

**Wang, Y.-Y., Liu, M., Dekhane, A.,** Horsley, D., and Sen, M., Integrity Management of Pipelines Subjected to Ground Movement Hazards, 20th Joint Technical Meeting on Pipeline Research, Paper 17, 3-8 May, 2015, Paris, France.

### **Abstract**

Ground movements, such as landslides and subsidence/settlement, can pose serious threats to the integrity of pipelines that traverse regions susceptible to such hazards. The consequence of a ground movement event can vary from exposed pipes, to the formation of wrinkles/buckles without breaching the pressure boundary, to leaks at wrinkles/buckles, and to failures at girth welds. In this paper, a few key elements related to the integrity management of pipelines subjected to such hazards are examined. The possible failure modes are reviewed. The concept of strain-based assessment is introduced, along with key elements needed for such assessment. Methods to obtain key assessment parameters, such as strain demand, strain capacity, and safety factors are discussed. Necessary considerations in selecting mitigation and monitoring options are given at the end of the paper.

### **Keywords**

Ground movement hazards, Strain-based assessment, Fitness-for-service assessment, In-service pipelines