



Sabine Pass LNG Terminal - USA

FEDI Model: FEDI-2 30X

No. of Streams: 6 x 465 gpm (6 x 105 m³/hr)

No. of Stacks: 186

Silica as SiO₂: < 10 ppb

Conductivity: 0.1 mS/cm

Project Background

Sabine Pass, a large LNG refinery in the United States, required a membrane desalination solution to cater to its extensive process water needs in order to produce a large amount of liquefied natural gas for export.

The water is used for injection for compressor turbines for methane, propane and ethylene, wash water for gas turbines and other utility make-up uses. The feed water to the terminal comes from a local utility and the water requires further treatment to produce high-purity water with low conductivity and silica content for the plant's uses.

The customer decided that a reverse osmosis (RO) desalination solution, followed by a demineralization step, would best suit their intended system designed to operate on single pass RO feed water.

Since single pass RO water is a challenging application for conventional EDI systems, the customer carefully evaluated options for RO permeate polishing.

QUA's FEDI was chosen due to its design advantages that include reduced hardness scaling.

QUA Solution

QUA provided its Fractional Electrodeionization (FEDI) technology for the RO permeate polishing and demineralization component of this project. When completed, this project will serve as one of the largest electrodeionization references in the world.

The FEDI system is designed to treat 4 MGD of challenging single pass RO feed water to be used for the plant's production purposes. Due to the FEDI's enhanced dual-voltage design, water containing lower silica and conductivity levels will be produced than could be produced by conventional technologies.

The water treatment system is key to the long-term success of the terminal's liquefaction process. QUA's FEDI successfully delivered a reliable electrodeionization solution, coupled with a modular design, that allows for easy expansion for future growth as the plant plans to expand its capacity.

About QUA

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

FEDI® Electrodeionization

Fractional Electrodeionization (FEDI) is an advanced EDI technology that was developed to address the limitations of conventional EDI. FEDI is a patented two-stage process that operates in a dual voltage configuration to reduce hardness scaling that may occur in conventional EDI.

FEDI's unique design maintains an acidic condition in the first stage and basic condition in the second stage of the electrodeionization concentrate chamber. This patented design reduces mineral scaling in the first stage and enhances silica removal in the second stage.