



2017 STATE WATER COMMISSION *Construction Season*

The State Water Commission Construction Crew was busy in 2017, working on a wide range of projects.

MISSOURI RIVER PONTOON REMOVAL

North Dakota's sovereign lands are those areas, including beds and islands, lying within the ordinary high watermarks of navigable lakes and streams. The State Engineer manages this vital resource for multiple uses, in the best interest of present and future generations.

In fall 2016, a pontoon was left tied up on the Missouri River, just north of the Misty Waters boat landing north of Bismarck. Over the winter, ice action damaged the boat and capsized it. Because the boat represented an environmental hazard on sovereign land, in May 2017, the Construction Crew removed the boat, holding it for 30 days in case the owner could be found.



Preparing to pull the pontoon out in May, 2017.

MOUNT CARMEL DAM

Mount Carmel Dam, constructed in 1971, is an earth embankment dam with a concrete chute spillway, and low-level drawdown system. The low-level drawdown system consists of a 12 inch intake pipe that discharges through a butterfly valve in the chute spillway, and that butterfly valve had been leaking. Since the intake pipe is in the reservoir, the valve has pressure on it at all times. In order to remove the valve, the intake pipe was plugged to remove the pressure from the valve, allowing repairs to proceed. The Construction Crew used a new method of plugging the pipe, that involved inserting an inflatable plug through the open valve. The plug was restrained so it could not suddenly come out, and the valve was then removed and repaired.

KULM-EDGELEY DAM

Kulm-Edgeley Dam is an earthen embankment dam, with a concrete drop structure intake. From the intake structure, a 30 inches reinforced concrete pipe (RCP) conduit runs through the dam to the discharge point downstream. The first joint in the RCP conduit downstream from the intake structure had separated, allowing embankment material to be washed away through the opening. This washing away of material resulted in a sinkhole in the embankment, creating an ever more unsafe condition for the dam.



The Construction Crew built a coffer dam around the intake structure to keep their work area dry. The structure was excavated to expose the separated conduit joint, and concrete collar was then constructed around the pipe to seal the joint. The excavation was then backfilled and the coffer dam removed.

USGS O&M

The Water Commission continued to cooperate with the US Geological Survey (USGS) on the maintenance and improvement of the USGS's stream gaging sites throughout the state.

SCHLECHT-THOM DAM

The Construction Crew's last project of the 2017 season was at Schlecht-Thom Dam, a small recreational fishing reservoir located six miles east of the town of Edgeley, in LaMoure County.

The dam was constructed in 1970, with a principal outlet consisting of a 48 inches Corrugated Metal Pipe (CMP) drop inlet, a 30 inches CMP riser, and a 4 inch low-level drawdown system which was added in 1988. In early 2017, the Lamoure County Water Resource District requested cost-share, as well as technical and construction support from the Water Commission, to repair the principal spillway outlet at the dam.

The CMP riser had rusted through in several spots, and the upper and lower sections of the CMP riser were out of alignment. This allowed water and soil to leak through the riser, creating a sinkhole around the structure, and causing the reservoir to lose water. The valve on the low-level system had been in service for 29 years, and was heavily rusted.

Repairs began in August 2017, with the construction of an earthen coffer dam, followed by excavation of the principal spillway riser. The riser was realigned with a new band connection on the upper and lower sections. Forms were placed around the existing CMP riser to create a reinforced concrete drop structure, while using the existing CMP riser as the inside form.



The original CMP at Schlecht-Thom Dam riser before repair.

New fittings for the low-level drawdown were cast into the new concrete, and a new valve and stem were fitted inside the riser. The structure was then backfilled, the low-level drawdown pipe was reattached, and a new trash rack was installed. The final steps were removal of the cofferdam, reclaiming the borrow site, seeding, and site cleanup. With these repairs, Schlecht-Thom Dam will be home to happy anglers again in 2018.