

## On Geomechanical Effects on Production Enhancement in Steam-Assisted Gravity-Drainage Process. Part II: Cam-Clay Model

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### **Abstract**

In Part 1 of this study (SPE-189976-PA), the geomechanical effects in the reservoir associated with SAGD steam chamber growth is evaluated assuming two main assumptions: reservoir yields following the Mohr-Coulomb (MC) dilative behavior, and the reservoir responses under drained states. This study will focus on identification of main findings from an extensive monitoring program conducted on the original Steam Assisted Gravity Drainage (SAGD) pilot project conducted at the Underground Test Facility (UTF) in the late 1980s, and compare the measured displacements with Cam-Clay (CC) model and vs. MC dilative model. CC model provides the better behavior especially capturing the displacements rebounds during and post-steam cuts. In SAGD operation since the boiler turnarounds are common, considering such model can help better prediction capability. Furthermore, issues related to these geomechanical effects on thermal production have been analyzed and reservoir deliverability will be compared to fully dilative model (i.e., MC). While the discussion on the geomechanical effects in thermal recovery processes will no doubt continue, this study will provide field-supported results to illustrate both beneficial and potentially challenging impacts which these geomechanical effects can have in a thermal recovery project.

