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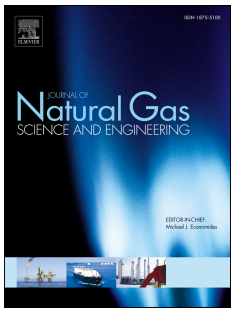

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PII: S1875-5100(18)30124-0

DOI: 10.1016/j.jngse.2018.03.009

Reference: JNGSE 2500

To appear in: *Journal of Natural Gas Science and Engineering*

Received Date: 10 October 2017

Revised Date: 26 January 2018

Accepted Date: 13 March 2018

Please cite this article as: Wang, Y., Sun, S., Gong, L., Yu, B., Global mass conservation method for dual-continuum gas reservoir simulation, *Journal of Natural Gas Science & Engineering* (2018), doi: 10.1016/j.jngse.2018.03.009.

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Global Mass Conservation Method for Dual-Continuum Gas Reservoir Simulation

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Abstract

In this paper, we find that the numerical simulation of gas flow in dual-continuum porous media may generate unphysical or non-robust results using regular finite difference method. The reason is the unphysical mass loss caused by the gas compressibility and the non-diagonal dominance of the discretized equations caused by the non-linear well term. The well term contains the product of density and pressure. For oil flow, density is independent of pressure so that the well term is linear.

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