Integrated Water Services, Inc.

Rural District Upgrades To MBR Treatment

Integrated Water Services, Inc. (IWS) has completed the construction of the Clear Creek MBR upgrade wastewater project in Dumont, CO (40 miles west of Denver in the Rocky Mountains) for the Central Clear Creek Sanitation District. The project will improve water quality in Clear Creek for community residents and businesses in and near Dumont, Colorado and downstream communities.

The wastewater upgrade project replaced the existing treatment system which was over 40 years old. The project consists of two parallel MBR trains containing submerged membrane filtration modules in steel tanks, pumps, blowers, diffusers, instrumentation, and process control system, flow equalization basins, new influent screening and grit removal system, and conversion of an existing clarifier to an aerobic digester. The new treatment process equipment is housed in a new prefabricated metal building with a floor area of approximately 3,400 square feet.

IWS was the low bidder at $5.375M, however, the bid exceeded the district's budget so IWS worked with Dewberry Engineers (www.dewberry.com) and the Central Clear Creek Sanitation District to provide value engineering and reduce the project price to $3.5M – the district's target. Value engineering included a redesign of the MBR treatment system, treatment building, and electrical system and controls.

MBR Treatment System in Building

Setting MBR Units

The specific scope of work for IWS included: 1) Influent flume; 2) Influent mechanical screens and manual bypass bar screen, screening wash and press system, and ancillary equipment; 3) Masonry building enclosing the influent screens; 4) Reinforced concrete flow equalization basins including installation of access hatches, diffusers, aeration blower, and submersible influent pumps; 5) Two pre-fabricated membrane bioreactors (MBRs) manufactured by Alfa Laval (www.alfalaval.com); 6) Prefabricated metal building with masonry details, including HVAC, lighting, plumbing, and laboratory casework and equipment; 7) Chemical storage and metering equipment; 8) Conversion of an existing secondary clarifier into an aerobic digester including demolition of existing equipment and installation of new diffusers, aeration

Final site blanketed by snow

blower, and sludge decant pumps; 9) Upgrade of an existing aerobic digester including installation of new tank covers, aeration diffusers, and aeration and sludge piping; 10) Potable water system consisting of HDPE storage tanks, pumps, and hydro-pneumatic tank; 11) Non-potable water system including supply pumps and hydro-pneumatic tank; 12) New electrical transformers, motor control centers (MCCs), power and control panels, lighting, conduits, conductors, duct banks, programmable logic controllers (PLCs), and other electrical components; 13) Emergency electrical generator with automatic transfer switch; 14) Yard piping for natural gas, raw sewage, treated effluent, waste sludge, non-potable water, and drinking water; 15) Demolition of existing equipment and structures.

Sequencing of the construction was critical as the existing plant needed to remain online at all times during the project until switch over when the new treatment system was in place and operational.

Carmen Barker, the District Manager of the Central Clear Creek Sanitation District was pleased with IWS throughout the project and said "Our community is thankful for the work performed. IWS did a great job from the value engineering phase of the project through construction and start-up. We view IWS as a team partner and not just simply a contractor. We would highly recommend IWS for future projects and value their expertise."

Setting MBR Units on concrete pad

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