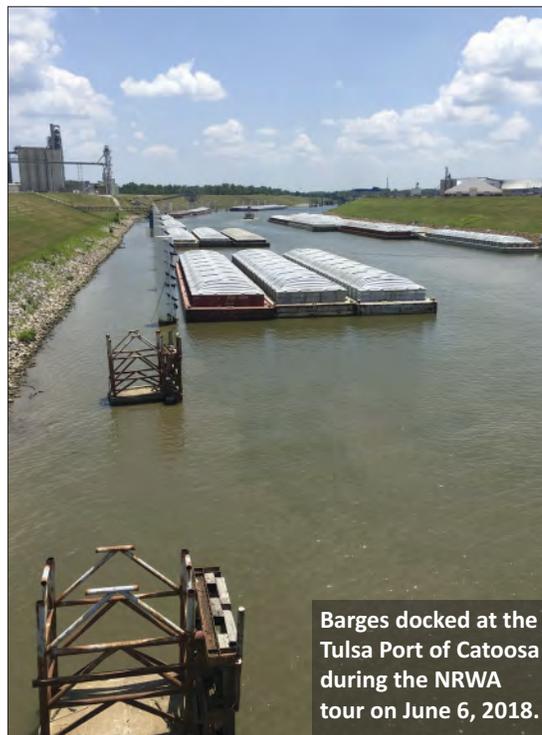


Day-Tour of Tulsa Port of Catoosa for NRWA Source Water Specialists

A day trip to the Tulsa Port of Catoosa, the largest ice-free inland port in the United States, was part of the annual National Rural Water Association (NRWA) in-service training in Tulsa, Oklahoma in early June. NRWA's Source Water Protection Specialists, Doug Helmke and Ken Kopp, took part.

The port and its lock and dam system are located on the Verdigris River, northwest of the city of Tulsa, in an area formerly referred to as the Rascal Flatts. The headwaters for the Verdigris River are in Kansas. Its confluence with the Arkansas River is a short distance downstream from the port, which allows water transport from the Tulsa area, along the McClellan-Kerr waterway, to the Mississippi River and

the Gulf of Mexico. Dry and liquid manufactured goods are shipped to and from the facility, year-round. Dry products include grains and fertilizers. Liquid products include refined petroleum products and molasses. Due to the greater controls on streamflows through upstream locks and dams along the Verdigris and Arkansas Rivers, the Tulsa Port of Catoosa is often more desirable for shipping than the Missouri River. During 2013, the port handled 2.7 million tons of cargo. The coast guard is responsible for emergency response with close coordination with Rogers County Emergency Management. With the



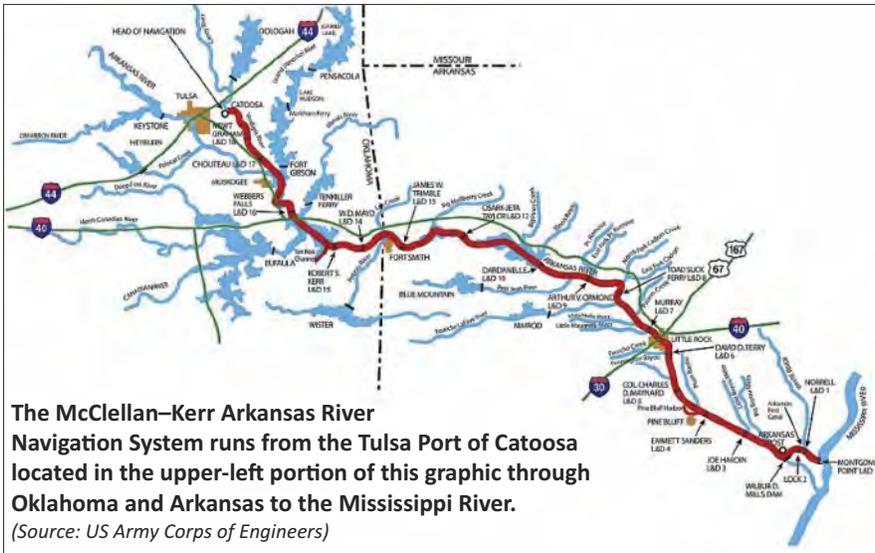
Barges docked at the Tulsa Port of Catoosa during the NRWA tour on June 6, 2018.

large amount of cargo transported through the port, some of which can be toxic or explosive, numerous protections have been put in place to deal with accidents and spills. The port authority not only plans for industrial accidents, but also for bomb threats and terrorist attacks. As an example, nearly 100 people were treated in 2001 after being exposed to highly toxic arsine gas that escaped when a steel cylinder blew a valve at a chemical plant at the port.

The history of Tulsa's Port of Catoosa can be traced back to major flooding along the Arkansas River in the early twentieth century. Tulsa experienced rapid growth and there was an income expansion during an oil boom in the 1920s. Much of the sprawling new development was poorly located in the floodplain of the Arkansas River. In 1923, a flood displaced 4,000 people and inundated the Tulsa Waterworks, causing \$400,000 in damages. While this resulted in a push for a city flood-plan that included changes in land-use, it was not enough. Another flood in 1943 again displaced 4,000 people and threatened area oil refineries. Moreover, 21 people were killed and 23 were injured.



This image from Google Earth shows the layout of the 2,500-acre Tulsa Port of Catoosa. The Verdigris River is located just to the east of the man-made shipping channel.



The McClellan–Kerr Arkansas River Navigation System runs from the Tulsa Port of Catoosa located in the upper-left portion of this graphic through Oklahoma and Arkansas to the Mississippi River.
(Source: US Army Corps of Engineers)

Due to the vital importance of the United States' fuel supply to the war effort during World War II, the Corps was appropriated funds on an emergency basis to build levees around oil refineries along the Arkansas River. While the U.S. Army Corps of Engineers had already been provided by Congress with broad authority to construct dams to control flooding along and upstream of the Mississippi Basin, funding for such projects was often a limiting factor.

After the 1943 event, the Governor of Oklahoma, Robert S. Kerr, was determined to make sure that such destruction and suffering was never again experienced in his state. He worked with Senator John L. McClellan, and later ran and won his own senate seat, to help gain the federal funding that was needed to build large scale flood control and a multipurpose waterway. Congress passed "The Rivers and Harbors Act" in 1946. That and amendments to the Flood Control Act of 1948 and again in 1950, collectively authorized and funded the building of what would become the McClellan-Kerr Arkansas River Navigation System. A series of 18 locks and dams have since been constructed and the Arkansas River channel was deepened to support large barge traffic. The \$1.2 billion federal project reportedly fostered more than

\$3 billion in commercial and industrial development in the Arkansas River basin during the two years after its completion in 1971. The waterway system and its reservoirs also provide beautiful lakes for recreation, sport fishing and hydroelectric power-generation. President Richard Nixon attended and spoke at the opening ceremony on June 5, 1971. Kerr suffered a fatal heart attack on January 1, 1963, at the age of 66, before the project was complete.

The first barge, which actually arrived a few months before the dedication ceremony, carried newsprint. Since then, 41,409 barges have travelled through the Port. They have delivered more than 67 million tons of cargo on the waterway, enough to fill 1.5 million trailer trucks. In recent years, the Port has averaged two million tons of cargo per year and has not only created millions of dollars in revenue for the businesses located on its banks, but also has created thousands of jobs. Not only does the port handle dry and liquid bulk products, odd or large size objects are often preferable to ship on the waterway. As one example, many of the large reactor components used at the Wolf Creek Nuclear Generating Station in Burlington were shipped through the Tulsa Port of Catoosa.



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