



Fortune 500 client uses H2O Innovation's knowledge for their data center cooling in Oregon, United States

APPLICATION: Data Center Cooling

CAPACITY: 1.7 MGD

LOCATION: Oregon, USA

COMMISSIONED: June 2018

CHALLENGE

A confidential customer of H2O Innovation had an immediate requirement to implement a fast-tracked project for the treatment of a surface water to produce industrial cooling water. The water supply is taken from the Columbia River. The customer established a firm execution deadline of six months, from notice to proceed to the make water date.

Treated water quality requirements included a maximum turbidity of less than 0.1 NTU, 95% of the time and always less than 0.15 NTU. In addition, a minimum LRV score from Membrane Integrity Testing of 4.0 log was required by the membrane system.

SOLUTION

The solution offered by H2O Innovation took advantage of the 60 psi feed water pressure being supplied to the treatment building. The raw water was fed directly into the automatic strainer skid supplied by H2O Innovation, then screened water was fed to three, 50% FiberFlex™ trains. Each FiberFlex™ train is designed to provide a hydraulic capacity of 600 gpm. Following filtration, the water goes through a set of filtered water forwarding pumps, has chlorine injected, and is then sent to the customer's downstream storage tanks where the finished water is used for data center cooling.

To provide a seamless, well executed project in short as time-frame as possible, H2O Innovation served as the construction manager for the job, sub-contracting directly to local mechanical and electrical subcontractors. This project delivery method ensured a single point of responsibility for the customer including design, equipment fabrication, delivery, installation and startup/commissioning.

Backwash water that is generated from the FiberFlex™ skids is collected and sent to a backwash equalization holding tank. Equalized flow is then pumped to drain.



UF System in Oregon, USA



Forward pump skid & backwash skid
in Oregon, USA



SOLUTION (continued)

All equipment was skidded to the maximum extent possible and shipped from H2O Innovation's Champlin Minneapolis manufacturing shop. All skidded equipment required seismic design and, as such, H2O Innovation performed a rigorous structural review and included reinforcement of skids as well as piping supports for all interconnecting pipework.

BUILT WITH FIBERFLEX™

The FiberFlex™ UF system supplied for this confidential customer is a universal membrane system designed to fit several different modules from membrane manufacturers. This gives the Owner ultimate flexibility and negotiating power in the future when the time comes for membrane replacement. The skidded UF membrane racks and control systems were fully factory assembled and tested at H2O Innovation's manufacturing facility to ensure minimal installation labor and time required on-site for system start-up and commissioning. Once the racks were brought into position and connected, the membrane modules were installed, flushed and integrity tested.

The supporting ancillary equipment was designed and selected to not only handle future expansion capacity, but also to accommodate a different supplier of membrane elements in the future should the owner elect to do so. In this case, operating parameters such as air scour rates, backpulse flows, system cleaning volumes and various chemical recipes are simply changed by the operator at the HMI without requiring additional programming when modules are changed. For maximum reliability these FiberFlex™ trains are equipped with vane actuators rated for several million cycles for all pneumatic valves.

RESULTS

The FiberFlex™ UF membrane system was commissioned in June 2018 and since then has provided superior filtered water quality that meets and exceeds the most stringent regulatory requirements. All sequences are fully automatic for easy operation.