Russky Island • Case Study

Extreme desalination

Waterco filters key component for new desalination plant in Eastern Russia

Russky Island off the coast of Vladivostok in Russia is well known for its extreme climate – in fact the seas around the island are frozen for six months over winter. So when the Russian Central Government made the decision to construct a desalination plant there, it needed to be purpose designed for the extreme weather conditions.

Located in the northern Sea of Japan in Eastern Russia, Russky Island was for many years a closed area, home to numerous military units, but there were never any industrial, construction or other facilities on the island. That is until 2007, when Russky Island was chosen as the site for the 2012 Asia-Pacific Economic Cooperation Leaders' Week (APEC) – and large-scale construction was launched.

An integral part of this major development was the construction of a new 10,000 m3/d seawater reverse-osmosis (SWRO) desalination plant to support the drinking and process needs of local residents and the new Far Eastern Federal University, a unique dual-purpose facility: an international-grade university campus and the site of the APEC 2012 Leaders Summit.

Global water solutions provider Aqua-Chem Inc was contracted to provide the turnkey design/build desalination project, which purifies over 2.6 million gallons of seawater per day.

> "The Russian Central Government recognised our expertise in extreme-weather SWRO facilities based upon our long history of making potable water for the Canadian government's Arctic research teams and the Antarctic research facilities at McMurdo, Palmer and South Pole stations,"
>
> *says Aqua-Chem president and CEO David Gensterblum.*

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Waterco was awarded the contract to provide 12 Micron MD10,000 horizontal filters. These 7-bar rated filters are made using the latest in fibreglass winding technology and use the highest grade of non-corrosive materials.

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Given the harsh environment, Aqua-Chem needed components for the plant specifically designed to be hard wearing and long lasting. Following a tender process, Matrix, a division of Aqua-Chem, awarded the contract to Waterco to provide 12 horizontal filters. These 7-bar rated filters are made using the latest in fibreglass winding technology and use the highest grade of non-corrosive materials.

> "Our client required a filter with a large surface area and a corrosion resistant design,"
>
> *explains Brad Fox, CEO of Waterco USA.*
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> "Fibreglass filters are perfect for seawater applications as they do not corrode like steel or even stainless steel."

To provide the filters, Waterco overcame two significant challenges – the short lead time requested by Matrix, coupled with the logistic challenges of shipping 12 filters safely to site.

"Our ability to manufacture filters in three plants around the world allowed us to choose the best location in order to best suit the delivery time of the project," Fox says. "We chose to manufacture the filters in our Malaysian facility, as the proximity to the project gave us the best delivery time and most economical shipping cost for our customer.

"The availability of a large diameter horizontal filter that can economically be shipped anywhere in the world also made our bid more attractive. Other manufacturers were bidding filters that would require large shipping costs due to oversize freight.

"Our filters are created with reliability and durability firmly in mind and provide flexible solutions to the many challenges that go with treating higher volumes of seawater. Russky Island is a perfect application."

Waterco's filters are designed with no metal to water contact and are suitable for a long service life due to the high pressure rating.