

**Thursday, April 7, 2022**  
**Virginia Tech - CGPR Annual Lecture Program**

**The Inn at Virginia Tech - Skelton Conference Center**  
**Blacksburg, Virginia**

**8:00-8:45 AM**      **“Mitigation of Lateral Spread Hazard for a Deep Water Intake Shaft”**  
**Soheil Kamalzare, Ph.D., P.E., *Condon-Johnson and Associates, Inc.***

Willamette Water Supply Program provides drinking water to three cities in Portland, OR suburban area. As part of expanding and upgrading the existing facilities, ground improvement was recommended to support the water in-take shaft against lateral spreading. The shaft is 92-ft deep and has more than 70-ft of free-face next to the Willamette River. Soil profile consists of loose liquefiable silts over very stiff highly plastic clays. Ground improvement in forms of cellular deep-soil-mix and jet grout columns were built to resist the seismic thrust at the shaft and prevent lateral spreading. Extensive geotechnical investigation was also performed during the construction to further understand the highly plastic nature of the soil and adjust the construction technique for proper treatment.

**9:00-9:45 AM**      **“From Graduate to Retirement – Leveraging Life for Career Success”**  
**Aaron Zdinak, P.E., *HDR Engineering***

While not yet knocking on the door of retirement, Aaron will share relevant experiences and observations that can be reflected upon by students, recent graduates, and practitioners of all ages as they journey through career and life challenges to successfully accomplish success. Following aspects of his own charted path as supported by peers, mentors and colleagues, Aaron will provide his thoughts on the opportunities and pitfalls associated with navigating in a technologically accelerated workplace to remain on the cutting edge. By illustrating the size and speed of today’s projects compared to a commonly recognized metric, Aaron will outline what he believes to be fundamental characteristics of future engineers and what will be required to align our passions with our careers.

**10:00-10:45 AM**      **“Project Performance Monitoring & Data Driven Decisions”**  
**Georgette Hlepas, Ph.D., P.E., *US Army Corps of Engineers (USACE)***

Aging infrastructure, growing populations, and climate change has resulted in an increased risk associated with critical infrastructure. Project instrumentation and monitoring along with proper data management and visualization are critical in assessing project performance over time. USACE has a large portfolio of dams and levees and has updated their guidance and best practices to improve instrumentation and monitoring programs. USACE has also been improving data management and visualization techniques over time to aid in comprehensive assessments of project performance. This presentation will focus on these best practices and techniques and provide examples of their use to improve our understanding of project risk.

**Keynote Speaker**

**11:00-12:00 Noon**      **“Evaluation of the Seismic Performance of a Class I Landfill”**  
**Glenn J. Rix, Ph.D., P.E., *Geosyntec Consultants, Inc.***

Geosyntec Consultants, Inc. performed an evaluation of the seismic performance of a Class I landfill in southern California as part of the Engineering Evaluation and Cost Analysis (EE/CA) of the landfill. Material properties for the cover soils, waste mass, and native materials were estimated from field and laboratory investigations. Numerical deformation analyses were performed to estimate the seismic response of the landfill to ground motions from potential large earthquakes on four nearby faults. The calculated horizontal displacements from the numerical deformation analyses exceed Newmark displacements by approximately one order of magnitude, which is attributed to the cyclic accumulation of shear strains under sustained static shear stress that is modeled in the numerical deformation analyses but is not directly represented in the Newmark analyses. Geosyntec also used a performance-based engineering approach to develop seismic performance standards that are based on preventing harmful discharges and allowing repairs of damaged landfill components to be completed within a timely manner to minimize harmful environmental impacts. For

example, Geosyntec estimated the damage to landfill gas wells due to seismically induced displacements and compared the resulting air emissions to regulatory and health-based standards to allow development of contingency plans to repair the damage within a specified time period.

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**12:00 Noon** - The lecturers, CGPR members, and Virginia Tech faculty and graduate students are invited to join us for lunch in the Latham Ballroom.

