

# Apollo Hospital, Delhi, India

Q-SEP Model: Q-SEP<sup>®</sup> 6008 Flow: 20m<sup>3</sup>/hour Number of Membranes: 7 Application: Hospital Sewage Recycle

#### **QUA Solution**

The client considered various UF options and finally selected QUA's Q-SEP UF membranes. The differentiating factor between Q-SEP and other manufacturer's membranes was that Q-SEP's patented Cloud Point Precipitation technology provides a uniform pore size distribution which reduced the number of membranes. This technology has proven to be extremely effective even in challenging effluents, and has resulted in superior and more consistent product water quality.

The Q-SEP system comprises of 7 modules, and has been operational for 5 years now. It has been performing satisfactorily and is able to provide a consistent permeate output of 20m3/hr. Q-SEP has been successfully treating the effluent at Apollo hospital site, without any rise in the trans membrane pressure, and has been giving consistent product water quality of SDI less than 3 and turbidity less than 1.



#### **The Client**

Apollo Hospital is a premium and one of the best know medical care services brand in India. It is recognized as the architect of modern healthcare in India, and has emerged as Asia's foremost integrated healthcare services provider, having a robust presence across the ecosystem. Apollo is India's first corporate hospital, and is acclaimed for pioneering the private healthcare revolution in the country.

#### **Project Overview**

Apollo Hospital at New Delhi was installing a sewage treatment system to treat hospital sewage. They wanted to recycle and reuse the treated sewage water for cleaning, flushing and gardening. Ultrafiltration was chosen as pretreatment to a reverse osmosis system, and the feed water was tertiary treated hospital waste. The customer was searching for a reliable and advanced ultrafiltration solution, which would meet their stringent quality standards, and not choke and foul repeatedly.

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### About QUA

QUA is an innovator of advanced membrane technologies that manufactures and provides filtration products to address the most demanding water challenges.

## Q-SEP<sup>®</sup> Hollow Fiber Membranes

Q-SEP<sup>®</sup> hollow fiber UF modules contain membranes manufactured with QUA's innovative patented "Cloud Point Precipitation" method. This process ensures a high pore density along the length of the fiber and uniform pore size distribution in the membrane; 95% of the pores are of the size 0.02 micron. Q-SEP modules deliver superior performance characteristics and product water quality that surpass the quality from conventional UF modules. The uniform pore size distribution allows the membrane to produce water with a low silt density index (SDI), which leads to less frequent and easier cleaning of downstream RO membranes. In addition, the Q-SEP membranes provide an excellent rejection of bacteria and viruses.

Q-SEP UF membranes are made of modified hydrophilic polyether sulfone (PES) material that offers high fiber strength and excellent low fouling characteristics, resulting in higher membrane productivity. These hollow fiber membranes operate under a low trans-membrane pressure in an inside-out flow configuration for superior performance. Applications of Q-SEP UF include pretreatment to RO systems (brackish and seawater applications), purification of surface and well water for potable applications, filtration of industrial water, and wastewater recycle and reuse.

