

STUDIES OF SOIL LIQUEFACTION BY SHOCK WAVE LOADING¹

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Liquefaction of water-saturated soils by air-blast and direct induced ground shock presents an additional danger to buried structures in regions with high ground water table. An analysis of the liquefaction potential of air blast loading requires the consideration of combined longitudinal and shear loads in the soil. Two series of tests on water saturated soil were performed, one with static loading in an oedometer configuration, the other one with buried charges under free field conditions. The onset of liquefaction was indicated by newly developed transducers for normal stresses in the grain matrix. Some of the theoretical assumptions about soil liquefaction under combined loads were verified in the tests. The residual air content proved to be of major importance for the dynamic properties of the soil. Further investigation are planned with loading explosion generated air blast.