



Lock & Dam 12

(Bellevue, Iowa)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG.

Construction: 1934-1938

General Contractors:

Lock: James Stewart Corporation, Chicago, Ill.

Dam: Warner Construction Company, Chicago, Ill.

Congressional District: IA-1; IL-16

Description

Lock and Dam 12 is 556.7 miles above the confluence of the Mississippi and Ohio rivers. The complex stretches across the river where the bluffs on the Iowa side are very close to the river; a complex of islands and sloughs extends nearly three-quarters of the way across the river from the Illinois side. Bellevue State Park occupies the high ground on the Iowa side, while the urbanized area of Bellevue extends to the government-owned property on the flat land below the bluff. The Lost Mound Unit of Upper Mississippi River National Wildlife and Fish Refuge occupies the islands, slough and small flat bottom areas on the Illinois side.



Lock dimensions are 110 feet wide by 600 feet long with additional provisions for an auxiliary lock. The maximum lift is 9 feet with an average lift of 6 feet. It takes approximately 10 minutes to fill or empty the lock chamber.

The movable dam consists of seven submersible Tainter gates (20 feet high by 64 feet long) and three submersible roller gates (20 feet high by 100 feet long). The dam system includes two, non-overflow, earth and sand-filled dikes; two transitional dikes; and a concrete-covered, ogee spillway, submersible earth and sand-filled dike. The foundation is set in sand, gravel and silt. It takes eight hours for water to travel from Lock & Dam 11, in Dubuque, Iowa, to Lock & Dam 12.

History/Significance

Construction of Lock 12 began in February 1934 and was completed in November 1935. Construction of Dam 12 began in September 1936 and was completed in July 1938. The structure was placed in operation on May 14, 1939. During the peak of construction, a maximum of 1,217 men were employed at one time.

There were two time extensions given to the contractor during construction of the lock. Work was shut down and pumping of the cofferdam stopped on March 26, 1935, as the U.S. Government Weather Bureau forecasts indicated that the river stage would flood the cofferdam. The maximum river stage reached and exceeded the elevation required by the specifications for the top of the cofferdam by one-half foot. Construction was resumed on May 4, 1935. A 39-calendar-day time extension was granted for time lost from March 26 through May 4, 1935.

The second time extension was from June 29 through July 23, 1935. The river stage from Oct. 2, 1934, to Aug. 6, 1935, prevented the placing of concrete in the downstream guide wall without cofferdam protection. The contractor delayed the construction of a temporary cofferdam in anticipation that, prior to the completion of other work, the river would recede to a stage where building of a cofferdam would not be necessary. The river did not fall to this stage by July 11, 1935, so a temporary cofferdam was constructed and work on the guidewall resumed on July 24, 1935. The contractor was granted an extension of 25 days. While the winter of 1934-1935 was severe at times, the contractor took advantage of the recurrent mild weather to place concrete.

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) 794-5274, www.mvr.usace.army.mil

The lock and dam elements of the complex were completed at a federal cost of \$5,581,000.

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	16,069,017	2010	15,300,161	2005	17,672,950	2000	22,280,448
2014	13,904,294	2009	15,164,599	2004	17,350,486	1999	24,426,919
2013	11,972,140	2008	13,299,444	2003	19,620,541	1998	21,352,999
2012	14,560,495	2007	17,681,771	2002	23,031,159	1997	20,333,558
2011	14,326,574	2006	18,655,930	2001	19,098,873	1996	22,655,035

Commodity Tonnage (2015)

All Units (Ferried Autos, Passengers, Railway Cars)	-
Coal, Lignite, and Coal Coke	2,333,100
Petroleum and Petroleum Products	200,900
Chemicals and Related Products	2,974,968
Crude Materials, Inedible, Except Fuels	2,017,780
Primary Manufactured Goods	1,172,712
Food and Farm Products	7,287,472
Manufactured Equipment & Machinery	72,685
Waste Material	4,700
Unknown or Not Elsewhere Classified	4,700

Vessel & Lockage Data (2015)

Average Delay - Tows (Hours)	0.96	Non-Commercial Vessels	58
Average Processing Time (Hours)	0.59	Non-Commercial Flotillas	53
Barges Empty	3,601	Non-Commercial Lockages/Cuts	53
Barges Loaded	10,320	Percent Vessels Delayed (%)	35
Commercial Vessels	1,683	Recreational Vessels	1,817
Commercial Flotillas	1,657	Recreational Lockages	694
Commercial Lockages/Cuts	2,476	Total Vessels	3,558
Non-Vessel Lockages	-	Total Lockages/Cuts	3,223

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