



Lock & Dam 25

(Winfield, Missouri)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Construction: 1935-1939

General Contractor:

Lock and Dam: United Construction Company,
Winona, Minn.

Congressional District: MO-2; IL-17

Description

Lock and Dam 25 is located at Upper Mississippi River mile 241.4. It is the third southern-most dam in the system on the Upper Mississippi River. The pool length is 32 miles and accounts for 18,000 acres.



The lock consists of a main lock, located against the east bank of Bradley Island, and the upper gate bay of an auxiliary lock. The main lock has the standard 110-foot-wide by 600-foot-long chamber. The average lift is 15 feet. Both the lock and the movable dam are pile-founded structures.

The 1,296-foot long movable portion of the dam has three submersible roller gate, 25 feet high by 100 feet long, and 14 submersible Tainter gates, 25 feet high by 60 feet long. The overflow dike length for is 2,566 feet.

Lock and Dam 25 consists of 14 Tainter gates which pivot vertically and are raised or lowered to control the depth of the water in the pool upstream of the dam. In times of high water, these gates are raised completely and the river flows almost unimpeded, allowing a more natural flow of the river. The three roller gates, located near the center of the dam, also restrict the water flow, but in a manner meant to reduce erosion.

A \$52 million major rehabilitation was completed at Lock and Dam 25 in 1999.

History/Significance

The lock was put into operation on May 18, 1939. The Tainter gates of Dam 25 represented a marked advance over those installed at Old Dam 26. The gates were fully submersible to a depth of nearly eight feet, more than twice that attained at Dam 26. Additionally, the streamlined spillway that characterized the dam gates was replaced by a riveted steel sheet that entirely covered the gate's steel framework, protecting it from ice damage and providing a smooth unobstructed surface for the water to pass over the gate in its submerged position.

Annual Tonnage (20-Year Historical)

<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>
1992	39,378,151	1997	33,638,634	2002	38,916,145	2007	30,204,744
1993	26,560,658	1998	34,819,845	2003	33,749,527	2008	23,244,934
1994	30,758,651	1999	39,536,830	2004	27,894,562	2009	26,926,504
1995	37,432,909	2000	39,177,450	2005	29,043,655	2010	24,117,099
1996	36,088,709	2001	34,858,294	2006	31,026,288	2011	23,047,259

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Commodity Tonnage & Lockages (2011)

Coal	1,528,178	<u>Subtotals:</u>	Grain	12,202,928	
Petroleum	245,230		Steel	103,680	
Chemicals	3,594,937		<u>Lockages:</u>	Commercial Boats:	1,809
Crude Materials	2,613,446			Recreation Boats:	398
Manufactured Goods	1,329,147			Light Boats:	149
Farm Products	13,643,310			Other Boats:	68
Manufactured Machinery	75,480			Total Boats:	2,424
Waste Material	0			Total Cuts:	3,567
Containers & Pallets	1,600				
Unknown	15,931				

The 9-Foot Channel Project

Lock and Dam 25 is one of 29 locks and dams on the Upper Mississippi River that provide a water stairway of travel for commercial and recreational traffic from Minneapolis to the Gulf of Mexico.

The existing 9-foot Channel Navigation Project was largely constructed in the 1930s and extends down the Upper Mississippi River from Minneapolis-St. Paul to its confluence with the Ohio River and up the Illinois Waterway to the Thomas J. O'Brien Lock in Chicago. It includes 37 Locks and approximately 1,200 miles of navigable waterway in Illinois, Iowa, Minnesota, Missouri and Wisconsin.

The maintenance needs of the aging infrastructure are increasing at a rate much greater than the operations and maintenance funding provided for the system which adversely affects reliability of the system. Long-established programs for preventive maintenance of major lock components have essentially given way to a fix-as-fail strategy, with repairs sometimes requiring weeks or months to complete. Depending on the malfunction, extended repairs can have major consequences for shippers, manufacturers, consumers, and commodities investors.

Additionally, the system's 600-foot locks do not accommodate today's modern tows without splitting and passing through the lock in two operations. This procedure requires uncoupling barges at midpoint which triples lockage times and exposes deckhands to increased accident rates.

There are more than 580 manufacturing facilities, terminals, grain elevators, and docks that ship and receive tonnage in the Upper Mississippi River basin. Grains (corn and soybeans) dominate traffic on the system. Other commodities, mainly cement and concrete products, comprise the second largest group. A modern 15-barge tow transports the equivalent of 1,050 large semi-trucks (26,250 cargo tons, 875,000 bushels, or 17,325,000 gallons). Annually, the 9-foot project generates an estimated \$1 billion of transportation cost savings compared with the operation and maintenance costs of approximately \$115 million.

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