



Seawater Softening Water Package



THE SITUATION: A major oil and gas company in Kuwait involved in the exploration, drilling, and production of oil and gas activities, required a water solution to remove almost all the total hardness from the seawater.

LOCATION: Kuwait

INDUSTRY: Oil and gas

THE CHALLENGE: In a remote area in the middle of the desert and for enhanced oil recovery (EOR) research, the customer was looking for a water source with specific chemical and physical characteristics to use during the oil fields developments using alkali-surfactant-polymer (ASP) and waterflood trials. The available water source is seawater; high salinity, high total hardness, and a wide range of operating temperatures should be considered when selecting the technologies, treatment scheme, and operating philosophy.

THE SOLUTION: To achieve the performance criteria in reducing the partial seawater salinity and almost eliminate the total hardness; CECO offered a softening plant consisting of proven technologies in the water treatment industry.

The total package included:

- Prefiltration & Micron Filtration using Ultrafiltration modules.
- Seawater Reverse Osmosis plant.
- Nano Membrane plant.
- Chemical Dosing stations.
- Weak Acid Cation plant with Regeneration arrangement.



THE RESULTS:

- a. Durable water source suitable for the EOR applications.
- b. Capability to produce different types of water qualities.
- c. Customized design.
- d. The package is suitable for easy re-locating between the oil fields.

ENVIRONMENTAL BENEFITS:

- a. CECO Peerless used different technologies and combined them to serve one purpose: to re-condition the seawater and produce treated water suitable for the desired activities.
- b. The complete system is skid mounted and designed to re-locate with minimum site construction.
- c. With this water treatment plant available at the site, clean water purchasing and transportation to a remote area will not be required.

"CECO Peerless combined the latest water treatment technologies to achieve the desired water quality package using simulations software before construction, which led to selecting the suitable membrane types and arrangements suitable membrane-type chosen to ensure the performance guarantee."

CECO
ENVIRONMENTAL

