

JANUARY 9, 2019

Wednesday, January 9, 2019
5:30 - 6:30 PM (1.0 PDH)



PRESENTATION

5:30 - 6:30 PM (1.0 PDH)

Title : **Geoforensic Investigation of a Storage Dome Collapse at a Plant in Louisiana**

Speaker : [Mr. David A. Eastwood, P.E., D.GE, DFE, C.A.P.M., F.ASCE](#) and [Harry M. Nguyen, Ph.D.](#) , (See Bio for details) w/ [Geotech Engineering and Testing](#)

David A. Eastwood, P.E., D.GE, DFE, C.A.P.M., F.ASCE and Harry M. Nguyen, Ph.D. presenting.

Dr. Eastwood is the President of DAE & Associates, Ltd, dba Geotech Engineering and Testing (GET). He has practiced consulting engineering for about 42 years, serving in key technical project management and administrative roles. His specialties are in geotechnical, environmental, materials and geoforensic engineering. Mr. Eastwood's experience in these functions includes a wide range of project types, ranging from public infrastructure, public works, municipal work, industrial facilities, commercial developments to waste disposal facilities, power plants, dams, marine terminals, and underground storage tank contamination studies. Mr. Eastwood has the ability to provide clients with cost effective alternatives to difficult problems. One of Mr. Eastwood's greatest attributes is his ability to contribute constructively, responsively, and professionally as a member of the client's project design team.

Dr. Nguyen is a project manager at DAE & Associates, Ltd, dba Geotech Engineering and Testing (GET) with the responsibility for the daily operations of geotechnical explorations, data analyses and the preparation of report recommendations. He has several years of experience in fields of geotechnical, environmental, materials and forensic engineering. His experience is in public infrastructure, including water, wastewater, roads, bridges, freeways, retaining walls, embankments, commercial and high-rise buildings, rail, parks, underground utilities, airports, ports, flood control channel, and subdivisions. He has experience in design of industrial plants, hydropower, ports,

structures, buildings, various foundations, piles, seepage analysis, slope stability, retaining walls, triaxial testing, consolidation testing, groundwater, and contamination modeling.

ABSTRACT : The paper presents the Geoforensic evaluation of a dome failure north of the Mississippi Riverbank. The plant consisted of three iron ore storage domes, 248-ft diameter, and 124-ft height. Each dome was designed to store of about 230,000-ton iron ore. After construction completed in 2013, an iron ore surcharge load exceeding the design load, was placed on the subsoils. This resulted in failure of the dome. The settlement measured prior to failure of dome was about 2.5 ft. An investigation of causation of the dome collapse was performed. This study indicated that the surficial loading exceeded the subsoil bearing capacity, where the presence of organic soils was relatively significant, resulting in failure. Costs to remedy the collapsed and damaged areas are estimated to about US\$90 million. The paper presents the background information, details of soil foundation failure, results of stability analysis and the solutions recommended for the remedial construction.