



## Scalable Process Pump System for UK Lithium Extraction Pilot

### End-to-end Lithium Pilot Demonstration Plant, Cornwall

#### Overview

This UK lithium developer sought a trusted advisor to support the design and supply of a process pump system, scaled to size for their lithium extraction demonstration plant. Atlantic Pumps was selected to provide engineering, procurement, supply and manufacture, installation, and commissioning (EPCC) of the hydraulic fluids handling system, working closely with other key technology partners.

Being on hand during every step of the process, and advising multiple stakeholders on technical hydraulics for scalable solutions, was crucial to success.

#### Challenge

To secure investment for the UK's first commercial-scale lithium project, the demonstration pilot plant required scaled-down versions of the final pumps, hydrocyclones, and processing equipment. Maintaining proportional flow rates while ensuring all technology remained optimisable for full-scale production was critical.

With a key technology provider based overseas, a competent UK-based pump specialist was needed to handle local engineering, installation, and ongoing support. Additionally, the tier 1 contractor required hydraulic engineering expertise to precisely scale flow rates and pressures throughout the complex refining process.

As European demand for lithium is set to outpace supply in the coming years, staying on track with the business-plan rollout was essential - not only to maximise returns but also to support the UK's net-zero and energy-security goals.



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## Solution

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Atlantic Pumps engineering team developed a scaled-down fluids handling system, accurately modeling flow rates and pressure requirements to mirror full-scale commercial production. They factory-built the system as skid-mounted modules, incorporating specialist pumps, pipework, buffer tanks, and hydrocyclones, all designed for scalability.

Each pump was carefully selected and configured to match specific process steps, including abrasive slurry centrifugal pumps and corrosion-resistant positive displacement pumps. The solution ensured that all equipment remained adaptable for future full-scale deployment.

To facilitate quick and hassle-free site setup, all equipment was mounted on portable skids, allowing for efficient installation, mobility, and operational flexibility.

Being on hand during every step of the process, and working closely with overseas and local stakeholders, the result is a demonstration-sized system that uses scaled-down versions of pump technology utilised in commercial-scale lithium plants.

Atlantic Pumps continues to provide tailored advice and support to this fast-growing, leading UK lithium producer.

## Results

Strong project management, hydraulic engineering expertise, and seamless collaboration ensured the pilot demonstration plant was successfully launched on schedule. The facility is already demonstrating the commercial and environmental advantages of this innovative lithium hydroxide production method.

The fluid handling system, built on 17 purpose-designed skids, significantly accelerated onsite commissioning and provides flexibility for future optimizations and trial layouts.

By utilising scalable pump technology, the transition to full-scale production will be smoother, leveraging proven, familiar equipment - minimising risk and avoiding costly delays.

Additionally, integrating a trusted UK-based pump solutions provider into this flagship project guarantees local access to spare parts, maintenance, and engineering support, ensuring long-term reliability as the company moves into its next phase of development.



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