Liquefaction Mitigation of Loose Coral Sand Beneath Tank Foundations in the Marshall Islands

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Co-hosted by EERI, New England Chapter and
Department of Civil and Environmental Engineering, Tufts University

Friday, January 26, 2024, 3:00 – 4:30 PM (Eastern Time)

Free to attend in-person or virtual

Location: 208 Anderson Hall, 200 College Avenue, Medford, MA 02155

Zoom Meeting Link:
https://tufts.zoom.us/j/98483788284?pwd=a1NickRUckVRQmM5cHFheFU2bzdTUT09
Meeting ID: 984 8378 8284, Passcode: 859297

Abstract: The results of initial CPT work indicated, based on typical liquefaction screening methods, significant potential for seismically induced settlement. However, coral sand differs substantially from quartz and silica sand, which are the majority of case histories used to develop liquefaction screening methods. Bulk samples of the coral sands were collected and a series of CPT cone calibrations, triaxial and cyclic direct simple shear tests were performed to develop a constitutive framework that was used to understand the liquefaction triggering of coral sand. Findings from the study indicate that the Kwajalein coral sand is less susceptible to liquefaction.

Biography: John Thornley, PhD, PE, D.GE is a Vice President and Technical Principal at WSP in Anchorage, Alaska. He has 18 years of geotechnical and earthquake engineering experience. Recently John was a co-lead for the EERI Learning from Earthquakes Reconnaissance effort for the November 30, 2018, M7.1 Anchorage, Alaska Earthquake. John is currently the chair of the Municipality of Anchorage Geotechnical Advisory Commission and is active in several organizations including ASCE, EERI, and SSA. He has served as field manager of geotechnical studies and prepared recommendations for a variety of infrastructure projects including buildings, roads and airports, large liquefied natural gas and water storage tanks, pipelines, wind and cellular towers, and utilities. As part of John's work, he has been involved in seismic hazard studies, seismic site response analyses, studies for large infrastructure buildouts, and cold regions and permafrost engineering. His design work includes ground improvement in liquefiable soils, deep and shallow foundations, slope stabilization, retaining structures, and embankments.