OIL & GAS

PROJECT BRIEF

Oil Producer Sustains Offshore Operations by Leveraging LANTERN Reverse Osmosis Technology for Potable Water Generation at Sea.

PROJECT OVERVIEW

Located far offshore in the Gulf, a large oil platform needed an efficient means of converting seawater to potable water. LANTERN solved the client's need with a reverse osmosis (RO) system capable of producing 26,500 gallons of drinkable water per day.

OBJECTIVE

Produce potable water to meetstandards, including:

- National Primary Drinking Water Regulations (NPDWRs)
- National Secondary Drinking Water Regulations (NSDWRs)

SCOPE OF SERVICE

LANTERN delivered 1100 GPH RO system, providing process, mechanical, and electrical design and engineering, as well as system fabrication and controls integration.

CHALLENGES

- Standards for drinking water purity
- High production capacity

SOLUTION

In order to produce enough potable water to support operations aboard a large offshore oil rig, LANTERN designed and delivered an RO system capable of producing 26,500 gallons of purified water per day. Designed for durability and production of high quality drinking water, the system included tube filters for pretreatment and chemical injection systems for chlorination, remineralization, and corrosion inhibitor dosing. LANTERN also minimized operational demands with integrated programmable logic controllers (PLC) to support automated process monitoring, and an included operator interface to simplify system control.

TECHNOLOGY

LANTERN delivered an 1100 GPH seawater RO system, including:

- Standard pressure vessels, instruments and valves
- Seawater RO membranes
- Cartridge filter
- Remineralization and biocide chemical metering equipment
- High pressure pumps
- PLC controls

OVERVIEW

Industry
Oil & Gas
Objective
Produce potable water from seawater
Solution
1100 GPH RO System

Need help producing potable water? Is the purity of your source water an issue?
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MINING & METALS

PROJECT BRIEF

Rare Earth Mine Recycles Brine Stream for Acid and Caustic Production with LANTERN's Innovative Multi-Stage Brine Conditioning System

PROJECT OVERVIEW

When a rare earth mine sought to improve efficiency by recovering brine for acid and caustic production, it turned to LANTERN for a brine conditioning circuit to handle its complex blend of contaminants.

OBJECTIVE

Remove heavy metals and hardness from complex hydrometallurgical brine stream for downstream electrochemical production operations.

- Reduce calcium to 20 ppb
- Reduce magnesium to 20 ppb

SCOPE OF SERVICE

LANTERN delivered a turnkey brine conditioning system with comprehensive process design and engineering, system fabrication, controls integration, commissioning, startup training and support.

CHALLENGES

- Stringent purity requirements for acid and caustic production
- Highly complex contaminant stream
- Limited operator availability

SOLUTION

LANTERN delivered a high capacity brine recovery system consisting of four integrated ion exchange (IX) circuits. To efficiently manage the brine stream's complex contaminants, the solution utilized paired IX columns in lead-lag configuration for each of four brine processing stages, including primary softening, polishing softening, and heavy metals removal, along with a single IX column for TOC removal. LANTERN performed construction and installation of the prepackaged system to deliver a fast-track turnkey solution. To minimize operational demands, the system included programmable logic controllers (PLC) with remote telemetry capabilities, enabling automated system monitoring.

TECHNOLOGY

Project deliverables and equipment included:

- 600 GPM IX pressure vessels
- Pipe rack assemblies
- Effluent and influent pumps
- PLC controls

OVERVIEW

Industry
Mining & Metals

Objective
Remove metals & hardness from complex brine streams

Solution
600 GPM Ion Exchange Brine Conditioning System

LANTERN TECHNOLOGIES

CHLOR-ALKALI

PROJECT BRIEF

Chlor-Alkali Industry Leader Upgrades System with ADI Technology for Extremely High-Quality Water and Zero Liquid Discharge

PROJECT OVERVIEW

At a leading chlor-alkali company in Nekoosa, Wisconsin, the client upgraded their technology to include LANTERN's Advance system, the most advanced demineralization technology in the industry.

OBJECTIVE

Satisfy stringent chlor-alkali water purity standards while lowering client's operating cost, increasing their water quality, and decreasing the system footprint

SCOPE OF SERVICE

The client worked with LANTERN to develop an effective solution that comprised detailed design, manufacturing, startup, commission, and ongoing technical support.

CHALLENGES

- Stringent industry regulations
- Fast-track project, concept to completion
- Strict project budget
- Minimal operator availability

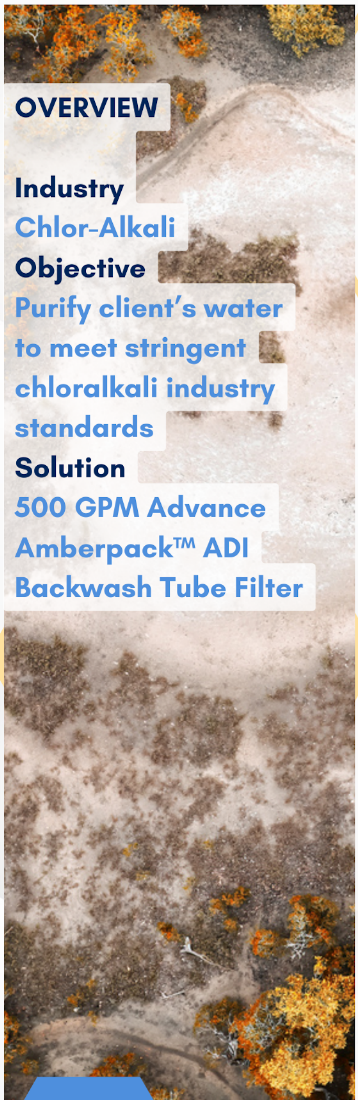
SOLUTION

To bring the client into compliance with stringent chlor-alkali industry regulations, and deliver yields up to 99%, LANTERN engineered an innovative deionization solution with Advanced technology. Developed in collaboration with The Dow Chemical Company (formerly Rohm and Haas), Advanced revolutionary pre-engineered ion exchange system that combines the full capability of amberjet resins, and Amalgamated Research Inc.'s innovative patented fractal technology for the highest quality water while minimizing cost, space, and waste. Coupled with LANTERN's proprietary backwash tube filter technology, and cutting-edge design, fabrication, and project execution expertise, the client benefited from an extremely high yield ion exchange solution that saved 35% in cost operation while providing <1 megohm high-quality water and zero liquid discharge (ZLD).

TECHNOLOGY

Project deliverables and equipment included:

- Advance System
- Chemical feed
- Distribution pumps
- Neutralization
- Tube filter guard beds
- Process controls



OVERVIEW

Industry
Chlor-Alkali

Objective
Purify client's water to meet stringent chloralkali industry standards

Solution
500 GPM Advance Amberpack™ ADI Backwash Tube Filter

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LANTERN TECHNOLOGIES

REFINERY

PROJECT BRIEF

Oil Refinery Replaces Old Softening Equipment and Reduces Boiler Makeup Water Hardness with UPCORE™ Softening System

PROJECT OVERVIEW

When an oil refinery needed to replace its softening equipment with a more efficient system, LANTERN helped the client install and run an effective UPCORE™ ion exchange system for minimal hardness and maximum results

OBJECTIVE

Meet stringent boiler feedwater quality requirements for the refinery industry.

- < 0.1 ppm $CaCO_3$

SCOPE OF SERVICE

LANTERN delivered a detailed process, mechanical and electrical design and engineering, controls integration, system fabrication, commissioning. startup, and training.

CHALLENGES

- Extremely low hardness required for boiler makeup water
- Stringent water purity requirements for the refinery industry

SOLUTION

Helping the client replace it's old softening system with a sate-of-the-art UPCORE™ ion exchange softening system, LANTERN helped the company reduce its damaging calcium carbonate hardness used in the boiler makeup water. The prepackaged design allowed for quick and easy installation, and LANTERN also installed programmable logic controllers (PLC) to automate flow, temperature, pressure, and resistivity monitoring with an operator interface for ease of use.

TECHNOLOGY

Project deliverables and equipment included:

- UPCORE™ Softening System
- Pressure vessels
- Instruments & valves
- Chemical metering equipment
- PLC Controls
- Operator interface

OVERVIEW

Industry
Refinery
Objective
Decrease hardness to 0.1 ppm calcium carbonate
Solution
400 GPM UPCORE™ Softening System

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