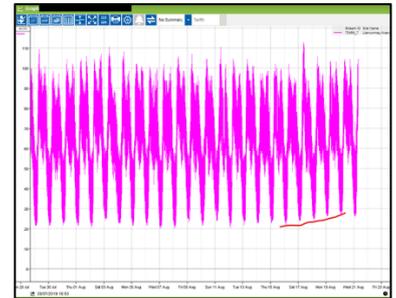




## DMA Transient Simulator to Detect and Reduce Leaks

System : DMA serving  $\approx$  2,000 properties  
 Location : United Kingdom  
 Scope : Develop offline hydraulic simulator  
 Aim : Reduce pressure transients & leaks  
 Date : 2019  
 Pipe Material : Mixed CI, DI, PE, AC and uPVC

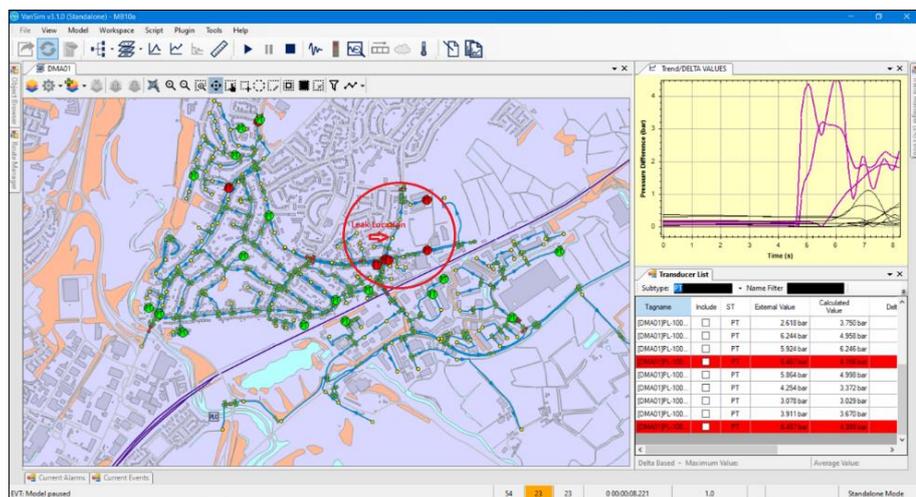


### Scope of Work

Real-time pipeline simulators can be used on DMA's to reduce / eliminate pressure transients and identify areas of leakage as new leaks develop. The pipeline simulator is typically driven by standard GPRS pressure loggers for optimisation, reducing pressure transients, reducing leaks and also leak detection. The simulator uses a transient engine and can show the source and cause of pressure transients, how transient pressure waves reflect through the system and how to eliminate / reduce pressure transients.

Analysis of the DMA simulator within the first 2 weeks of operation identified a number of key issues associated with the operation of an industrial user, particularly around pressure surges (transients) which are almost certainly causing bursts within the DMA. The control valve used to supply the industrial user was subsequently replaced which led to a significant reduction in the pressure transients.

The simulator is an effective tool to identify and locate areas of new leakage by analysing the pressure transducer deltas (differences between measured and calculated value). The simulator has the ability to model any size of DMA that is usually derived from GIS data and can accommodate common or mixed pipe materials. We provide an asset health report showing the source and cause of transients plus recommendations to eliminate / reduce transients to reduce leakage, not just identify new leaks. We use highly advanced analytics and prediction technologies to improve decision making and we are used to dealing with data calibration issues and errors in GIS data.



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