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Radial arm lift gates (also known as tainter gates) are among the most common type of spillway gates for dams in the United States. Since the heyday of large reservoir construction in the 1950's through 1970's, many tainter gate spillways are now near or beyond the end of their original design life. The tainter gate failure at Folsom Dam in 1995, resulting in the loss of nearly 40 percent of Folsom Lake, highlighted the importance of maintaining and rehabilitating these aging structures. Several owners of large, high hazard dams in Texas have recently undertaken major spillway gate rehabilitation programs, including the following projects: Buchana Dam – thirty 33' x 15' and seven 40' x 25' gates (2006 – present); Toledo Bend Dam – eleven 40' x 29' gates (2010 – 2016); Lake Fork Dam – five 40' x 22' gates (2012 – 2014); Lake Conroe Dam – five 40' x 29' gates (2012 – 2014); Palmetto Bend Dam – twelve 35' x 23' gates (2013 – present); and Choke Canyon Dam – Seven 49' x 24' gates (2014 – present).

This paper outlines the primary components of a successful tainter gate rehabilitation program using examples from the projects mentioned above to illustrate various approaches. These include program planning, detailed initial inspections, structural analysis, alternative evaluation, developing a rehabilitation design to address the observed conditions, and overseeing a construction program which helps define the need for additional repairs. The lessons learned and best practices developed over the course of these projects will also be summarized.