Dresden Island Lock & Dam

(Morris, Illinois)
Illinois River

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Construction: 1928-1930

Congressional District: IL-11

Description

Dresden Island Lock and Dam is 271.5 miles above the confluence of the Illinois River with the Mississippi river at Grafton, Illinois. The complex is 1-1/2 miles downstream from the mouth of the Kankakee River and about 15 miles southwest of Joliet, Illinois.

The complex consists of a gated concrete gravity dam. The total length of the lock and dam between abutments is about 1,320 feet. Lock dimensions are 110 feet wide by 600 feet long with a maximum lift of 22 feet. Average filling time of the lock chamber is 14 minutes; 12 minutes emptying time.

The dam consists of an arch dam section, a fixed spillway section, nine Tainter gates (60 feet wide by 17 feet high), 18 plugged headgates, and a 500-foot-long earthfill section with steel sheet pile cut-off wall connecting the headgate section to the Illinois and Michigan Canal embankment.

It takes two hours for water to travel from Brandon Road Lock and Dam to Dresden Island during flood or high flow conditions.

History/Significance

The lock opened in 1933. Dresden Island Lock and Dam was one of five designed and partially constructed by the state of Illinois over a period from 1928 to 1930. Excavation and masonry work began in December 1928. The complex was about 35 percent complete when construction was turned over to the federal government due to state financial difficulties.

The government, by the authority of the Rivers and Harbors Act of 1930, completed construction in 1933. The estimated cost was $2,306,000, however, the actual cost of the project was $3,915,964, of which $1,412,588 was funded by the state and $2,503,376 was funded by the federal government.

Annual Tonnage (20-Year Historical)

Year	Tons	Year	Tons	Year	Tons	Year	Tons
1992	19,126,380	1997	16,795,745	2002	18,712,254	2007	16,532,747
1993	19,373,151	1998	19,058,830	2003	18,556,711	2008	15,188,254
1994	22,140,378	1999	17,761,340	2004	20,389,783	2009	13,162,751
1995	16,872,322	2000	18,835,137	2005	19,371,418	2010	12,733,367
1996	16,629,120	2001	18,876,400	2006	20,548,035	2011	13,417,907

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Commodity Tonnage & Lockages (2011)

Coal	1,045,181
Petroleum	3,677,865
Chemicals	2,303,204
Crude Materials	3,991,625
Manufactured Goods	1,914,851
Farm Products	293,394
Manufactured Machinery	163,570
Waste Material	17,400
Containers & Pallets	1,600
Unknown	9,217

Subtotals:	Grain	120,500
	Steel	956,456
Lockages:	Commercial Boats:	2,365
	Recreation Boats:	969
	Light Boats:	311
	Other Boats:	45
	Total Boats:	3,690
	Total Cuts:	3,630

Current Maintenance Issues

Item (Critical Rank Order)

- Rehabilitation Evaluation Report
- Rehabilitate Lock - I-wall Electrical Gallery
- Replace Dam Gates
- Replace Dam Steam System
- Systemic Miter Gate Replacement
- Emergency Miter Gates for District Use
- Systemic Miter Gate Machinery Replacement
- Rehabilitate Tainter Gate Piers 6 and 7 (Engineering & Design)
- Systemic Control Stand Replacement
- Systemic Dam Machinery Replacement (Engineering & Design)
- Systemic Filling Valve Replacement
- Replace Standby Generator
- Repair Upstream Guidewall and Mooring Cell
- New Maintenance Building

TOTAL ESTIMATED COST: $80,000,000

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. This is adversely affecting reliability of the system. Long-established programs for preventative 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 nature of a lock malfunction, extended repairs can have major consequences for shippers, manufacturers, consumers, and commodities investors.

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.

More than 580 manufacturing facilities, terminals, and docks 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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