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An Asset Management Strategy for Large Diameter Water Mains

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ABSTRACT: Over the past decade, water pipeline operators have seen new inspection technologies and failure analysis techniques that enable them to determine the condition of their pipeline assets, the pipeline deterioration rate and probability of failure. By combining regular inspections, forensic and failure risk analysis on a pipeline an operator develops an understanding of past events, current events, and what events are likely to happen in the future.

A comprehensive inspection and assessment program generates and depends on a large quantity of data from diverse data sets. This data is most effective when it is detailed, accurate, current and available to personnel organization wide. This information is best stored in a relational database structured to maintain detailed inspection, design, location, priority and rehabilitation data for each pipe segment from bell to spigot and linked to a Geographic Information System (GIS). In this manner, pipeline operators can effectively manage and use this information to make the best-informed decisions regarding capital planning and the sustainable operation of their pipeline infrastructure.

Using case studies, the paper details how, by using a regular inspection program in combination with failure risk analysis and data storage and retrieval from a GIS database, a pipeline operator can develop a rehabilitation plan that is cost effective and minimizes services disruptions.