

عنوان مقاله:

The effect of drilling mud flow on the lateral and axial vibrations of drill string

محل انتشار:

چهاردهمین همایش بین المللی نفت، گاز و پتروشیمی (سال: 1389)

تعداد صفحات اصل مقاله: 14

نویسندگان:

mohammad faraji mahyari - department of mechanical eng

mohammadtaghi ahmadian - department of mechanical eng

ali asghar jafari - department of mechanical eng

خلاصه مقاله:

In this reserch, the effects of drilling mud flow and WOB force on the lateral vibration of drill string are investigated . To this goal , the kinetic and potential energy of drill string for axial and lateral vibrations are written in an integral equation. in potential energy equation , the effect of geometrical shortening , which causes nonlinear coupling between axial and lateral vibration , is considered. drilling mud forces are modeled by paidoussis formulations. the works done by WOB force weight of drill string and drilling mud forces are calculated. the mode summation method is employed to convert the continuous system to a discrete one. dropping and considering third and fourth order tensor of potential energy lead to linear and nonlinear system, respectively . the effects of stabilizers are modeled by a linear stiff spring. the wall contact is modeled by hetzian contact force . lagrange equation is employed for finding the equations of motions. first and second natural frequencies of drill string are found for different WOB and drilling mud .flow

کلمات کلیدی:

.drill string vibration , drilling mud, WOB , buckling , stability

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/103234>

