

CASE STUDY / FLUID TRANSFER

Mining Slurry Pump Case Study

Repeated centrifugal pump failures in abrasive slurry transfer, resolved by changing the architecture, not the brand.

SITUATION

A California mining operation, repeated slurry-transfer failures

A mining operation was cycling through slurry-transfer-system failures on a recurring basis, with no remote visibility into when the next one was coming.

THE PROBLEM

Centrifugal pumps were failing from abrasive slurry wear and seal degradation. Flow rates were inconsistent between failures. Maintenance costs were high and unplanned. There was no remote monitoring, so the plant found out about a failure when the flow stopped — not before.

The recurring failure mode was mechanical, not incidental. A centrifugal pump's mechanical seal is the point abrasive slurry attacks first — swapping brands within the same architecture doesn't fix that, it just resets the clock.

EQUIPMENT SPECIFIED

Component	Detail
Transfer pump	Graco QUANTM electric diaphragm pump — specified for abrasive/difficult transfer duty, up to 80% lower energy cost vs. air-operated alternatives
Valves & actuation	Automated, corrosion-resistant materials
Controls	SCADA-ready PLC control panel

THE SPECIFICATION RULE

Abrasive slurry rules out centrifugal architecture, not just a specific pump

Abrasive slurry service calls for avoiding centrifugal pumps as an architecture — the seal-failure mode is inherent to the design, not a defect in any particular unit. An electric diaphragm pump removes that failure point entirely. Tying the system into SCADA closes the other half of the problem: the plant stops finding out about a failure after the fact and starts seeing it developing in real time.

RESULT

Unplanned shutdowns eliminated

Real-time visibility via SCADA integration. Maintenance exposure reduced by removing the recurring seal-failure mode rather than repeatedly repairing it.

NEXT STEP

Every slurry has a different solids load, particle size, and duty cycle. A spec review starts with your actual process data — not a generic pump swap.

[Request a spec review](#)

NEXT STEP

Send LibertyCES the process data, not a part number.

Slurry composition, solids loading, particle size, flow, pressure, and current equipment — that's what a real spec review needs to start.

Request a spec review

sales@libertyces.com

(559) 395-5500

libertyces.com