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Operations Engineering - System Planning and Analysis

QUESTAR Gas

Feeder Line 8 Replacement Size Analysis

	Initials	Date
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FL8 Replacement Size Analysis

System Analysis Performed by: Mike Platt

Scope

Feeder Line 8 (FL8) is scheduled for replacement and will have segments replaced as needed. This analysis determines the appropriate diameter for the replacement. Figure 1 is a map of FL8 in relation to the surrounding high pressure (HP) system.

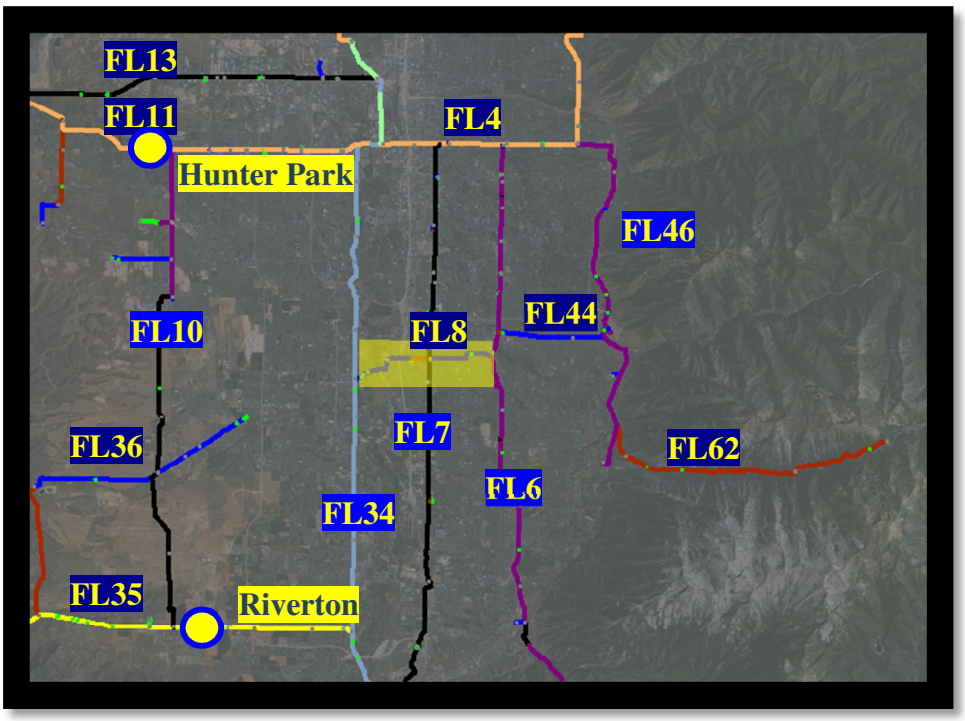

Figure 1: Feeder Line 8

Analysis

FL8 exists for two main purposes: to provide feed to the intermediate high pressure (IHP) system through regulator stations and to be an east-west link on the high pressure (HP) system in the Salt Lake valley. Figure 2 shows the expected 2020 pressures at the Town of Alta given different replacement diameters of FL8. The results show that the feeder line is not a major trunk line with the largest difference in minimum pressure approximately 10 psig between 6-inch and 8-inch replacements.

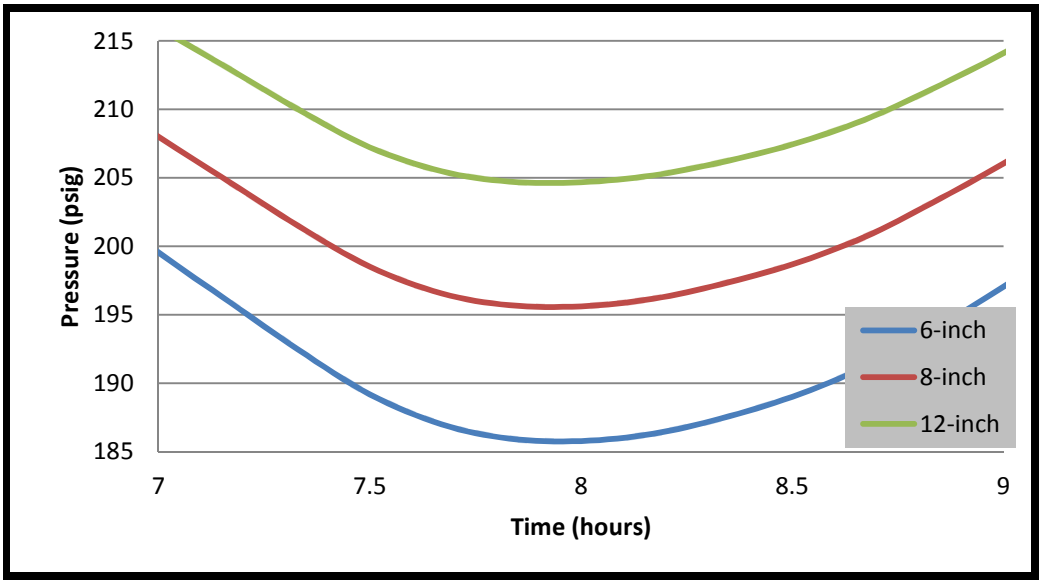

Figure 2: 2020 Minimum Daily Pressures at the Town of Alta

Reliability

Another consideration in any sizing analysis is the ability for the feeder line system to provide sufficient redundancy to the connected customers. The following analysis regards the expected 2020 system without the operation of Feeder Line 4 (FL4) between Feeder Line 6 (FL6) and Feeder Line 7 (FL7). The reliability results in Figure 3 show that a 12-inch replacement provides the best pressure in Alta.

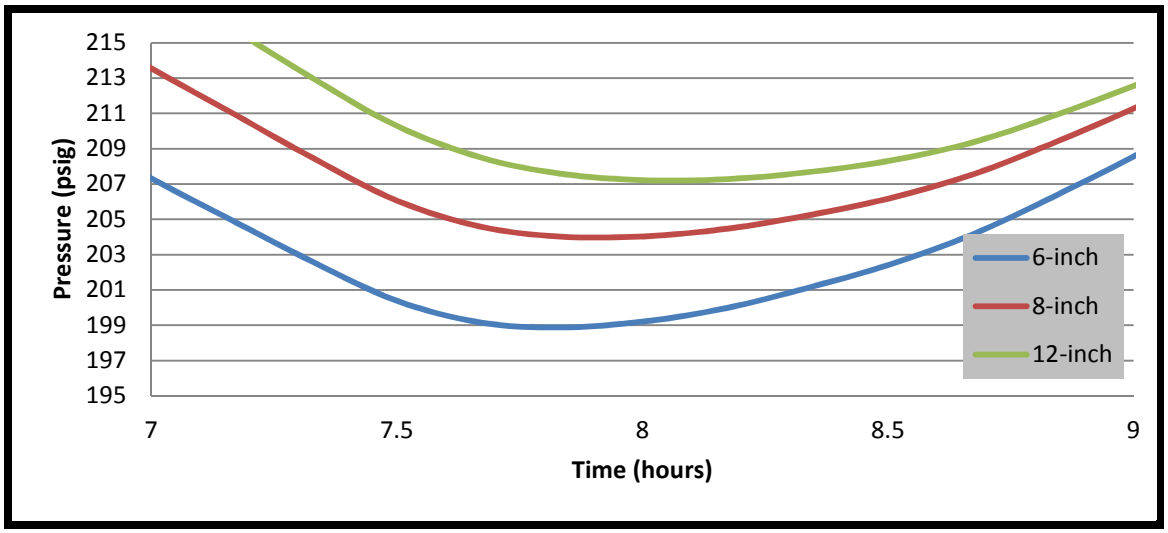

Figure 3: 2020 Pressures at the Town of Alta – FL4 Out of Service

Conclusion

The appropriate replacement diameter is 12-inch. A 12-inch replacement will provide higher average pressures to the surrounding HP system and system reliability.