Chain of Rocks - Locks & Dam 27

(Granite City, Illinois)
Mississippi River

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

Construction: 1947-1964
General Contractors:
Lock: River Construction Corporation
Dam: Unknown

Congressional District: MO-1; IL-12

Description

Locks and Dam 27's locks are located at Mississippi River mile 185.5 near the southern end of the 8.4-mile long Chain of Rocks Canal. The dam is located at Mississippi River mile 190.2 immediately downstream from Homer Dike, Intake Towers 1 and 2 of the St. Louis Water Works, the Chain of Rocks Highway Bridge, and the Interstate Highway 270 Bridge. Its 489-acre pool (canal) is 15.6 miles long.

Locks and Dam 27 has twin locks, a main chamber and an auxiliary chamber. The main lock chamber is 1,200 feet long by 110 feet wide. The auxiliary chamber measures 600 feet long by 110 feet wide. Both locks were excavated to bedrock, which serves as the lock chamber floors.

The dam is 2,500 feet in length and is a non-movable low-water dam which extends entirely across the river.

History/Significance

The canal and locks were put into operation on February 7, 1953. Locks and Dam 27 is unique for several reasons. Constructed between 1946 and 1953, these locks are the only locks on the upper Mississippi River that are not directly attached to their respective dam. The dam is located several miles away on the river, whereas the locks are within the Chain of Rocks Canal. The dam itself is also unlike any other dams in the system. All other dams were built to be moveable, so they could be adjusted according to the changing water level. Dam 27 is not so complex; it is a 2,500-foot non-movable, low-water, fixed-crest rock dam extending across the river and designed to provide additional water depth at the lower gate sills of Lock 26. Constructed between 1959 and 1964, the dam has virtually no impact upon operations within the Chain of Rocks Canal or at Locks 27.

The locks are the last on the upper Mississippi River, therefore more cargo moves through its lock than any other navigation structure on the River.

Annual Tonnage (20-Year Historical)

Year	Tons	Year	Tons	Year	Tons	Year	Tons
1992	81,463,112	1997	77,168,006	2002	83,825,396	2007	67,714,832
1993	67,796,856	1998	80,746,809	2003	77,466,308	2008	58,545,560
1994	77,328,058	1999	83,378,714	2004	71,169,714	2009	60,534,314
1995	84,423,520	2000	82,633,959	2005	68,369,897	2010	58,469,922
1996	79,440,582	2001	81,090,628	2006	73,361,655	2011	59,059,081

Commodity Tonnage & Lockages (2011)

Coal	3,645,429
Petroleum	9,266,642
Chemicals	9,711,534
Crude Materials	6,968,039
Manufactured Goods	3,706,376
Farm Products	25,334,005
Manufactured Machinery	294,425
Waste Material	91,300
Containers & Pallets	3,200
Unknown	38,131

Subtotals:	Grain	21,712,161
	Steel	1,406,475
Lockages:	Commercial Boats:	6,897
	Recreation Boats:	582
	Light Boats:	926
	Other Boats:	202
	Total Boats:	8,607
	Total Cuts:	8,001

The 9-Foot Channel Project

Chain of Rocks - Locks and Dam 27 is the last lock and dam system of 29 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.