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**TO:** Team E  
**FROM:** Engineering management  
**SUBJECT:** Evaluation of Friction Losses in Pipes

The pipes in our liquid test loop have been in service for more than 10 years, and they might be fouled. Please check this by measuring frictional losses for water flow.

Specifically, for each of the four pipes, measure the Fanning friction factor at maximum flow, and at 85%, 65%, and 45% of maximum. Report the mean friction factor and its uncertainty at each condition.

Based on this evidence, which – if any – pipes seem to be fouled?

Also, we've had reports of anomalous data from this equipment. If you have trouble with it, what changes would you recommend?