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**Simulation model for ground freezing process: Application to Shell's freeze wall containment system**

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This paper describes the development of a reservoir simulation thermal model for ground freezing with specific application to Shell's on-going Freeze Wall Test. It highlights key numerical modeling challenges. The developed model has been successfully calibrated with various types of field data and has been used for forecasting and making operational decisions. Modeling results of thermal simulations will be presented along with a Freeze Wall Test status update.

Geomechanics monitoring and modeling activities to enhance our understanding of the mechanical integrity of freeze wall containment systems will also be described.