

# Demolition of Tule Lake Lift Bridge

## Texas, 2008

The Tule Lake Lift Span Bridge spanned the main shipping channel in The Port of Corpus Christi, Corpus Christi, Texas. Port of Corpus Christi engineers blasted the two lift bridge support towers in April 2008 after the bridge's span was removed a month earlier. The 350-foot long by 48-foot wide span which weighed over 1700 tons was floated out on a barge.



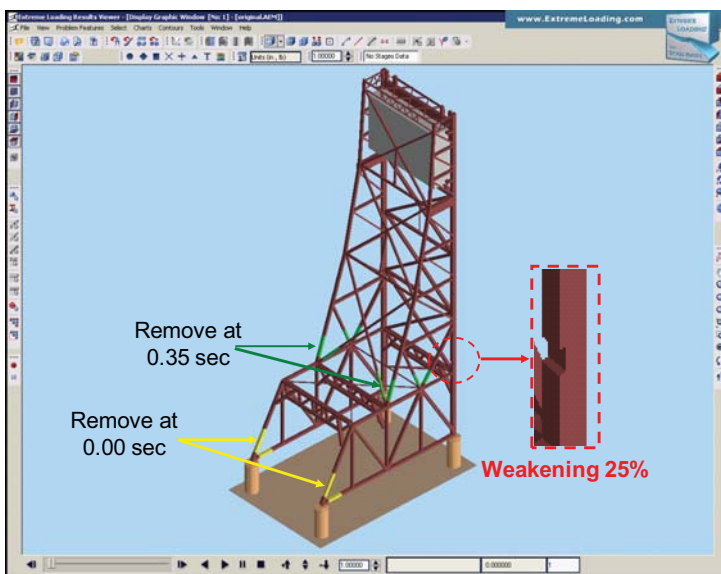
The Tule Lake Lift Bridge, constructed in 1959 to service railcars previously serviced by the Bascule Bridge, has suffered structural cracking along its lifting system. Cracks in the bridge's shafts and sheaves, part of the pulley system, had forced the port to ban car traffic and allow only rail traffic since September 2006. Structural cracking along the bridge's lifting system has doubled in the past year, making it a hazard not only to port and railroad employees, but also to daily business.



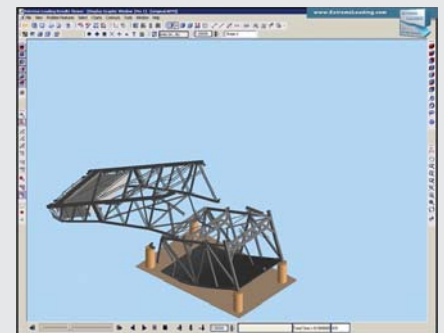
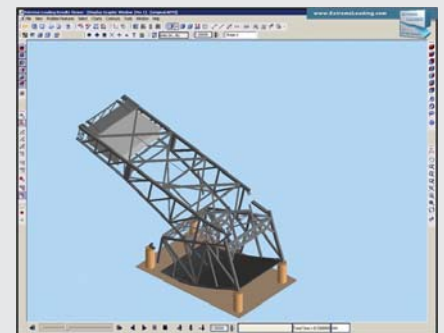
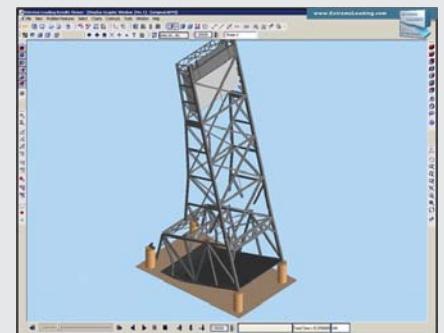
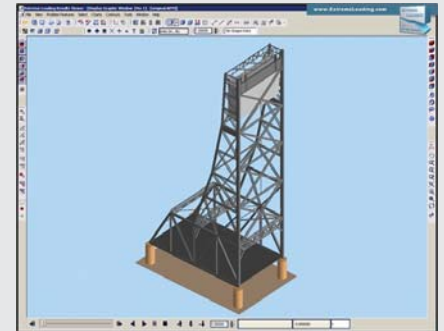
The towers were demolished by D.H. Griffin of Texas, Inc. using explosives demolition methods. Each tower stood just under 200 feet in height. Each tower contained a 900 ton concrete and steel counterweight. The total weight of each tower was approximately 1600 tons.

Discovery channel tasked ASI to prepare an ELS model for this demolition event. It was crucial to ensure that the demolition of the towers will not cause a hazard to the navigation in the shipping channel. ASI was required to model several what-if scenarios in addition to the actual demolition scenario that was actually implemented.

Using original construction plans, the structure was modeled taking all the structural elements into consideration: columns, girders, bracings, and lattice. The ASI team created several scenarios to show some of the possible “bad” scenarios where the towers or parts of them may fall into the shipping channel and obstruct it. The ELS model of the implemented scenario was a perfect match to the real-life case.



The movie about the demolition of the bridge, including the animations created by ASI, was first aired on Discovery Channel in January 2009. The analysis demonstrates the ability of ELS to simulate the actual failure of such a structure taking into consideration the precise timing of element removal and predicting the impact force on the ground and the impact location of all components of the structure.



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