



Garrison Diversion Operations and Maintenance IN REVIEW

By Kimberly Cook

Operations and maintenance (O&M) workers on staff are the heart of the Garrison Diversion Conservancy District (Garrison Diversion) team, working on a multitude of projects big and small. In 2018, the crew persevered to complete a host of jobs that included basic maintenance and specialized projects. In mid-summer, the team lost co-worker and dear friend of the O&M staff, Jerry Kellar, to a tragic accident, yet pulled together and continued doing the good work for which they are known.

Garrison Diversion maintains O&M employees at four locations – Carrington, New Rockford, Oakes, and McClusky – who perform maintenance on the existing Garrison Diversion Unit (GDU) facilities through a cooperative agreement with the Bureau of Reclamation (Reclamation). The GDU facilities include the McClusky

Canal, New Rockford Canal and Oakes Test Area. The purpose of these features varies from supplying water for irrigators to sustaining recreation areas and wildlife management locations. Additional facilities associated with the GDU, such as the Snake Creek Pumping Plant, Jamestown Reservoir, Lonetree Wildlife Management Area, and Arrowwood and Audubon National Wildlife Refuges, receive Garrison Diversion's O&M assistance when requested.

The O&M staff includes a professional engineer, master electrician, certified diesel mechanic, painting and coating specialists, vegetative management specialists, and multiple heavy equipment operators. In addition, the majority of full-time O&M employees have a commercial driver's license (CDL). A safety coordinator promotes



safety procedures and implements a comprehensive safety program to ensure a safe work environment for all employees.

O&M's specialized skill set, broad knowledge base and large fleet of equipment enables the completion of the work plan set before staff each year. They are experts in earth moving and skilled at canal maintenance, road building and repairs, and other construction activities. The expansive skill set of the staff also enables Garrison Diversion to assist federal and state government agencies at their request.

Garrison Diversion maintains a large fleet of equipment to complete a wide variety of jobs. The fleet includes dozers, loaders, excavators, and many specialized pieces. Multiple dump trucks and tractors are also included. Several water pumps are on hand to complete both large and small pumping jobs. O&M staff perform maintenance to keep the equipment in excellent working condition.

Basic Maintenance Activities

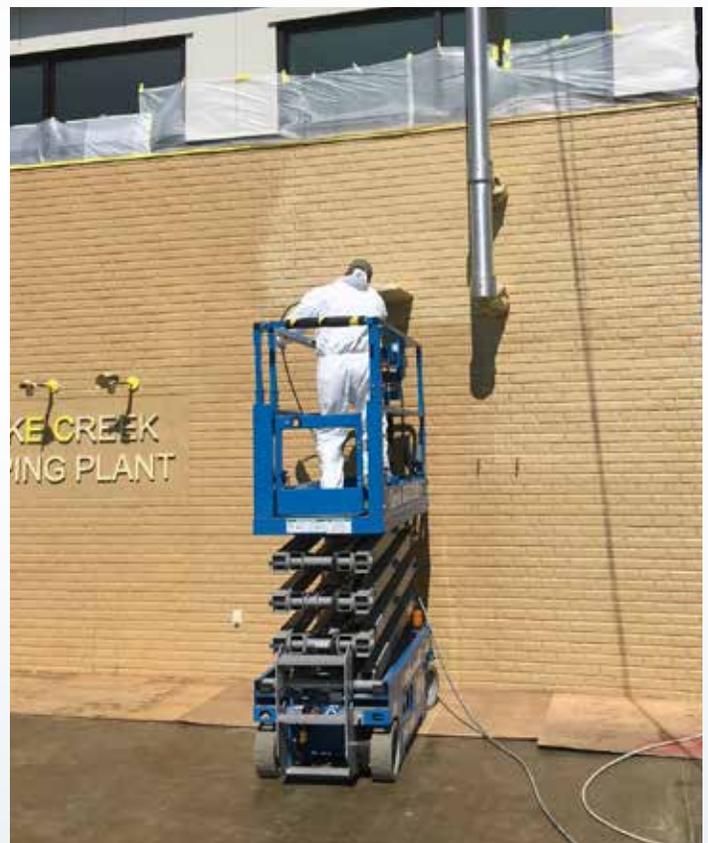
Routine maintenance is always completed along the McClusky and New Rockford Canals, which includes spraying for noxious weeds, blading maintenance roads and mowing rights-of-way. Because water delivered through the McClusky Canal is used for purposes such as livestock watering, water for wildlife mitigation areas, water quality improvements, irrigation, recreation, and fish and wildlife, a considerable amount of work is required each year to keep the canal in the best possible condition. The canals and canal drains must be cleaned regularly, and cattails must be removed. In 2018, approximately 40,000 acre-feet of water was delivered through the McClusky Canal.

Another important routine task is rock hauling, completed to stockpile rocks for various projects along the McClusky Canal but mainly for erosion control. Rock hauling is always a time-consuming activity for O&M employees but necessary in order to have materials on hand for future projects. The rock is purchased from area landowners and hauled throughout the year to Garrison Diversion's right-of-way, where it is screened to remove sediment and then sorted. In 2018, approximately 5,000 truckloads of field rock were hauled.

Over the summer, the Snake Creek Pumping Plant (SCPP) received a facelift with a new sealcoat applied to the outside of the building, giving the brick a fresh appearance. Work at the SCPP also included a freshly sand-blasted and coated tunnel #3. The tunnel is 11 feet in diameter and runs underneath Highway 83, serving as the water conveyance from Lake Sakakawea to Lake



Canal maintenance, mowing, at the New Rockford Canal.



New sealcoat was applied to the outside of the Snake Creek Pumping Plant.

Audubon to regulate Audubon’s elevation. There are three tunnels total, and each is on a three-year maintenance rotation.

In addition, Garrison Diversion assisted other government agencies with maintenance tasks as needed. In 2018, the U.S. Fish and Wildlife Service requested Garrison Diversion’s assistance to repair a culvert at the Arrowwood Wildlife Management Area. Support was also requested to clean up summer storm damage and perform earthwork at the Lonetree Reservoir. Work was also completed at the Jamestown Dam for Reclamation when stilling basins were cleaned and inspected.

The Devils Lake outlets are operated by the North Dakota State Water Commission (SWC), and Garrison Diversion provides O&M assistance as needed. Assistance on the Devils Lake outlets increased during the summer months, as the full-time operation was underway. Garrison Diversion employees assisted in monitoring and operating the outlets.

McClusky Canal Major Slide Repair

In addition to the general maintenance completed at the McClusky Canal, a majority of the crew’s time and talent was occupied completing major reconstruction at the canal. The McClusky Canal’s side-slopes are failing between Mile Marker (MM) 20 and MM 22 and have reduced the water flow of the canal downstream of MM 22, approximately seven miles south of Turtle Lake. While the McClusky Canal was designed for 2,000 cfs flows, under 100 cfs is flowing through at the slide area, reducing the amount of available water to irrigators downstream and presenting challenges in maintaining Chain of Lakes at the desired elevations. Lower water elevations of the canal can also cause erosion of the canal prism beneath the existing beachbelting.

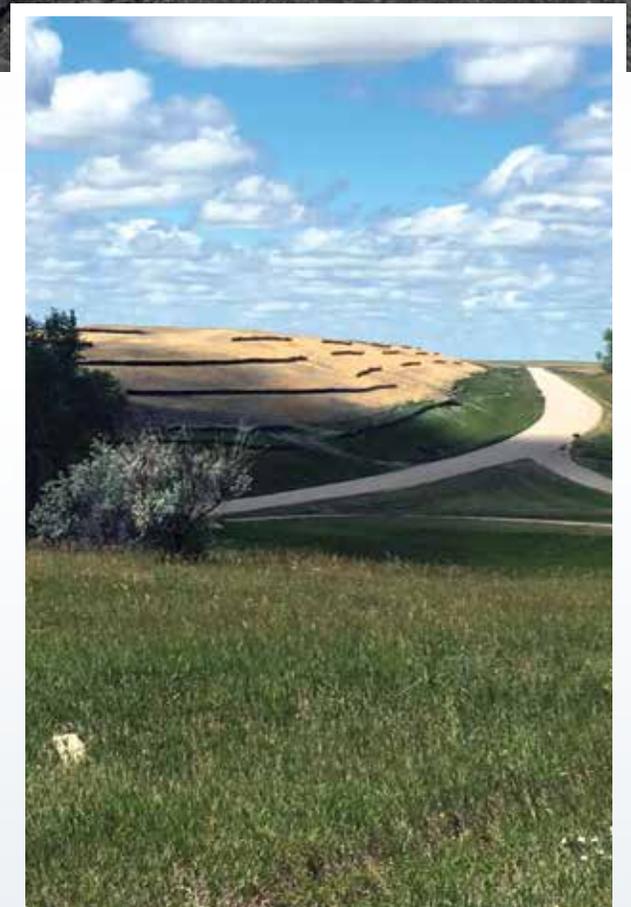
The work is being completed in cooperation with Reclamation. The objective is to flatten the currently failing 2 to 1 side slope to a more stable 4 to 1 slope. Overall, a total of 2.4 million cubic yards is estimated to be moved over the course of five to six years. In 2018, crews worked both the left and right sides of the canal and removed approximately 580,000 cubic yards of spoil material from the area to stabilize the slope.

O&M crews were able to work from mid-April to mid-December, approximately 32 weeks, at the slide area, performing earth-moving activities, as well as installing silt fence and seeding completed slopes to help with erosion control and establish vegetation. On average, five to seven workers are working the slide area. Four tractors pull two pans each, a skid steer operator removes large rock, and, on occasion, a dozer operator is on-site.

This time-consuming project is important to enhancing the overall function of the McClusky Canal.

Garrison Diversion O&M employees show up every day to protect the federal investment in the GDU facilities by keeping the Principal Supply Works in excellent working condition. “The O&M crew is dedicated and always works hard to complete the tasks at hand,” says Ryan Anderson, Garrison Diversion engineer.

Completed silt fence at major slide area at the McClusky Canal.



Completed silt fence and seeding on spoil pile at the McClusky Canal.

Roger Fenstad Awarded North Dakota Water Wheel

At the Joint Water and Irrigation Convention hosted by the North Dakota Water Users in December, Roger Fenstad, Cass County director for the Garrison Diversion Conservancy District, was awarded the North Dakota Water Wheel Award, an honor for which he is very deserving.

As civil engineer with Moore Engineering since 1974, Roger dedicated his career to water development across the state. He says, “Water is the backbone for the future growth of our agricultural, commercial and industrial interests in the state.” As a former president of Moore Engineering, a firm known largely for municipal and water resource engineering, Roger has seen firsthand the statewide need for quality water supplies. Working almost exclusively for municipalities in Cass County and surrounding areas, he recognized that most cities have some type of water issue, whether it be infrastructure, supply or water treatment problems, and worked tirelessly to improve their conditions.

He was driven to run for the Garrison Diversion Conservancy District Board of Directors because he wanted to be part of a progressive movement to secure the future of North Dakota. Since 2011, Roger has been an active member of the Garrison Diversion Board of Directors, supporting the mission to provide a reliable, high quality and affordable water supply to the people of North Dakota. He has served on the Executive Committee and is a former chair and current member of the Red River Valley Committee. He has dedicated countless hours to the Red River Valley Water Supply Project, stating the future of North Dakota lies in the availability of quality drinking water within our state.

“Congratulations on this recognition, Roger. We are proud to have you as a member of our board,” says Duane DeKrey, Garrison Diversion general manager.

Roger has received several honors over the years, including the North Dakota Chapter of the American Public Works Association President Service Award and American Council of Engineering Companies of North Dakota Lifetime Achievement Award.

