

عنوان مقاله:

Modeling and simulation of hydrate thermal dissociation around the buried pipe at the ocean floor

محل انتشار:

دومین کنفرانس بین المللی نفت، گاز و پتروشیمی (سال: 1393)

تعداد صفحات اصل مقاله: 10

نویسندگان:

,m omidi - M. Sc. Student, Ferdowsi University of Mashhad

,a Garmroodi Asil, - Ph. D. Student, Ferdowsi University of Mashhad

a Shamsavand - Associate Professor, Chemical Engineering Department, Engineering Faculty, Ferdowsi University of Mashhad

خلاصه مقاله:

Modeling of thermal hydrate dissociation around buried pipe exploited for gas extraction has been investigated. Dependency of temperature profile inside the buried pipe as function of time and radius direction (horizontal) was considered in many studies. In the present study, the effect of vertical direction on the thermal hydrate dissociation front and also pipe and porous media temperature profiles are studied. The energy conservation models have been numerically solved by finite element using COMSOL Multiphysics software during elapsing different intervals after beginning gas extraction from reservoir. The simulation results showed that the temperature profile inside buried pipe has been approached to steady state condition and reached to final value of 400 K after elapsing two month. Furthermore, at the similar time, the hydrate dissociation front which showed canonical shape, grows up to 2.1 meter far from pipe wall and consequently all the available hydrates in this area were dissociated. Also our simulation showed that the vertical direction has a significant effect on a temperature profile specially inside buried pipe

کلمات کلیدی:

Hydrate, Methane, Dissociation, Modelling, Simulation, COMSOL

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/393975>

