

The Data-Driven Well Rehab

Diagnose · Justify · Prove

The era of “we cleaned it and it looks better” is over. The contractor who wins shows the client, in numbers and dollars, why a rehab was needed, what it accomplished, and how long it should last.

~10%

drop in specific capacity from baseline, at the latest

THE SYSTEM

1 Diagnose

Separate the **pump**, the **aquifer**, and the **well**. Never put a new pump in an old hole; on an older well it is often all three.

2 Justify

Confirm the rehab is truly needed: a clean pump test from a **rested** well, specific capacity against **baseline**, and neighbors that rule out a regional decline.

3 Prove

Report in the client's language: efficiency, \$ **per unit of water**, avoided costs, and ten-year cost of ownership.

SIX METRICS THAT PROVE THE WORK

01 Specific capacity

$Q \div \text{drawdown (gpm/ft)}$

PROVES Overall well health and the rehab trigger: act by a ~10% drop from baseline.

WATCH An unrested pump test; static-level wobble in shallow wells.

02 Wire-to-water

$\text{WHP} \div \text{input power} \times 100$

PROVES How much of the power bill becomes lifted water. Read with specific capacity to isolate the pump.

WATCH Fixed-speed vs. VFD context; pump-curve estimates read high.

03 Specific energy

$\text{kWh} \div \text{unit of water}$

PROVES True per-gallon efficiency. A cleaned well can draw more total power and still cost less per gallon.

WATCH Judging total kWh instead of kWh per unit.

04 Cost per unit

$\text{Specific energy} \times \$/\text{kWh}$

PROVES The value in dollars a decision-maker signs off on, plus off-peak savings stacked on top.

WATCH Use the client's real rate and demand charges.

05 Avoided costs

$\text{Sum of dodged expenses}$

PROVES The new well, purchased water, and lost redundancy a timely rehab prevents.

WATCH Keep estimates conservative and sourced.

06 Total cost of ownership

$\text{NPV} = \sum \text{cash flow} \div (1 + r)^t$

PROVES Rehab-and-maintain vs. deferral vs. run-to-failure, compared in today's dollars.

WATCH Discount rate and horizon; a flat do-nothing case.

THE DIAGNOSTIC LADDER

SIMPLEST · MANDATORY

ADVANCED · OPTIONAL >

Every well

START HERE

- Pump test** step or constant-rate, from a rested well.
- Neighbor & static-level check** rules the aquifer in or out.
- Downhole video** screen, casing, scale, and biofilm on camera.
- Water quality** iron, manganese, hardness, pH, and silica.

When the question calls for it

CONFIRM THE CAUSE

- Bacterial & biochem testing** cultures the deposit when biofouling is suspected.
- Caliper & casing inspection** maps thin or damaged casing before aggressive work.
- Zone-specific sampling** straddle packers isolate the problem interval.

Precision targeting

PRIORITIZE THE ZONES

- Spinner flowmeter log** shows which zones contribute and which have gone quiet.
- Dye-tracer profiling** % of flow per zone under real pumping, without pulling the pump.

Success = Improvement × Longevity

Longevity is a story about porosity. Sell the maintenance program, not the rescue.

Free Return-on-Rehab calculator >
ror.airbursttechnology.com