

Finished Water

A PHOTOGRAPHIC PROFILE

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Adel's new water treatment plant is one element in a project that includes two new water supply wells north of Adel, a transmission main from the wells to the treatment plant, a new ground-storage reservoir, and extensive water main replacements around Adel.

ADEL, IOWA, CELEBRATES NEW WATER TREATMENT PLANT

The City of Adel, Iowa, held a ribbon-cutting ceremony and open house on Oct. 14, 2021, to celebrate its new water treatment plant. Due to high-quality schools, amenities, and proximity to the Des Moines metro area, the city has experienced significant population growth. From 2010 to 2020, the city grew nearly 70%, straining its water system's capacity.

To address existing system needs and plan for continued community growth, the city partnered with McClure Engineering Company to complete a water system master plan. Through the master plan study, multiple water treatment techniques were evaluated. Reverse osmosis (RO) membrane treatment was selected because of its modular design, ability to remove multiple contaminants, and life-cycle cost.

Following a successful RO pilot study, design, permitting, and securement of project financing began in late 2017. The facility was bid in spring 2019. The project broke ground that summer, and the plant was operational in March 2021. The new treatment process includes aeration, detention, filtration, RO softening, post-aeration, and chemical addition.

Designed for future growth, the treatment plant's initial capacity is 1.2 mgd. However, capacity can be easily expanded within the existing building footprint by installing additional vertical pressure filters and RO vessels. Full build-out capacity of the new treatment facility is 2.4 mgd. Along with other project elements, including source, storage, and distribution system improvements, the city's recent water utility investments total \$25 million.

PROJECT SPECIFICS

Project Name: New Adel Water Treatment Plant

Operator: Adel Municipal Water Works

Contractor: John T. Jones Construction

Engineer: McClure Engineering

Water Source: Alluvial wells

Technology: Conventional iron and manganese removal followed by RO

Project Cost: \$13.5 million

Service: 2.4 mgd

Physical Size: 15,800 ft², five 12-ft.-diameter pressure filters, two RO trains (each rated for 500-gpm permeate flow)

Number of Operators: 3

Special Features: Ability to double water production easily within same footprint with additional pressure filters and a third RO treatment skid. Filters designed for biological manganese removal.