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<p>Consideration of the use of high-strength steels in tension leg platform (TLP) tendons raises questions concerning the possibility of stress-corrosion cracking (SCC) occurring over long periods of time. For this reason, an investigation was undertaken to experimentally characterize the SCC susceptibility of eleven candidate materials using state-of-the-art fracture mechanics methodology. The materials studied in this program were provided by Conoco, Inc. and Chevron Corporation from samples being characterized to TLP service. The materials included steels in various product forms including forgings, rolled plate and weldments with yield strengths ranging from 80 to 125 ksi. The SCC tests were conducted at the NRL Marine Corrosion Research Laboratory in Key West, Florida. Bolt-loaded wedge-opening-loaded (WOL) precracked specimens were exposed to fresh flowing natural seawater while cathodically coupled to zinc anodes for a minimum of 8,000 hours (333 days). No evidence of SCC susceptibility was found in any of the materials tested. A limited number of additional experiments were conducted to further confirm this favorable finding. Based on the results of this exploratory study, static-load SCC does not appear to pose a threat to the structural integrity of high-strength steel TLP tendons currently being considered for offshore application in U.S. coastal waters.</p>			
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