

Meeting Drinking Water Standards in Revamped Water Treatment Plant with Membranes



The challenge

In 1996, city officials in Cottage Grove, Oregon, were tasked with renovating and developing added water production capacity at its Row River Water Treatment Plant. City officials were not only tasked with finding a treatment method capable of meeting drinking water standards, but also one that was able to handle Cottage Grove's unique capacity requirements, where water use frequently triples during the summer months. Additionally, facility operators needed to find a treatment method they could trust, as 24/7 monitoring of the water supply and treatment was paramount.

The solution

Prior to the retrofit, Row River Water Treatment Plant had previously employed processional granular media filtration—a more conventional treatment method. Facility operators invested in the Aria FLEX™ membrane system from Aria Filtra™, utilizing the advanced pressurized filtration membranes to successfully meet drinking water standards. This system was selected in large part due to its ability to fit a wide range of capacities, meeting the new treatment and flow rate demands.

The membrane solution provided protection against microbial contamination while also removing organic and colloidal contaminants. Oxidized metals were removed in the pretreatment process and any remaining iron and manganese was removed through Aria Filtra's filtration membranes. Beyond purification, another major objective of the new facility's design was to maximize system efficiency by minimizing membrane fouling from precipitated metals.



“While there was some initial reluctance from operators when we transitioned from our traditional, manually operated water treatment plant to the SCADA-controlled Aria FLEX system, this quickly changed. After having some experience with the system, you couldn't get the operators to change back for anything; they love it. They especially like that they do not have to repair any broken fibers, ever!”

Ray Pardee, water production superintendent

The results

Following the implementation of Aria FLEX, Row River Water Treatment Plant's new gravity feed intake system was able to meet feed demand, as it transitioned from its previous capacity of 2 million gallons per day (mgd) to its current capacity at 4 mgd. Ultimately, it will produce 8 mgd at full buildout. This was critical for the plant, as Cottage Grove's water demand soars during the summer months, reaching a capacity of nearly 3 mgd (from 900,000 gallons per day during the remainder of the year). The flexibility of this system allows Row River Water Treatment Plant to operate at increased capacity during peak demand.

Beyond the added water capacity, the operator-friendly nature of the system was a colossal benefit. The previous method required an operator onsite at all times to monitor the water levels while others were on call 24/7. With the Aria FLEX platform's operating system, facility operators can now manage, monitor, and adjust water levels with ease as needed. In the last eight years of operation, the Aria FLEX system has not experienced any fiber breakage.

The fully integrated Aria FLEX membrane system removes *giardia* from 8 to 30 microns (μm), *cryptosporidium* cells from 3 to 8 μm , and other bacteria from 0.2 to 50 μm . Furthermore, the sophisticated system enables clean-in-place (CIP) to occur every 60 days versus a 30-day cleaning cycle. This efficiency has led to annual savings of \$5,500 for the facility, as its need for chlorine and other water chemicals has decreased.

The benefits

Overall, the Aria FLEX operation was able to meet the following requirements:

- Meeting increased capacity needs
- Reliable, safe source of drinking water
- Ability to readjust levels and monitor sensors with ease
- Financial savings due to CIP efficiency

Aria FLEX custom water treatment systems deliver flexible, customizable solutions designed to fit your needs.

- Scalable to accommodate any capacity
- Custom designed
- Easy-to-operate system
- Reliable performance



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