



Lock & Dam 13

(Fulton, Illinois)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG.

Construction: 1935-1939

General Contractors:

Lock and Dam: McCarthy Improvement Company,
Davenport, Iowa

Congressional District: IA-1: IL-16

Description

Lock and Dam 13 is 522.5 miles above the confluence of the Mississippi and Ohio rivers. The complex stretches across the river at a point where the bluffs on the Iowa side are very close to the river; islands and chutes dot the river beneath the bluffs. Eagle Point Nature Center occupies the high bluff immediately above the lock and dam. A dense group of sloughs and islands extend out from the Illinois shore.



Lock dimensions are 110 by 600 feet with additional provisions for an auxiliary lock. The maximum lift is 11 feet with an average lift of 8.6 feet. It takes approximately 10 minutes to fill or empty the lock chamber.

The movable dam consists of 10 submersible Tainter gates, 20-feet high by 64-feet long; and three submersible roller gates, 20-feet high by 100-feet long. The Tainter gates are elliptical. The dam system also includes three non-overflow earth and sand-filled dikes; two transitional dikes; and a submersible earth and sand-filled dike. It takes 10 hours for water to travel from Lock and Dam 12, in Bellevue, Iowa, to Lock and Dam 13.

History/Significance

Construction of Lock 13 began in July 1935 and was completed in December 1936. Construction on Dam 13 began in January 1937 and was completed in December 1938. The structure was placed in operation on May 13, 1939.

Locks and Dams 13, 14 and 17 were designed and built concurrently. The lock site was inaccessible from the nearest highway which required the contractor to construct a dike road through the Illinois shore's sloughs, islands, and marshy bottom lands. A ferry had to be operated during construction of the dam and central control station. It was also necessary to divert Johnson Creek to enter the river downstream from the site.

During the first several months of the contract, the weather allowed rapid progress on the construction of the dike and diversion ditch. The small amount of precipitation did not greatly interfere with the handling, hauling and placement of material. Short periods of severe weather during the winter months did not seriously handicap the operation. Very moderate rainfall during the summer months provided advantages for concrete operations.

The contractor was given a one-time extension during lock construction. The Mississippi River began rising steadily so that by April 1, 1936, the cofferdam pumps were inadequate to keep the water level low enough to place concrete. On April 4, the contractor permitted the cofferdam to flood. The river stage exceeded flood stage by 0.04 feet during the night of April 6-7. The contractor began dewatering on May 9, but pumping was stopped on May 13 due to a river rise. On May 19, dewatering began again and operations in the cofferdam resumed on June 1, 1936.

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

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While working on the earth dike, the contractor was granted a 25-day time extension on the dam contract due to high water from Sept. 13 through Oct. 7, 1938. Contract work was completed and accepted 12 days prior to the fixed completion date. The lock and dam elements of the complex were completed at a federal cost of \$7,503,000.

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>
2015	16,305,207	2010	15,551,521	2005	18,028,251	2000	22,722,882
2014	14,133,454	2009	15,543,114	2004	17,707,145	1999	24,803,042
2013	12,117,290	2008	13,595,495	2003	19,990,636	1998	21,633,824
2012	14,780,948	2007	18,030,735	2002	23,495,472	1997	20,582,592
2011	14,545,373	2006	19,078,754	2001	19,277,553	1996	22,990,486

Commodity Tonnage (2015)

All Units (Ferried Autos, Passengers, Railway Cars)	-	Primary Manufactured Goods	1,164,512
Coal, Lignite, and Coal Coke	2,350,900	Food and Farm Products	7,513,772
Petroleum and Petroleum Products	202,400	Manufactured Equipment & Machinery	81,805
Chemicals and Related Products	2,954,668	Waste Material	4,700
Crude Materials, Inedible, Except Fuels	2,027,750	Unknown or Not Elsewhere Classified	4,700

Vessel & Lockage Data (2015)

Average Delay - Tows (Hours)	0.91	Non-Commercial Vessels	46
Average Processing Time (Hours)	0.59	Non-Commercial Flotillas	44
Barges Empty	3,751	Non-Commercial Lockages/Cuts	44
Barges Loaded	10,467	Percent Vessels Delayed (%)	55
Commercial Vessels	1,709	Recreational Vessels	940
Commercial Flotillas	1,689	Recreational Lockages	639
Commercial Lockages/Cuts	2,524	Total Vessels	2,695
Non-Vessel Lockages	1	Total Lockages/Cuts	3,208

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). Annually, the 9-foot project generates an estimated \$1 billion of transportation cost savings compared to its approximately \$115 million operation and maintenance cost.

UPDATE: May 2016