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Study of the Effect of Soil Compaction and Height on Pipe Ovality for Buried Steel Pipe

Authors : Ali Ghodsbin Jahromi, Ehsan Moradi

Abstract : In this paper, the numerical study of buried steel pipe in soil is investigated. Buried pipeline under soil weight, after embankment on the pipe leads to ovality of pipe. In this paper also it is considered the percentage of soil compaction, the soil height on the steel pipe and the external load of a mechanical excavator on the steel pipe and finally, the effect of these on the rate of pipe ovality investigated. Furthermore, the effect of the pipes’ thickness on ovality has been investigated. The results show that increasing the percentage of soil compaction has more effect on reducing percentage of ovality, and if the percentage of soil compaction increases, we can use the pipe with less thickness. Finally, ovality rate of the pipe and acceptance criteria of pipe diameter up to yield stress is investigated.

Keywords : pipe ovality, soil compaction, finite element, pipe thickness
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