	105
7 Old Coach Road**	515	Downstream PRV #2 Upstream PRV #5	52	80
2 Surrey Coach Lane	440	Downstream PRV #5		65
4 West Gate Drive	420	Dead End Rd (Downstream PRVs 5/3)	78	71
17 Rocky Point Drive	525	Downstream PRV #4		60
39 Rocky Point Drive	370	Downstream PRV #4		90
43 Rocky Point Drive	340	Downstream PRV #4		90
44 Rocky Point Drive	350	Downstream PRV #4		70/120***
46 Rocky Point Drive	340	Downstream PRV #4		50
1 Oak Ridge Road	410	Upstream PRV #2		90

*Assumed house has Pressure Regulator Installed

**Water was turned off at 7 Old Coach Road; 6 Old Coach Road was used instead.

***House has pressure regulator after meter. 120 psi coming into house / 70 psi throughout the house.

Figure 1 – White Rock Distribution System Pressure Readings



PRV #1



PRV #2



PRV #3



PRV #4



PRV #5

