

## عنوان مقاله:

Evaluation of the Response of Buried Steel Pipelines Subjected to the Strike-slip Fault Displacement

## محل انتشار:

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## خلاصه مقاله:

In this paper, the response of buried steel pipeline subjected to the strike-slip fault displacement is studied. This study aimed to identify the seismic fault under the pipe at the intersection of large displacement (up to 3 meter fault displacement) and identify failure modes in the pipe. Innovation studies the effect of thickness ratio of the diameter of the pipe failure modes of the fault displacement. The nonlinear finite element method analysis was conducted. By using ABAQUS software, nonlinear finite element analysis was carried out on the pipeline under fault displacement. Numerical modelling aimed at obtaining the amount of displacement corresponding to the nonlinear behaviour in the pipeline, as well as identifying failure modes pipes in displacement from 0.2 to 3 meter in diameter to thickness ratio, taking into account the impact of the pipeline. The results showed the nonlinear behaviour of the displacement 57.5 cm pipeline damage starts and the displacement of 1 meter buckling occurs in pipes. The displacement of 1 meter fault, failure mode is local buckling pipe, and displacement and deformation of the pipe is 1 meter looks like the letter S. The displacement of 1.5 meter high (3 meter) failure mode tube is wrinkling. And deformation of the pipe in the fault displacement of 1.5 meter, like the letter Z. With the increase in displacement from 1.5 meter to high wrinkling occurs in pipes and up to 3 meter displacement continues. Plastic strain in the fault displacement of 80 cm in diameter to thickness ratio of 112 and 96 occurs, Plastic strain ratio of diameter to thickness of 86 does not occur. Reduction in the diameter of the thickness has a positive impact on reducing plastic strain in the pipe.

## کلمات کلیدی:

Buried Pipelines; Strike Slip Fault; Buckling; Fault Displacement

## لینک ثابت مقاله در پایگاه سیویلیکا:

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