US Army Corps of Engineers ®
Rock Island District

Lock & Dam 22
(Saverton, Missouri)
Mississippi River

General Contractors:
Lock: Joseph Meltzer, Inc., New York, New York
Dam: Massman Construction Company, Kansas City, Missouri
Construction: 1934-1939
Congressional Districts: MO-9; IL-17

Description

Lock and Dam 22 is 301.2 miles above the confluence of the Mississippi and Ohio rivers. Bluffs rise more than 200 feet above the river west of the lock; the valley is quite wide east of the complex.

The movable dam has nine non-submersible Tainter gates (25-feet high and 60-feet long), one submersible Tainter gate (25-feet high and 60-feet long), and three submersible roller gates (25-feet high and 100-feet long). Completing the dam system are two transition dikes and a submersible earth and sand-filled dike.

The lock dimensions are 110-feet wide by 600-feet long with additional provisions for an auxiliary lock. Normal upper pool elevation is 459.5, about 16.5 feet above the tail waters of the dam at low water. When both pools are at their normal depths, the difference is reduced to 10.5 feet or less.

The maximum lift is 10.5 feet with an average lift of 7.5 feet. It takes approximately 7 minutes to fill or empty the lock chamber. It takes 7 hours for water to travel from Lock and Dam 21, in Quincy, Illinois, to Lock and Dam 22.

History/Significance

The lock opened in 1939. It was on the submersible roller gates at Dam 22 that the Rock Island District introduced the Poiree dam trestles to mitigate scour problems. The trestles were subsequently used as a retrofit solution on other project dams. It was also on this dam's submersible roller gates that the St. Paul District Hydraulic Laboratory conducted tests that led to the design of stilling basins for roller gates. The Rock Island District incorporated an experimental design for a submersible roller gate with end shields and introduced a new type of non-submersible, truss-type Tainter gate in Dam 22. During the peak of construction, 959 people were employed on the installation. The lock and dam elements of the complex were completed at a cost of $3,943,000.

Annual Tonnage (10-Year Historical)

Year	Tons	Year	Tons
1998	33,648,345	2003	32,229,405
1999	38,074,304	2004	26,755,587
2000	36,812,642	2005	27,371,325
2001	33,336,062	2006	29,789,804
2002	37,567,046	2007	28,908,447

(More Information On The Reverse Side)

Commodities/Tons (2007)

Coal	4,003,358	Subtotals:	
Petroleum	471,182		
Chemicals	3,182,071	Grain	15,815,219
Crude Materials	2,026,562	Steel	325,238
Manufactured Goods	924,877		
Farm Products	18,256,378	Lockages:	
Manufactured Machinery	23,780		
Waste Material	1,800	Boats:	3,017
Containers & Pallets	1,624	Cuts:	4,613
Unknown	16,815		

Current Maintenance Issues – Lock & Dam 22

Item (Critical Rank Order)

Systemic Bulkhead Slots
Systemic Tainter Valve Replacement – Includes Rehabilitation Evaluation Report
Dam Gate Rehabilitation - Exterior
Repair Spillway
Systemic Miter Gate Replacement
Repair Roller End Shields & Seals - Dam
Structural Repairs - Tainter and Roller Gates - Interior
Systemic - Crane Rail Adjustments - Dam
Resurface Horizontal Surfaces of Bridge Piers
Systemic Structural Repairs Service Bridge Dam
Repair Concrete and Protection Armor in Lock Chamber
Repair Upstream Riverwall Bullnose
Dam Rehabilitation Evaluation Report
Replacing 70-Year-Old Lock Pontoon Barge (Work Flats)
Repairs to Guide Cells and Erosion Repairs at Lower Ends
Bridge Crane Repairs To Lattice Boom & Crane Undercarriage
Storage Yard Repairs
Damage-Repair Lower Landwall Vertical Concrete
Systemic - Standby Generator and Compressor Enclosures
New Maintenance Building

TOTAL ESTIMATED COST: $33,150,000

The Water Resources Development Act of 2007 (WRDA 07) Title VIII authorized the dual-purpose navigation and ecosystem restoration plan for the Upper Mississippi River and Illinois Waterway. The new 1,200-foot lock, which will be located in the auxiliary lock chamber, will cost approximately $232,000,000. The design and construction of the new lock is dependent upon annual appropriations.

The existing 9-foot Channel Navigation Project was largely constructed in the 1930's 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 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. In 2005, the system moved more than 160 million tons of commercial cargo worth roughly $28.5 billion. 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 870 large semi-trucks (22,500 cargo tons, 787,500 bushels, or 6,804,000 gallons). Annually, the project generates an estimated $1 billion of transportation cost savings compared with the operation and maintenance costs of approximately $115 million.

In constant dollar terms, operations and maintenance funding for the system has been largely flat or declining for decades, while maintenance needs of the aging infrastructure increase. 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.

Point of Contact

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