Compressibility Of Sandstones

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This book is a comprehensive treatment of the elastic volumetric response of sandstones to variations in stress. The theory and data presented apply to the deformations that occur, for example, due to withdrawal of fluid from a reservoir, or due to the redistribution of stresses caused by the drilling of a borehole. Although the emphasis is on reservoir-type sandstones, results and methods discussed are also applicable to other porous rocks. Part One concerns the effect of stress on deformation and discusses porous rock compressibility coefficients. Elasticity theory is used to derive relationships between the porous rock compressibility coefficients, the porosity, and the mineral grain compressibility. Theoretical bounds on the compressibility coefficients are derived. The concept of effective stress coefficients is examined, as is the integrated form of the stress-strain relationships. Undrained compression and induced pore pressures are treated within the same general framework. EAN/ISBN : 9780080868875 Publisher(s): Elsevier Science & Technology Format: ePub/PDF Author(s): Zimmerman, R. W.

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