

# RESOLVING EFFLUENT PUMP FAILURES THROUGH CORRECT SIZING AND SYSTEM DIAGNOSIS



## SERVICE MATTERS

### Improving Reliability in Critical Effluent Transfer Application

AVTPUMP was approached to support a chemical processing facility experiencing ongoing reliability issues with self-priming pumps used within an effluent treatment system.

The existing pumps were subject to frequent failures, leading to significant downtime and disruption to site operations. The objective was to identify a more reliable and cost-effective solution while ensuring the system could operate consistently under current process conditions.



#### THE CHALLENGE

The pumps are responsible for transferring effluent from the production process to a treatment facility, making them critical to maintaining continuous site operation.

Repeated failures were impacting both productivity and maintenance resources. In addition, the existing pumps were inefficient and oversized for the application, suggesting a mismatch between the equipment and the system requirements.

This raised concerns not only about reliability, but also about whether the pumps were correctly specified for the duty.

#### OUR APPROACH

AVTPUMP carried out a full technical review of the application, including consultation with the site team, analysis of historical failure data, and assessment of the existing system configuration.

The focus was to understand both the pump performance and the wider system conditions to ensure that any replacement solution would address the root cause of the issues rather than simply replacing like-for-like equipment.

#### OUR FINDINGS

The review identified that the existing pumps were not operating within the original design duty parameters.

This was likely due to either changes in the system over time or the repurposing of the pumps into an application for which they were not originally designed. As a result, the pumps were incorrectly sized, leading to inefficiency, instability, and increased likelihood of failure.

The issue was not solely related to equipment condition, but to overall system suitability.

***“Great service from the AVTPUMP technical team, not only in providing the correct equipment, but also in ensuring that it was running correctly after installation.”***

#### OUR SOLUTION

AVTPUMP established the correct duty point for the application and selected appropriately sized replacement units, reviewing options from multiple manufacturers to ensure the best balance between reliability, performance, and cost.

Self-priming pump sets were supplied and installed, providing a modern, efficient solution aligned with the system requirements.



#### THE RESULT

Following installation, the pumps were initially reported to be underperforming. A further site visit by AVTPUMP identified that the issue was not related to the pumps themselves, but to a faulty rotary control valve in the discharge line, which was restricted to approximately 30% open.

Upon recommendation, the valve was replaced, after which the pumps operated as expected and delivered the required performance. With the correct equipment in place and the system issue resolved, the site has experienced stable operation with no further reported problems.

This project highlights the importance of considering the entire system when addressing pump performance, rather than focusing solely on the equipment.

#### AT A GLANCE

**Industry:** Chemical Processing

**Application:** Effluent transfer to treatment plant

#### Services provided:

- » System assessment and technical review
- » Pump selection and supply
- » Site support and performance troubleshooting
- » Operational best practice guidance

**Key Issue:** Incorrectly sized pumps and system restriction

**Outcome:** Improved reliability, correct system performance, and stable operation

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