



Lock & Dam 20

(Canton, Missouri)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Construction: 1932-1935

General Contractors:

Lock: Maxon Construction, Dayton, Ohio

Dam: S.A. Healy Co., Detroit, Mich., & Davenport, Iowa

Congressional District: MO-6; IL-18

Description

Lock and Dam 20 is 343.2 miles above the confluence of the Mississippi and Ohio rivers. The complex stretches across the river at a point where the valley is quite wide, about five-miles wide at the level of the lock and dam. A levee and the Gregory Diversion Ditch separate the complex from the town of Canton.

The lock dimensions are 110 feet wide by 600 feet long with additional provisions for an auxiliary lock. The maximum lift is 10.5 feet with an average lift of 5.3 feet. It takes approximately seven minutes to fill or empty the lock chamber.

The movable dam has three non-submersible roller gates (20 feet high by 60 feet long), 34 non-submersible Tainter gates (20 feet high by 40 feet long), and six submersible Tainter gates (20 feet high by 40 feet long). The submersible Tainter gates submerge three feet. It takes six hours for water to travel from Lock and Dam 19, in Keokuk, Iowa, to Lock and Dam 20.

History/Significance

Lock construction began on Nov. 1, 1932 and was completed in November 1933. Dam construction began on Oct. 31, 1933 and was completed in November 1935. The structure was placed in operation on June 9, 1936.

Dam 20 was the first dam in the Rock Island District to include Tainter gates. The plans originally called for all of the Tainter gates to be operated by hoist cars traveling on the dam's service bridge. However, the District modified two Tainter gates so they were individually operated by line shafts and motors housed in installations above each gate. This operating machinery worked so well that all subsequent Tainter gates in the 9-Foot Channel Project, regardless of which district they were in, used line shafts and motors.

In November 1932, the lock contractor began construction of temporary buildings and assembly of equipment. Due to severe cold, approximately 33 working days were lost during the winter of 1932-33. Low water stages during the construction expedited the contractor's work. The average number of men employed by the contractor on the Lock was approximately 320, with a maximum of approximately 570. The dam contractor experienced generally favorable weather conditions throughout the contract period. Forty days of lost time on the dam construction can be attributed to periods of high water.

The lock and dam elements of the complex were completed at a federal cost of \$3,363,500. Lock and Dam 20 was the first complex in the Rock Island District on the Upper Mississippi River to undergo major rehabilitation. Major rehabilitation work began in the late 1980s and was completed in 1991.



U.S. ARMY CORPS OF ENGINEERS – ROCK ISLAND DISTRICT

CLOCK TOWER BUILDING, P.O. BOX 2004, ROCK ISLAND, IL 61204-2004

Corporate Communications Office, (309) 794-5729, www.mvr.usace.army.mil

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>
2016	28,511,936	2011	20,828,408	2006	27,571,829	2001	31,089,774
2015	22,064,644	2010	21,861,365	2005	25,540,530	2000	35,015,410
2014	19,097,488	2009	23,910,675	2004	25,228,357	1999	36,512,515
2013	15,215,349	2008	20,080,492	2003	30,811,633	1998	32,021,440
2012	20,095,864	2007	26,423,478	2002	35,883,522	1997	30,452,345

Commodity Tonnage (2016)

All Units (Ferried Autos, Passengers, Railway Cars)	-
Coal, Lignite, and Coal Coke	301,949
Petroleum and Petroleum Products	218,057
Chemicals and Related Products	4,496,516
Crude Materials, Inedible, Except Fuels	1,858,282
Primary Manufactured Goods	1,474,264
Food and Farm Products	19,996,609
Manufactured Equipment & Machinery	163,059
Waste Material	
Unknown or Not Elsewhere Classified	3,200

Vessel & Lockage Data (2016)

Average Delay - Tows (Hours)	3.41	Non-Commercial Vessels	72
Average Processing Time (Hours)	0.89	Non-Commercial Flotillas	66
Barges Empty	9,886	Non-Commercial Lockages/Cuts	66
Barges Loaded	18,096	Percent Vessels Delayed (%)	94
Commercial Vessels	2,803	Recreational Vessels	256
Commercial Flotillas	2,769	Recreational Lockages	203
Commercial Lockages/Cuts	4,511	Total Vessels	3,131
Non-Vessel Lockages	-	Total Lockages/Cuts	4,780

The 9-foot Channel Navigation Project

The 9-foot Channel Navigation Project includes 37 lock and dam sites (42 locks) on 1,200 river miles in Illinois, Iowa, Minnesota, Missouri and Wisconsin. Constructed largely in the 1930s, it extends from Minneapolis-St. Paul on the Upper Mississippi River to its confluence with the Ohio River and up the Illinois Waterway to the T.J. O'Brien Lock in Chicago.

The maintenance needs of this aging infrastructure have surpassed annual operations and maintenance funding. This limited funding has adversely affected reliability of the system and has primarily resulted in a fix-as-fail strategy, with repairs sometimes requiring days, weeks or months. Depending on the nature of a failure and extent of repairs, shippers, manufacturers, consumers and commodity investors can experience major financial consequences. Additionally, today's 1,200'-long tows must split and lock through in two operations within the Project's 600' chambers. This procedure doubles and triples lockage times, increases costs and wear to lock machinery, and exposes deckhands to higher accident rates.

More than 580 facilities ship and receive commodities within the Project. Grains (corn and soybeans) dominate traffic; cement and concrete products are the second largest group. A modern 15-barge tow transports the equivalent of 1,050 semi-trucks (26,250 tons, 937,387 bushels of corn, or 240 rail cars). In 2015, the 9-foot channel project generated an estimated \$3 billion of transportation cost savings compared to its approximately \$246 million operation and maintenance cost.

UPDATE: April 2017