Lockport Lock & Dam

(Lockport, Illinois)
Chicago Sanitary & Ship Canal

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

Construction: 1923-1933

Congressional District: IL-13

Description

Lockport Lock and Dam is 291.0 miles above the confluence of the Illinois River with the Mississippi river at Grafton, Illinois. The complex is two miles southwest of the city of Lockport, Illinois.

The lock is 110 feet wide by 600 feet long. Maximum vertical lift is 42.0 feet, the average lift is 39 feet. It averages 22.5 minutes to fill the lock chamber; 15 minutes to empty.

The Lockport Dam consists of the Metropolitan Water Reclamation District of Greater Chicago (MWRD) lock, powerhouse and associated controlling works. The MWRD, through Congressional action, transferred the maintenance responsibilities of the substructures and support structures to the Corps in the early 1980s for the roughly forty-five foot high embankment, controlling works, powerhouse substructures, and all pool retention structures. The Corps controls the lock; however, has no ownership of the controlling works.

Rehabilitation of the lock was completed in 1989 at a cost of $22,681,000.

History/Significance

The lock opened in 1933. Lockport Lock was one of five designed and partially constructed by the state of Illinois over a period from 1923 to 1930. The complex was about 97 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 of the lock in 1933. The opening of the Lockport Lock coincided with the opening of the downstream Brandon Road, Dresden Island, Marseilles, and Starved Rock locks and dams. The total cost of the lock was $2,153,867, of which $2,020,259 was state funded and $133,608 was funded by the federal government.

Annual Tonnage (20-Year Historical)

Year	Tons	Year	Tons	Year	Tons	Year	Tons
1992	16,663,957	1997	15,415,018	2002	16,872,206	2007	13,507,517
1993	17,030,027	1998	17,102,920	2003	15,310,005	2008	12,460,893
1994	19,698,080	1999	16,039,564	2004	17,341,066	2009	10,240,591
1995	14,986,564	2000	16,788,986	2005	16,929,707	2010	9,853,988
1996	14,846,540	2001	15,970,297	2006	17,253,650	2011	10,552,834

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Commodity Tonnage & Lockages (2011)

Coal	1,607,210
Petroleum	1,580,305
Chemicals	1,550,197
Crude Materials	3,592,954
Manufactured Goods	1,801,459
Farm Products	214,572
Manufactured Machinery	179,520
Waste Material	17,400
Containers & Pallets	1,600
Unknown	7,617

Subtotals:	Grain	98,800
	Steel	1,021,364
Lockages:	Commercial Boats:	2,696
	Recreation Boats:	545
	Light Boats:	413
	Other Boats:	34
	Total Boats:	3,688
	Total Cuts:	3,437

Current Maintenance Issues

Item (Critical Rank Order)

- Channel Concrete Wall - Major Rehabilitation (ongoing, 90% complete)
- Lock Emergency Gate Hydraulic System Rehabilitation
- Lock Emergency Gate Replacement
- Systemic Miter Gate Replacement
- Systemic Miter Gate Machinery Replacement
- Bulkhead - Vertical Gate
- Systemic Filling Valve Replacement
- Replace Lock Controlling Works (ongoing, 40% complete)
- Major Maintenance - Spillway Design & Construction
- Power House Guide Wall Rehabilitation
- New Maintenance Building

TOTAL ESTIMATED COST: $39,000,000

Lockport upper pool is a perched pool 38 feet above surrounding communities. The Lockport Pool Approach Dike (4,300 feet on the right descending bank and two-mile-long perched Canal Walls on the left descending) are defined as a dam that has confirmed “unsafe” or unconfirmed “potentially unsafe” dam safety issues. The Controlling Works that control the operation of the Chicago Sanitary Ship Canal and parts of the Dam were also indentified as needing renovation to maintain the pool. The embankment requires significant repair and rehabilitation to ensure continued structural integrity, continued retention of the navigation pool, stability of the embankments and substructures, safe access to the hydropower plant, continued safe use of the controlling works, and avoids downstream flooding in the event of failure.

The current rehabilitation project has been divided into 6 Stages funded though Operation and Maintenance funds, American Recovery and Reinvestment Act funds, and Major Rehabilitation appropriations. The 6 stages are:

- Stage 1 (Approach Dike) - Construct 4,300 feet of cut-off wall. (Completed in FY09)
- Stage 2 (Controlling Works) - Under construction. Repair concrete bulkheads and replace brick, limestone and granite facades to the structure. (40% Completed)
- Stage 3 (Canal Walls) - Under construction, Repair two miles of concrete wall with panel construction. (90% completed)
- Stage 4 (Powerhouse Exciter Bay Infill) – Operations and maintenance and embankment clearing. (Completed FY09)
- Stage 5 (Interim Risk Reduction Measures) - Updated FY11 and activities are ongoing.
- Stage 6 (Forebay Wall) – Evaluation. (Completed FY12)