



# Locks & Dam 15

(Rock Island, Illinois)  
Mississippi River

**U.S. ARMY CORPS OF ENGINEERS**

**BUILDING STRONG®**

**Construction:** 1931-1934

**General Contractors:**

Lock: Merritt-Chapman & Whitney Corp., Duluth, Minn.

Dam: D.A. Healy Company, Detroit, Mich.

**Congressional District:** IA-1; IL-17

## Description

In the heart of the Quad Cities, Locks and Dam 15 is 483 miles above the confluence of the Mississippi and Ohio rivers. The complex stretches across the Mississippi River at one of its narrowest points at the foot of the Rock Island Rapids. The complex extends from the northwest tip of the Army's Arsenal Island on the Illinois side, to a small area of flat-bottom land on the Iowa side. A roadway and railroad bridge, joining Davenport and Rock Island, spans the site.



The main lock is 110 feet wide by 600 feet long; the auxiliary lock is 110 by 360 feet. Both have a maximum chamber lift of 16 feet with an average of 13 feet and takes about seven minutes to fill or empty. Each lock gate weighs nearly 82 tons. The 1,203-foot-long movable dam is the largest roller dam in the world consisting of 11 non-submersible 100-foot-long roller gates with 11 control houses. Nine gates are 19 feet 4 inches in diameter and two are 16 feet 2 inches. It takes three hours for water to travel from Lock and Dam 14, in Pleasant Valley, Iowa, to Lock and Dam 15.

## History/Significance

Construction on Lock 15 began on April 9, 1931, and was completed in December 1932. Construction on Dam 15 began in 1932 and was completed in May 1934. The structure was placed in operation on March 7, 1934.

The complex was the first 9-Foot Channel Project complex which served as a prototype for the whole system. Dam 15 is unusual among the Project as it is the only dam on the River made entirely of roller gates as it was constructed at the narrowest part of the channel and is subject to ice and debris jams; is built at a 16-1/2 degree angle to gain additional dam area for maintaining the nine foot navigation; employs roller gates that are non-submersible, of differing sizes, and of non-standard length; is not at a right angle to the river; includes no earthen embankment dike section; incorporates a power plant that generates electricity to operate its gates and valves; and uses an open-truss service bridge with a bulkhead-lifting crane on its lower chord. The complex is also unusual because the intermediate locks' wall encases a bridge swing span.

The contractor for the lock construction was favored with low river stages, a mild winter of 1931-1932 and satisfactory labor conditions. No serious difficulties were encountered in the construction of the locks. The average number of men employed was 221. For construction of the dam, the maximum number of men employed was 280 during the latter part of November 1933.

The lock and dam elements of the complex were completed at a cost of \$2,524,700.

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CLOCK TOWER BUILDING, P.O. BOX 2004, ROCK ISLAND, IL 61204-2004  
Corporate Communications Office, (309) 794-5274, [www.mvr.usace.army.mil](http://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>
1992	30,402,635	1997	25,559,454	2002	28,829,063	2007	20,880,043
1993	18,715,172	1998	27,440,301	2003	24,923,417	2008	15,635,867
1994	22,287,729	1999	31,209,760	2004	20,948,490	2009	18,274,953
1995	27,861,504	2000	28,753,278	2005	20,991,007	2010	17,923,333
1996	28,263,207	2001	24,707,186	2006	21,942,068	2011	17,250,083

## Commodity Tonnage & Lockages (2011)

Coal	1,932,360	<u>Subtotals:</u>	Grain	7,820,861
Petroleum	282,842		Steel	63,700
Chemicals	2,802,022	<u>Lockages:</u>	Commercial Boats:	1,857
Crude Materials	2,491,825		Recreation Boats:	1,849
Manufactured Goods	1,174,140		Light Boats:	234
Farm Products	8,524,193		Other Boats:	71
Manufactured Machinery	22,350		Total Boats:	4,011
Waste Material	0		Total Cuts:	4,193
Containers & Pallets	1,600			
Unknown	18,751			

## The 9-Foot Channel Project

Locks and Dam 15 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.

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