



## Retrofit Brings Efficiencies to Water Treatment Facility

By Brian Knadle

**T**HE CONSOLIDATED MUTUAL WATER COMPANY (CMWC) IN LAKEWOOD, COLORADO, RECENTLY COMPLETED a retrofit of its Maple Grove Water Treatment Facility. The 15.6 mgd retrofitted facility began operations in February. CMWC is a privately owned, non-profit water company, with a service area of 27 square miles, serving a population of approximately 95,000 people in Lakewood, Wheat Ridge, and unincorporated areas of Jefferson County. The retrofit comprised design and construction of a new residuals handling process and building and was completed by Burns & McDonnell.

Originally opened in 2008, the plant required a dewatering process upgrade for solids handling—the procedure for removing leftover solids created when raw water is treated and converted into clean drinking water. Burns & McDonnell was selected in 2017 to provide a solids management study and design-build services for the project.

“Throughout our company’s nearly 100-year history, we relentlessly strive to provide world-class water services to our customers,” said James Bohks, Superintendent of Water Treatment at Consolidated. “This outstanding project epitomizes our commitment to excellence and enables us to deliver affordable, clean, and safe water to our customers for decades to come.”

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Construction on the project began in February 2019 and was completed on schedule and under budget in January 2020. The new 4,400-square-foot facility houses new dewatering equipment, including:

- Two 15,000-gallon solids storage tanks
- Two 105 gpm, 535 pounds-per-hour volute dewatering presses
- Three 105 gpm progressive cavity pumps
- Two polymer preparation systems
- Ancillary feed valves, piping, and controls

“The new efficiencies achieved at the Maple Grove Water Treatment Facility are a direct result of our design-build delivery method, which gave us the flexibility to successfully meet an expedited project schedule,” said Mark Lichtwardt, Senior Vice President and General Manager for Burns & McDonnell in Denver. “With a clear understanding of time constraints and outcome requirements, we designed and constructed a solution that gave new life to existing infrastructure while delivering a wide range of facility improvements.”

The facility’s state-of-the-art equipment and new dewatering method saves water in the treatment process, reduces odors, and decreases heavy equipment noise levels. By siphoning

water from the improved dewatering method, and recycling and retreating leftover water, the new process provides a greater level of efficiency.

“The new residuals handling process provides a significant improvement in both water conservation during the treatment process and a dramatic reduction in residuals (solids) remaining after the completion of treatment,” CMWC Executive Vice President Kevin McCasky said in an email. “We’re proud of our new residuals handling facility and the associated process improvement.”

The design-build delivery method led by Burns & McDonnell enabled the procurement of dewatering equipment during the design phase, allowing the new equipment to be installed and operational—throughout peak demand season—in a temporary enclosure while the facility was under construction.



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