Reverse Osmosis

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Reverse Osmosis is a process that, by means of a membrane system, allows obtaining high quality water. This technology is a type of physical-chemical treatment that copies nature to remove suspended particles and other impurities from water by passing it through semi-permeable membranes. It works by applying pressure to the water to push it through a semi-permeable osmosis membrane to filter it.Its main characteristic is that it does not use any chemical product or any other polluting substance. For this reason, it is a totally environmentally friendly process, very beneficial for industrial systems and for human health.Examples of industries using reverse osmosis water include pharmaceuticals, boiler feed water, food and beverage, metal finishing, and semiconductor manufacturing.Reverse osmosis has been around since the late 1950s and is very effective in water treatment, mainly used to desalinate seawater and brackish water, soften water, remove organic matter and separate specific contaminants from water. It is capable of removing up to 99% of dissolved salts (ions), particles, colloids, organics, bacteria and pyrogens from water.Proper pretreatment with mechanical or chemical filters is essential before the water passes through the osmosis system to prevent membrane fouling, which results in premature failure of the reverse osmosis membrane.

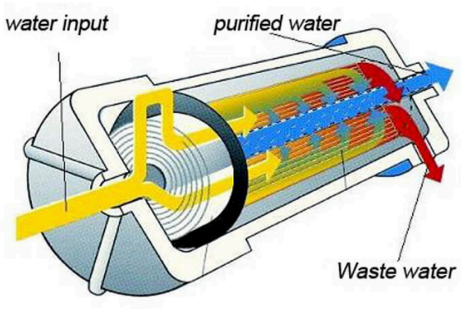
Pre-Reverse Osmosis Water Treatments.

Some water pretreatment solutions for reverse osmosis systems that can help minimize scaling and chemical attack are described below.

Multimedia Filters (MMF): are designed to filter suspended solids in the water through several layers of filter media, this maximizes the ability to trap particles of grit, oxides, organics and general sediment. Prevents reverse osmosis system fouling.

Micro Filtration (MF): is very effective in removing colloidal and bacterial matter from water. It is very useful in reducing the risk of a reverse osmosis unit becoming contaminated.

Anti Fouling and Scale Inhibitors: are chemicals that are added to water upstream of a reverse osmosis unit to reduce the potential for membrane fouling.Granular Activated Carbon (GAC): is used to remove both organic components and residual disinfectants from water. They are made from charcoal, nut shells or wood.



At Nakasawa Mining & Energy we are incorporating these Reverse Osmosis systems to our new Super Matroid Technology (SMT) to obtain better results in steam generation and affirm our commitment to harmony with the environment.