



US Army Corps
of Engineers®
St Louis District

Lock and Dam 27 Information Sheet

Technical Details



- Main Lock Chamber: 110 feet wide by 1200 feet long
- Auxiliary Lock Chamber: 110 feet wide by 600 feet long
- Average Lift of Lock: 15 feet
- Dam Length: 2,500 feet
- Pool Length: 15.6 miles
- Pool Size: 489 acres (Canal only)
- Tonnage Locked Through:
 - 2005: 68,369,897
 - 2006: 73,362,106
- Upper Mississippi River Mile: 185.5

Nine-Foot Navigation Channel

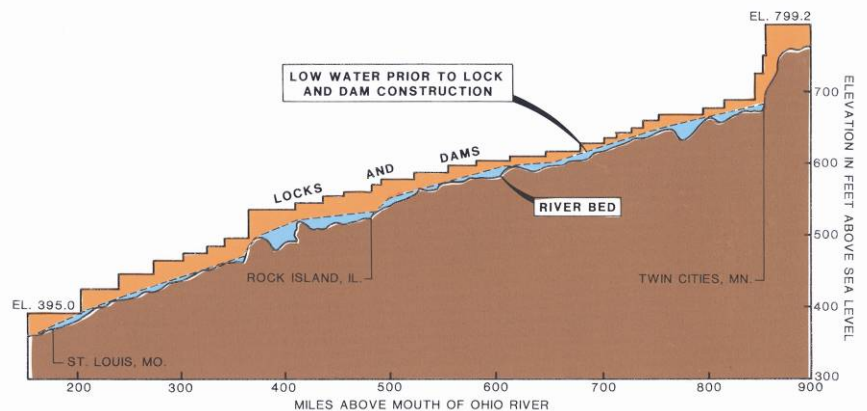
Located in Granite City, Illinois, Lock and Dam 27 is part of the Upper Mississippi River Nine Foot Navigation Project. The Project, authorized by the Rivers and Harbors Act of 1930, created and ensured a nine-foot deep navigation river channel.

On the Upper Mississippi River, a total of 29 lock and dam systems were constructed, forming a stairway of water from Minnesota to Illinois. From the first lock and dam at Minneapolis-St. Paul, Minnesota to the last one at Granite City, Illinois, there is a drop in elevation of 420 feet. The locks are necessary at each of the dams to allow boats to navigate from one pool (the water backed up behind each dam) to the next. These dams were constructed to only aid navigation; they were not designed for flood control.

On the Lower Mississippi River, there is no need for locks and dams because, with the addition of the Missouri, Illinois, Arkansas, Ohio, and other rivers, it is naturally deep enough and wide enough for navigation.

The Chain of Rocks Canal

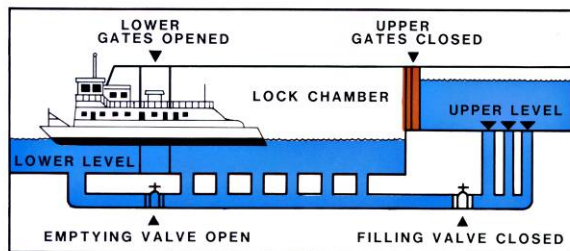
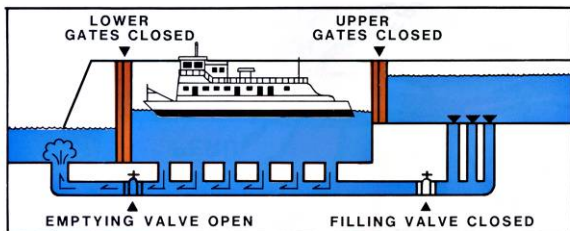
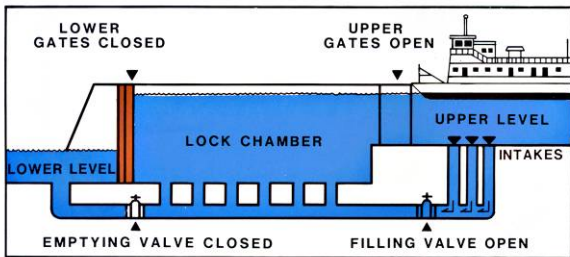
In 1940 the Chain of Rocks Reach was the only obstacle that prevented the success of the nine-foot navigation project. This 17 mile stretch of the river was rife with rock ledges that rendered it naturally unnavigable. The Corps built the 8.4 mile long Chain of Rocks Canal to bypass this portion of the River.



Lock and Dam 27

Locks and Dam 27 is unique for several reasons. Constructed between 1946 and 1953, these locks are the only locks on the upper Mississippi River that are not directly attached to their respective dam. The dam is located several miles away on the River, whereas the locks are within the Chain of Rocks Canal. The dam itself is also unlike any of the other dams in the system. All other dams in the system were built to be moveable, so they could be adjusted according to the changing water level. Dam 27 is not so complex; it is a 2,500 foot non-movable low water dam extending across the river. Its main purpose is to help maintain the lower pool of Dam 26 and to prevent boats from entering the chain of rocks reach.

Both the main lock and the auxiliary lock have an upper lift gate and lower miter gates. The lift gates lower to a predetermined depth to allow boats to pass over. The miter gates swing open and closed like doors to allow the boats through. Since these locks are the last on the upper Mississippi they lock the most commercial traffic. This is why Locks and Dam 27 has two lock chambers, of which the main lock can accommodate a full tow of 15 barges (3 wide by 5 long).



Locking Process

The lock chambers consist of 2 miter gates, one vertical lift gate, and four valves (two at each end). All boats wishing to pass through a dam must lock through the lock chamber, even during open river conditions when there is only a 10 or 12 inch difference between the upper and lower pools.

Lockage is completed by using a system of valves to raise and lower the water level in the lock chamber. The filling valves are opened to allow water to enter the chamber, making it the same height as the upper pool, and the emptying valves are opened to allow water to drain out, making the chamber the same height as the lower pool.

There are two sets of valves, the filling valves (located at the upper pool) and the emptying valves (located at the lower pool). During the process, no pumps are used, the chamber is operated solely on gravity.

This is an elevator system for boats. Raising and lowering the water adjusts the boat to the necessary pool level. Without the locks the boats would face a drop of as much as 20 ft.

For More Information . . .

Contact the Lock Office at:
3291 West 20th Street
Granite City, IL 62040
Phone: (618) 452-7107
Marine Radio: Channel 12
Website: www.mvs.usace.army.mil/Rivers



**US Army Corps
of Engineers®**