



Locks & Dam 14

(Pleasant Valley, Iowa)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG.

Construction: 1935-1940

General Contractors:

Lock and Dam: Central Engineering Company,
Davenport, Iowa

Congressional District: IA-1; IL-17

Description

Locks and Dam 14 is four miles below LeClaire, Iowa, and 493.3 miles above the confluence of the Mississippi and Ohio rivers. The site is also 3.6 miles below the head of the notorious, rock-bedded, Rock Island Rapids. The LeClaire Lock and the remains of the LeClaire Lateral Canal, built in 1921-1924 to bypass this treacherous stretch of river, are located along the Iowa shore.

The main lock's dimensions are 110 by 600 feet. The dimensions of the LeClaire Lock, which is used as an auxiliary lock, are 80 by 320 feet, with a low-water depth of eight feet at the upper sill and seven feet at the lower sill. The main lock's maximum lift is 11 feet with an average lift of 9.8 feet. It takes approximately eight minutes to fill or empty the main lock.

The movable dam has 13 non-submersible Tainter gates (20 feet high by 60 feet long) and four submersible roller gates (20 feet high by 100 feet long). The dam system also includes an earth and sand-filled dike. It takes nine hours for water to travel from Lock and Dam 13, in Fulton, Iowa, to Lock and Dam 14.

History/Significance

Construction of Lock 14 was begun in August 1935, and was completed on December 22, 1936. Construction of Dam 14 was begun in November 1936, and was completed in December 1938. The structure was placed in operation on June 14, 1939.

The Corps built the oldest elements of this complex between 1921 and 1924, during the six-foot channel project. As part of that channelization, the Corps built a longitudinal dam paralleling the Iowa shore from the head of the Rock Island Rapids at LeClaire, to the head of Smith's Island. The dam formed the riverward wall of the LeClaire Canal, by which vessels could bypass the rapids. The Iowa shore served as the canal's landwall. Most of the longitudinal dam was submerged when Dam 14 was built; however, a portion of the original canal near the dam is still used as a mooring and storage site.

The Hunter Steel Company plant, subcontractor for structural steel, miscellaneous metal, and operating machinery was located at Neville Island, Pennsylvania, immediately below Pittsburg. During the extreme high water on the Ohio River in March 1936, this island was flooded, necessitating closing down the steel plant. A time extension of 12 days was granted to compensate for delays in gate erection due to time lost in the fabrication of structural steel.

Extremely cold weather halted lock construction for 18 days during the winter of 1936, and excessively high temperatures shortened work shifts during the summer but no extensions of time were granted due to weather.



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

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The lock and dam elements of the complex were completed at a federal cost of \$5,472,000.

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	18,754,072	2010	17,737,023	2005	20,811,684	2000	28,328,486
2014	16,102,838	2009	17,921,487	2004	20,626,075	1999	30,839,734
2013	13,534,616	2008	15,612,451	2003	24,224,248	1998	27,061,431
2012	16,549,369	2007	20,653,317	2002	28,428,345	1997	25,544,711
2011	17,012,596	2006	21,934,232	2001	24,264,635	1996	28,435,670

Commodity Tonnage (2015)

All Units (Ferried Autos, Passengers, Railway Cars)	-
Coal, Lignite, and Coal Coke	2,329,100
Petroleum and Petroleum Products	190,400
Chemicals and Related Products	3,546,364
Crude Materials, Inedible, Except Fuels	2,611,940
Primary Manufactured Goods	1,206,662
Food and Farm Products	8,780,376
Manufactured Equipment & Machinery	79,830
Waste Material	4,700
Unknown or Not Elsewhere Classified	4,700

Vessel & Lockage Data (2015)

Average Delay - Tows (Hours)	1.90	Non-Commercial Vessels	89
Average Processing Time (Hours)	0.61	Non-Commercial Flotillas	85
Barges Empty	4,899	Non-Commercial Lockages/Cuts	86
Barges Loaded	12,329	Percent Vessels Delayed (%)	51
Commercial Vessels	2,017	Recreational Vessels	2,756
Commercial Flotillas	2,010	Recreational Lockages	1,195
Commercial Lockages/Cuts	2,946	Total Vessels	4,862
Non-Vessel Lockages	-	Total Lockages/Cuts	4,227

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