Flemington Racecourse joins the move to In Situ Desalination (ISD) as a reliable water source to keep their world class track looking green all year round.

The Victoria Racing Club (VRC) is responsible for Flemington Racecourse, Australia’s best-known thoroughbred racing track and home to the prestigious Melbourne Cup.

Searching for a solution

Despite recent rains, gaining access to adequate supplies of water was the most significant risk for the club, particularly in the face of continued climate change and the increasing costs of using potable town water.

Although there is a substantial amount of groundwater underneath the Flemington Racecourse, traditional bore systems were unsuitable as groundwater salinity ranged from 6000ppm to over 14000ppm of total dissolved salts across the site.

The VRC had trialled water sourced from the Maribyrnong River to wet the sand track, however the build-up of salt in the soil from the salty river caused key infrastructure to rust quickly and this was substantially reducing plant life.

Fuelled by a desire to balance their commercial goals with environmentally sustainable practices and reduce the club’s burden on Melbourne’s potable water supply, the VRC needed to find another source of quality water that was reliable, cost effective, and environmentally friendly.

When the VRC was introduced to Desaln8’s ISD system it appeared to address all their needs: an environmentally sustainable solution that produced fresh water all year round and offered a competitive price per mega litre. And unlike traditional desalination systems, ISD had a small surface footprint that would not detract from the aesthetic value of the track.

Desaln8 was engaged to deliver 40 million litres of fresh water annually for Flemington’s grounds and gardens.

Installation of two ISD Systems

After an indepth consultation process to understand the club’s needs, two separate ISD systems were designed.

ISD1 was installed in the car park on the outside of the track to supply fresh water to the car parks and roses. ISD1 was customised to convert groundwater with a salinity of 6000ppm to a permeate with salinity of 450ppm.

ISD2 was installed inside the track to supply water to the sand training track and is set to convert groundwater with a salinity of 14000ppm to a permeate with a salinity of 700ppm.

Every site has its own unique challenges and from a hydrogeological perspective Flemington Racecourse had more than most: groundwater contamination by the highly saline, tidal nature of the adjacent river, as well as significant levels of fine silt within the aquifier. After some initial teething problems both ISD units are working so well that the VRC is now considering several more units to supply a greater percentage of their total water needs.
Rising to the water challenge
Russell Martin, Chief Hydrogeologist from AGT Technologies said, “From a hydrogeological perspective this was a very difficult site. A naturally high background salinity of 14000ppm, the tidal nature of the adjacent Maribyrnong River which replenished the salinity of the aquifer underneath Flemington Racecourse on a daily basis, the impact of dewatering of the racecourse tunnel on the natural groundwater flows and the impact of the super fine silt in the natural soil structure, all provided a considerable test for the ISD system.” said Russell.

ISD is, by its nature, designed to handle high salinity environments however the soil around the racecourse is known for its fine silt characteristics which soon became a problem for ISD1. Within days of installation the RO membranes had become clogged and the unit was put out of action. Clearly the silt would be an ongoing issue and it had the ISD technicians scratching their heads; how to adapt the design and work around the silt problem without compromising the benefits of an in-situ system?

The system demonstrated its adaptability to varying conditions and it was reconfigured to maintain the closed nature of the system and its independence of chemical additives thus ensuring the aquifers ongoing environmental integrity and sustainability.

The Victoria Racing Club are very pleased with the 2 ISD units that we currently have” said Paul Doman, The VRCS’s Development Manager.

“They are an efficient, no fuss solution with very small above ground footprint and best of all the water produced is cheaper than the potable water. The ISD solution fits well into our overall strategic plan to reduce our requirement to use potable water and we are considering how we might utilise more of the ISD systems for our future needs. ”

Trevor Ahale, Chief Executive Officer of Desaln8, commented ‘ISD adds new water to the total available supply at a very competitive price. Our experience here at VRC will enable us to help companies and communities all around the world to secure their futures’.

Triple bottom line performance
ISD technology offers industry affordable access to an essential resource in an environmentally sustainable way.

A single unit uses less energy than it takes to air-condition an average home, water is produced at a comparable cost to domestic water and is environmentally friendly, operating in a closed system completely below ground with no waste and almost no physical footprint.

Your solution to the water crisis
ISD is proving itself to be a great solution, not only for racecourses, but town water supplies, golf courses and other recreational facilities, irrigation farms, dry land rehabilitation. What’s more, The ISD system is designed to offer modular flexibility so any number of units can be installed to meet changing needs over time. Could ISD be your future solution?

Did you know? The UN estimates that there is over 3,000,000 cubic miles of saline groundwater in the world, which is currently quarantined, rendering it unusable!