

## Pressure Surge Analysis for Al Gardabiya Pump Station Phase III of the Man-Made River Project

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**Abstract :** This paper presents a review of the pressure surge simulations carried out for Phase III of the Man Made River project in Libya with particular emphasis on the transient generated by simultaneous pump trips at Al Gardabiya Pump Station. The omission of the surge vessel check valve and bypass system on the grounds of cost, ease of design, and construction will result in, as expected, increased surge fluctuations as the damping effect in the form was removed. From the hydraulic and control requirements, it is recommended for Al Gardabiya Pump station that the check valve and check valve bypass be included in the final surge vessel design.

**Keywords :** computational fluid dynamics, surge vessel design, transient surge analysis, water pipe hydraulics

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