



# On-Site

Tainter gates help California agency meet new PMF (Probable Maximum Flood) guidelines



**Owner:** Placer County Water Agency  
**Engineering Consultant:** MWH Americas, Inc.  
**Contractor:** Kiewit Infrastructure West  
**Estimated Completion:** Summer of 2012

**RH Design Engineer:** Derek Postema, P.E.  
**RH Lead Assembler:** Steve Talbot  
**Products:** Two 36.5' x 18.85' tainter gates and actuation equipment

**MAY  
2012**

## L.L. Anderson Dam, California, USA

**General Background:** The California State Legislature organized The Placer County Water Agency (PCWA) in 1957. The purpose of the Agency is to develop and operate major water facilities in Placer County.

**Location:** Placer County, covering an area of approximately 1,500 square miles, includes relatively level valley lands in its western portion, and extends into the Sierra Nevada mountains to Lake Tahoe and the Nevada State line. It is located northeast of Sacramento County, about 100 miles northeast of San Francisco.

French Meadows Reservoir is part of the Middle Fork Project, a multi-purpose project with the goal of conserving and controlling waters of the Middle Fork of the American River, the Rubicon River, and certain tributaries for the purposes of irrigation, domestic and commercial consumption, and for the generation of electricity.

Features of the Middle Fork Project include two storage and five diversion dams, five power plants, diversion and water transmission facilities, five tunnels, and several auxiliary facilities. The power plants have a combined dependable generating capacity of 224,000 kW. The two storage reservoirs have a combined capacity of approximately 340,000 acre feet.

**Current Project Overview:** The French Meadows Reservoir Spillway was originally designed in consideration of the Probable Maximum Flood (PMF) that could occur in the watershed, as defined by the Federal Energy Regulatory Commission (FERC) guidelines at the time of construction in the 1960s.

In 2001, the U.S. Army Corps of Engineers (USACE) performed a PMF study of the American River, including an estimate of the PMF at French Meadows Reservoir. The result of this study, and



Gates were fully assembled in the shop and components match marked to facilitate field assembly and installation.

others that followed, indicated that PMF at French Meadows could overtop the dam.

With revised PMF studies indicating potential safety issues, FERC's Division of Dam Safety and Inspections asked the PCWA to modify the spillway. To comply, PCWA has expanded the existing spillway at L.L. Anderson Dam, replacing and raising the dam crest parapet wall past the PMF level. Spillway expansion was achieved by widening and deepening the spillway through blasting and mechanical methods.

Working with project plans from PCWA's Consultant—MWH Americas, Inc.—Rodney Hunt designed and fabricated the new wider spillway tainter gates. Rodney Hunt also provided the wire rope hoists, electric motor actuators, and structural platforms needed to operate the gates.

### Rodney Hunt Tainter Gates at L.L. Anderson Dam

Size:	Each gate is 36.5' wide x 18.5' high
Material:	Steel construction A572 grades 50 with stainless steel 304L wire rope wear plates. Gate supplied with high strength stainless steel pins, ASTM 564 type 630 with self-lubricating bronze bushings. Trunnion hubs are steel forgings, ASTM 688 class D.
Actuation:	Four 1" diameter stainless steel cables wrap around a steel drum assembly to physically raise each gate. Cable drums are actuated by a worm gear electric actuator. Motor data: 208V, 60 Hz, 3 phase 10 Hp.
Seals:	Leakage past the gate is minimized with a neoprene seal mechanically fastened along the bottom and a deflected seal arrangement on the sides.
Installation:	Tainter gates shipped to the site in three pieces and field erected. Assembly consists of both bolted and field welded connections. Gates were fully assembled in the shop and components match marked to facilitate field installation. Each gate has its own structural steel platform and cable drum assembly.
Painting:	Gates and platforms have been painted with 3 coats of a 2-component high-solids epoxy paint, NSF 61 certified.



For more information about Rodney Hunt products or to contact a sales representative, visit the Rodney Hunt website ([www.rodneyhunt.com](http://www.rodneyhunt.com)) or call 978-633-4362