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Operations Engineering - System Planning and Analysis

QUESTAR Gas

Feeder Line 20 Replacement Size Analysis

	Initials	Date
System Analysis Performed by: Mike Platt	MP	7/11/12
Director of Operations Engineering: Brad Hasty	BH	7-11-12
General Manager of Engineering: Kim Blair	CKB	7/11/12

Feeder Line 20 Replacement Diameter Analysis

Analysis Performed by: Mike Platt

Scope

Feeder Line 20 (FL20) is 14-inch diameter high pressure (HP) pipe that has been scheduled for replacement in 2013. This analysis determines the appropriate replacement diameter. Figure 1 is a map of FL20 in relation to the surrounding HP gas system.

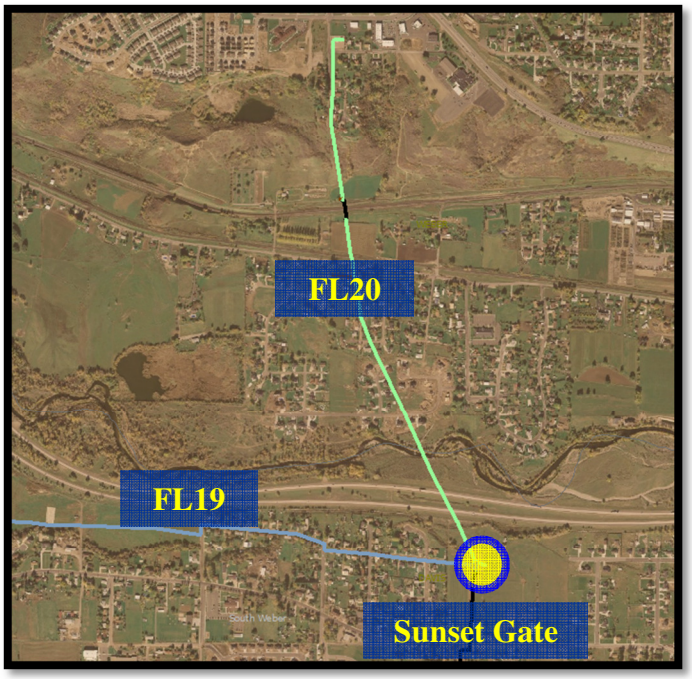

Figure 1: Feeder Line 20 Location

Analysis

The main function of FL20 is to feed the intermediate high pressure (IHP) system. FL20 currently feeds three regulator stations: WA0134, WA0755, and UH0002. The feeder line does not connect to any other pipe(s) downstream. There are no HP industrial customers that are fed from FL20.

The 2020 Master Planning Model was used to determine the results of replacing FL20 with 8-inch, 12-inch, and 16-inch pipe. The 8-inch pipe has significantly (30 psig) lower pressures than 12-inch or 16-inch. The 12-inch expected pressures (196 psig) are only 3 psig less than the 16-inch results. The 2011 peak model was analyzed with the same diameters and produced results of similar relative pressures with higher average pressures.

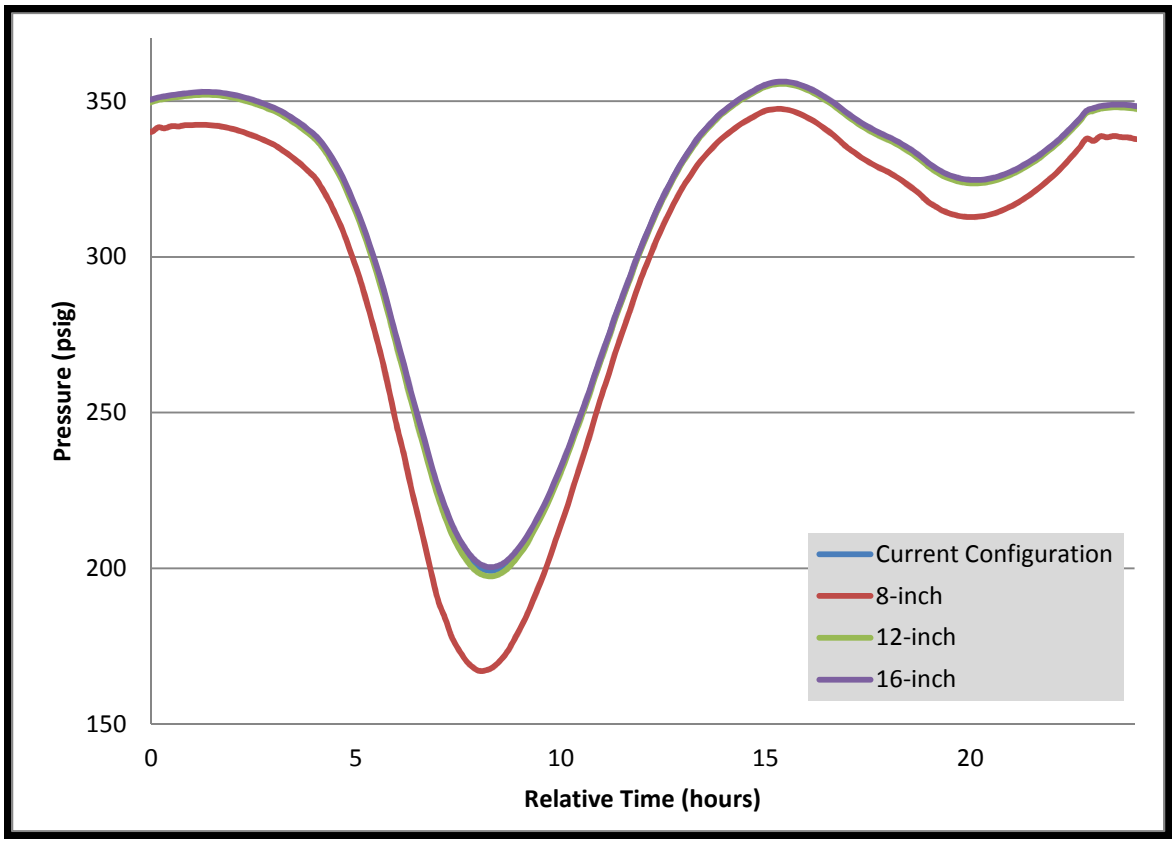

Figure 2: 2020 Master Planning Model (Peak Day) Results

Conclusions

A 12-inch replacement is appropriate for this line. The expected 2020 pressures benefit the most from a 12-inch diameter pipe.