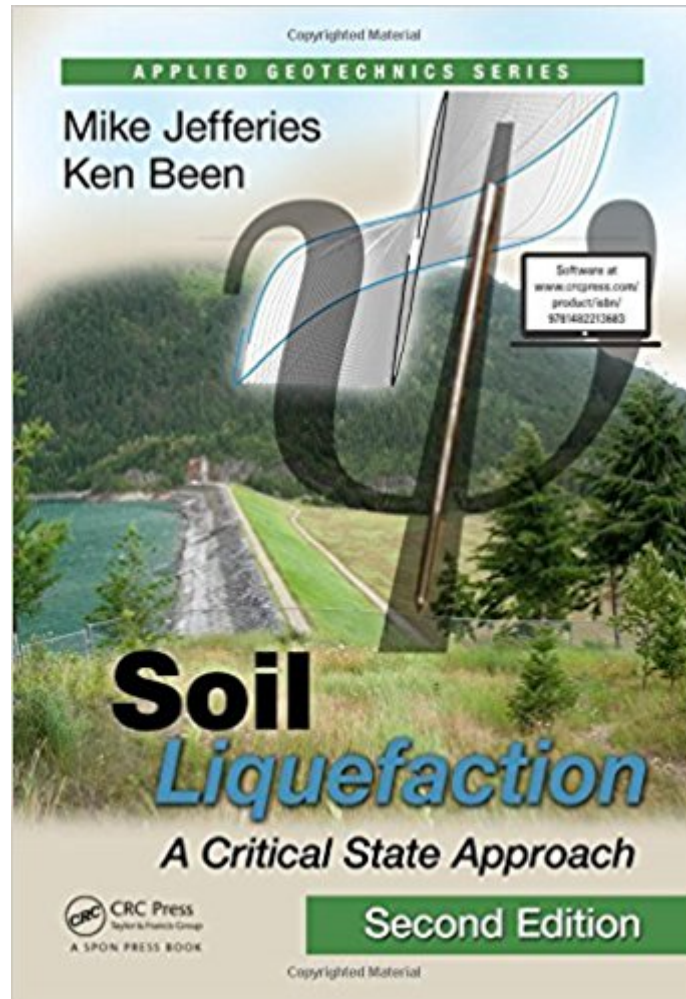


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# Soil Liquefaction: A Critical State Approach, Second Edition (Applied Geotechnics)



## Synopsis

A Rigorous and Definitive Guide to Soil Liquefaction Soil liquefaction occurs when soil loses much of its strength or stiffness for a time—usually a few minutes or less—and which may then cause structural failure, financial loss, and even death. It can occur during earthquakes, from static loading, or even from traffic-induced vibration. It occurs worldwide and affects soils ranging from gravels to silts. From Basic Physical Principles to Engineering Practice Soil Liquefaction has become widely cited. It is built on the principle that liquefaction can, and must, be understood from mechanics. This second edition is developed from this premise in three respects: with the inclusion of silts and sandy silts commonly encountered as mine tailings, by an extensive treatment of cyclic mobility and the cyclic simple shear test, and through coverage from the "element" scale seen in laboratory testing to the evaluation of "boundary value problems" of civil and mining engineering. As a mechanics-based approach is necessarily numerical, detailed derivations are provided for

downloadable open-code software (in both Excel/VBA and C++) including code verifications and validations. The "how-to-use" aspects have been expanded as a result of many conversations with other engineers, and these now cover the derivation of soil properties from laboratory testing through to assessing the in situ state by processing the results of cone penetration testing.

## Book Information

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