Minimized Leak Casing for Shale Gas Exploitation

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Abstract- **The goal of present study is to determine most impermeable structure against shale gas leaks around extraction wells. This rests upon double tubing and the possibility to guarantee the distance in between the two tubes all along their path underground for injecting a protecting sealing cement in the interval domain between the two tubes. Proposed insertion strategy consisting in mounting a four rolling balls ring at the head of each inner tube segment has been discussed. During insertion the balls are rolling (and sliding) on inner surface of outer tube. Most favorable conditions for simultaneous longer rolling contact and buckling and deformation avoidance during inner tube insertion have been set up to establish the proof of principle of present strategy. They are explicitly fixing the acceptable window value of pushing insertion force and the minimum value of inner tube thickness so that the operation can be safely conducted in terms of all other system parameters. Global casing optimization by studying different materials, junction types and full system architecture will be discussed elsewhere.**

Keywords: **Shale Gas Exploitation, Double Tubing, Rolling Inner Tube Insertion, Gas Leaks**

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