AES

Reverse Osmosis Desalination Plants

Drawing upon 40 years of experience in desalination and water treatment plant design, American Engineering Services (AES), has a record of successfully producing safe and efficient methods of brackish water treatment and sea water desalination by Reverse Osmosis (RO) for satisfied customers worldwide.

Using only the highest quality construction materials and the most current technologies, AES products are designed to meet specific customer requirements in the most cost effective manner.

A stringent quality control program coupled with thorough factory testing insures that only products which meet the high standards of AES will be delivered to customers.

Typical Applications for AES RO Systems

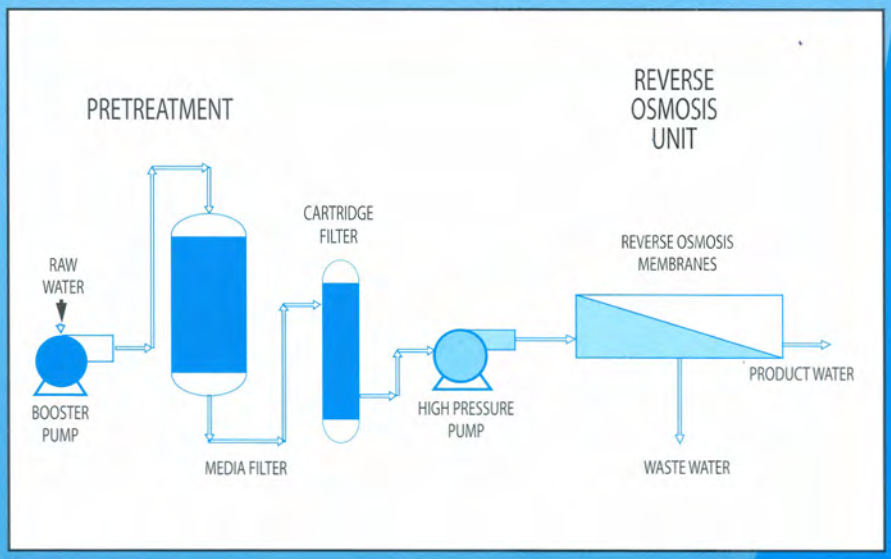
Businesses		Governmental Entities
• Process and broiler feed	• Irrigation	• Municipal
• Food & beverage industry	• Utilities and drinking water	• Military-mobilization
• Pharmaceutical process water	• Semiconductor process water	• Civil defense-emergency

System Design

AES RO Brackish Water standard systems effectively and safely reduce and/or eliminate:

- Total dissolved solids (TDS)
- Trihalomethnes (THM)
- Bacteria and viruses
- Toxic substances and metals

Although systems are devised for normal industrial and municipal usage, where there are specials requirements or specification, however, (e.g. containerized or A.P.I. Specifications), AES will make modifications and adopt such specifications and custom build the units.



Reverse Osmosis Membranes

AES will select the appropriate reverse osmosis membrane compositions and membrane element configurations to suit the feedwater quality and the customer's specifications.

Compositions:
- Thin film composite (TFC)
- Cellulose acetate and triacetate (CA/CTA)
- Nano filtration (NF)

Configurations:
- Spiral wound
- Hollow fine fiber

Suitable membrane pressure tube selection will comply with the respective membrane configuration and overall system specifications.

Process Design

(1)Following the necessary pretreatment, the feedwater is dosed with acid and a sequestering agent to prevent scale formation on the membrane surface. The quantity of chemicals used is related to the feedwater analysis. The AES chemical solution metering systems, incorporate adequate adjustment capablilities to allow for maximum flexibility.

(2) A pH meter, with high and low level alarms, monitors the acidified feed water to insure that dosage levels are suitable for safe plant operation.

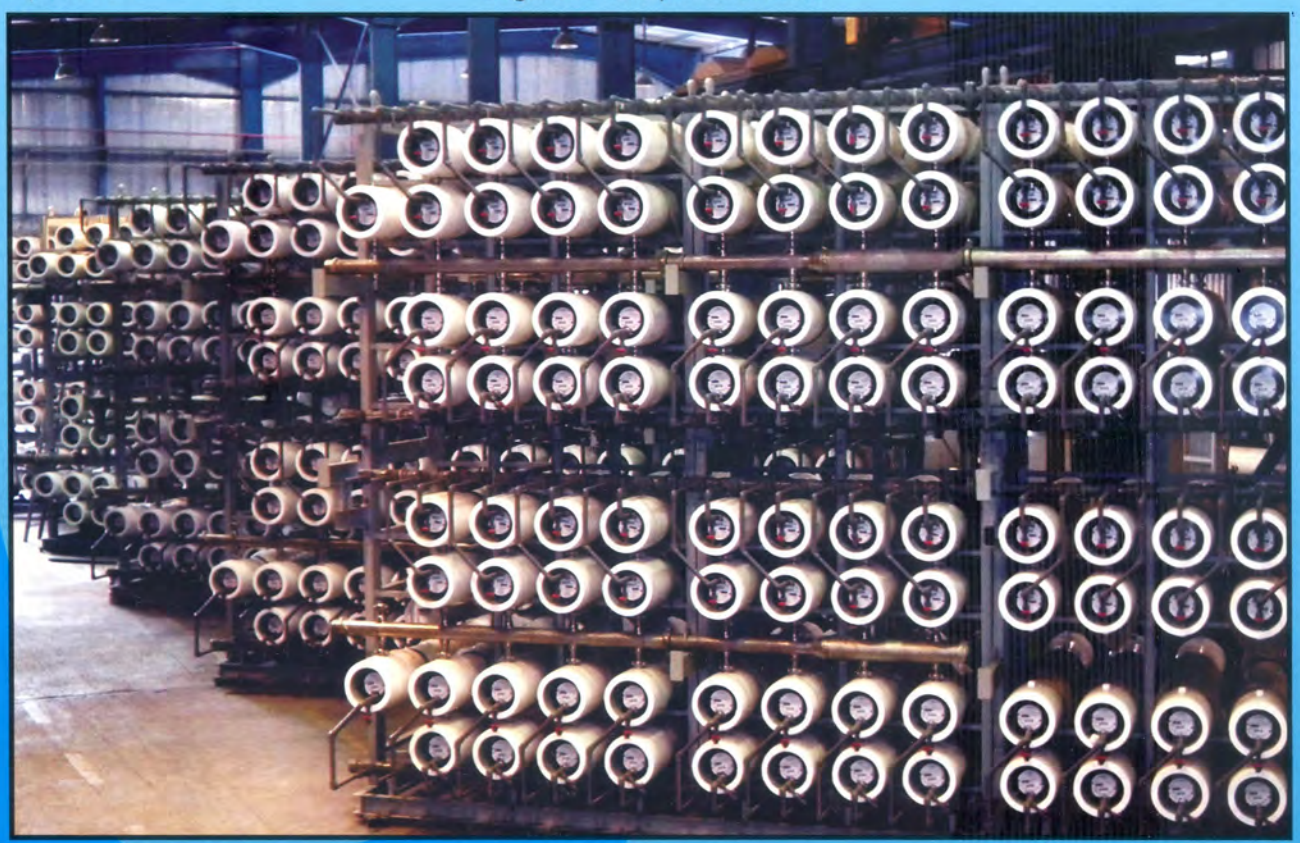
(3)The acidified feed water then passes through cartridge type micron filters which prevent finely suspended particles from entering the RO pressure pump and membrane elements.

(4)The pressure of the acidified and micron filtered feed water is then elevated by the RO high pressure pump to pressures which allow efficient membrane separation of brine and permeate at the desired permeate flows.

(5)The permeate which is collected in a manifold and piped to storage can also be degassed and pH corrected.

Maximum Water Recovery

AES designs will be within the technical limitations of the feed water chemistry, temperatures and membrane velocity restrictions. AES will produce the RO system to provide the customer with the maximum "recovery" of feed water per gallon of permeate water produced by the system.



Parts and Services

Maintenance, operation and spare parts services are available worldwide, for systems serviced by AES and/or units supplied by other firms.

Customized service contracts are available on a monthly or yearly basis designed to fit budgets and include any of the following programs:

- Field technical services
- Spare parts, chemicals and consumables supply from regional inventories
- Maintenance and operation services

AES

AES ARABIA LTD

Environmental & Process Engineering

P.O. Box 105689 Riyadh 11656, Saudi Arabia
Tel. : +966-11-477 2398 - Fax : +966 11 478 5456
info@aesarabia.com - www.aesarabia.com