Lock & Dam 6

(Trempealeau, Wisconsin)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Construction: 1933-1938
General Contractors:
Lock and Dam: Spencer, White & Prentix, Inc., NY, NY

Congressional District: MN-1; WI-3

Description

Lock and Dam 6 is located at Mississippi River Mile 714.1 at Trempealeau, Wisconsin, 139 miles below Minneapolis.

The main lock is located along the left descending bank and consists of one lock chamber 110 feet wide by 600 feet long with an upper pool elevation of 645.5 feet, a tailwater elevation of 639.0 feet, and a vertical lift of 6.5 feet. Miter gates are at each end of the lock chamber. A partial auxiliary lock consists of an upstream set of miter gates and a short concrete riverwall section.

The movable dam consists of an 893-foot-long concrete structure with five roller gates (20 feet high by 80 feet long) and 10 non-submersible Tainter gates (15 feet high by 35 feet long), and is located adjacent to the auxiliary lock. Completing the dam system is an earthen embankment approximately 1,600 feet long, located between the movable dam and high ground on the Minnesota side of the river, with a 1,000-foot-long concrete overflow spillway.

The site has a public observation platform and restrooms open from dawn to dusk from April to November.

History/Significance

The lock was put in operation in June of 1936. The Tainter gates in Dam 6 were the first in the St. Paul District to employ independent operating machinery instead of hoist car systems. During construction, the frozen river was sometimes used as a work base, as the ice was often 12 to 18 inches thick. Piles were dragged over the ice by teams of draft animals. The construction of Lock and Dam 6 also resulted in innovations in pile driving. Timber pilings – elm, maple, hickory, ash, oak, yellow birch, and pine – were driven by new, skid-type, pile drivers built on the job site by a contractor. A new method of keeping the pile drivers level was also developed by the contractor.

Annual Tonnage (20-Year Historical)

Year	Tons	Year	Tons	Year	Tons	Year	Tons
1992	10,907,210	1997	13,398,956	2002	14,449,692	2007	10,421,860
1993	9,499,427	1998	14,181,600	2003	12,250,381	2008	7,240,756
1994	11,966,358	1999	15,791,200	2004	10,754,999	2009	9,502,567
1995	13,169,929	2000	14,877,036	2005	10,381,229	2010	9,674,907
1996	14,259,964	2001	11,956,278	2006	10,965,857	2011	9,484,577

Commodity Tonnage & Lockages (2011)

Coal	386,927
Petroleum	292,804
Chemicals	1,812,993
Crude Materials	1,719,321
Manufactured Goods	723,123
Farm Products	4,515,509
Manufactured Machinery	18,350
Waste Material	0
Containers & Pallets	1,600
Unknown	13,950

Subtotals:	Grain	4,234,567
	Steel	31,750
Lockages:	Commercial Boats:	809
	Recreation Boats:	3,376
	Light Boats:	78
	Other Boats:	48
	Total Boats:	4,311
	Total Cuts:	2,727

The 9-Foot Channel Project

Lock and Dam 6 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.