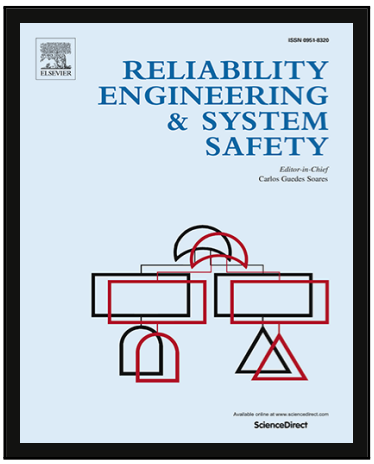

Optimal Pipe Inspection Paths Considering Inspection Tool Limitations

Thomas Ying-Jeh Chen , Seth David Guikema , Craig Michael Daly

PII: S0951-8320(17)31447-3
DOI: https://doi.org/10.1016/j.ress.2018.09.019
Reference: RESS 6270

To appear in: *Reliability Engineering and System Safety*

Please cite this article as: Thomas Ying-Jeh Chen , Seth David Guikema , Craig Michael Daly , Optimal Pipe Inspection Paths Considering Inspection Tool Limitations, *Reliability Engineering and System Safety* (2018), doi: https://doi.org/10.1016/j.ress.2018.09.019

Highlights

- Operational and budget limitations must be considered when planning for robotic in-pipe
- inspections.
- A general optimization formulation is presented for this problem, and three heuristics are
- tested.
- In smaller networks, the selected path is less sensitive to the choice of solution method.
- In larger and more realistic distribution systems, the Evolutionary Program performs best.
- The optimization framework presented can be extended to model technology specific
- considerations.