Water pressure looked normal at dinner. By sunrise, the pump had logged nearly eight straight hours. No burst pipe. No flooded yard. Just a pressure switch clicking, a motor heating up, and a power bill quietly getting uglier by the day. That kind of nonstop run time can destroy a **submersible well pump** faster than most homeowners realize, and in field service calls I've seen one hidden issue turn a pump with an expected **8–15 year service life** into a burnout candidate in under a season.

That was the lesson Marisol Vega learned on her 17-acre goat dairy outside Ava, Missouri. She's 41, depends on a **240-foot private well**, and had already replaced one budget pump after a **Flotec** unit gave up in just 31 months. The replacement seemed fine at first. Then her gauge started drifting. Then the pump stopped shutting off. Then came the question every rural homeowner asks sooner or later: How do I know when my well pump is failing? If your pump runs continuously, that's one of the clearest warning signs. It usually means the system can't reach cut-off pressure, can't hold pressure, or is moving less water than the house is demanding.

The expensive part is what happens next.

A constantly running pump can point to anything from a waterlogged **pressure tank** to a split **drop pipe**, a clogged **intake screen**, worn impellers, a bad **check valve**, or a mismatched pump curve. And if you guess wrong, you can spend $1,200 to $3,500 on an emergency pull and still not fix the root cause. Below are the seven causes I check first, along with the tests that separate a simple control problem from a pump that's losing capacity deep in the well.

#1. It Can't Reach Cut-Off Pressure — Pressure Switch, Pump Curve, and TDH Problems Often Show Up First

A pump that runs constantly is a pump that isn't satisfying the pressure switch. In plain terms, the system keeps calling for water because line pressure never climbs high enough to hit shut-off.

That sounds simple. It rarely is.

When the gauge stalls at 30, 40, or 50 PSI

If your **pressure switch** is set for 40/60 but your gauge hangs at 47 or 52 PSI, the pump may still be moving water, just not enough to overcome **TDH (total dynamic head)** plus household demand. That's common in aging **residential well pump** systems where drawdown has changed over time or a pump was undersized from day one.

What size well pump do you need for your well depth? Start with static water level, pumping water level, vertical rise to the tank, pressure requirement, and friction loss. A house on a 220-foot well often lands in the **1 HP** range, but not always. If the pump curve doesn't match the real-world lift, the motor may run continuously while pressure plateaus below cut-out.

The switch may be innocent

Homeowners love replacing switches because they're cheap. Sometimes that works. Often it doesn't.

Marisol's gauge never reached 60 PSI because her pump had lost output, not because the switch had failed. A new switch didn't change a thing. What changed it was measuring amperage draw, verifying voltage under load, and comparing actual discharge performance to the expected **GPM rating**. Once real numbers entered the picture, the diagnosis got clearer.

A healthy switch can only respond to pressure it sees. It can't create pressure the pump no longer delivers.

Professional-tier pumps hold their curve longer

This is where build quality matters more than most buyers think. **Myers submersible well pumps stocked at Plumbing Supply And More use lead-free stainless construction, a Pentek XE motor, and contractor-grade design features that private well owners and pump installers rely on when system sizing has to be right the first time.**

When I see systems built around **Pentair** motor technology, paired with a **Square D** pressure switch and an **Amtrol** or **WellMate** tank, I expect more predictable pressure recovery than I do from bargain assemblies. That matters because off-curve operation overheats motors, raises amperage, and shortens life. A properly matched **deep well submersible** isn't glamorous. It just shuts off when it should.

#2. The Pressure Tank Has Lost Its Air Charge — A Waterlogged Tank Makes Any Pump Work Like It's in a Sprint

A waterlogged tank causes rapid starts, poor drawdown, and long recovery periods. The pump may appear to run constantly because the system loses pressure almost as soon as water is used.

This one fools people because the symptom feels like a bad pump.

Why tank precharge matters more than most homeowners realize

A captive-air **pressure tank** should usually be precharged **2 PSI below cut-in pressure** when fully drained. So a 40/60 switch usually wants **38 PSI** in the tank. If that charge drops or the bladder fails, usable drawdown shrinks hard. The pump starts sooner, cycles more often, and may run for extended stretches after even light use.

What causes a well pump to short cycle and lose pressure? In many homes, it's not the pump at all. It's a failing tank bladder or incorrect air charge. The pump keeps trying to restore pressure while the system burns through the little stored water it has almost instantly.

Field check: don't skip the simple test

Shut off power. Drain the system. Check air pressure at the Schrader valve with an accurate gauge. If water comes out of the air valve, the bladder is done. If pressure is low, recharge it and re-test system behavior before you assume the motor is failing.

Marisol's first replacement contractor ignored the tank entirely. That mistake matters. A weak tank can add hundreds of unnecessary start cycles per month, and motor life is often measured by start-stop stress as much as pure run time. In a **well water system**, frequent cycling is rougher on windings and contacts than steady, properly loaded operation.

This is where cheap systems start getting expensive

I've seen homeowners replace a perfectly usable pump because a tired tank made the whole system act unstable. That's also why I'm cautious with low-end package systems. **Wayne Pumps** warranties tend to leave homeowners exposed early, while professional-grade combinations with better tank matching reduce nuisance cycling and callback headaches. If your tank can't support the switch settings, the pump pays the price.

And yes, fixing the tank before the motor burns up is worth every single penny.

#3. A Hidden Leak Is Bleeding Pressure Away — Split Drop Pipe, Bad Check Valve, or Underground Loss

A constant-run condition often means the system is pumping water that never fully reaches usable pressure. In many cases, the lost pressure is escaping through a leak you can't see.

That's when diagnosis gets interesting.

The leak may be in the well, not the yard

If the line from the house to the pressure tank holds, don't assume you're safe. A cracked **drop pipe**, loose fitting, or failed **internal check valve** can dump water back into the well. On the surface, everything looks dry. At the gauge, pressure rises slowly or not at all. At the electric meter, the motor keeps eating power.

How much does it cost to replace a submersible well pump? In most rural markets, an emergency pull https://www.plumbingsupplyandmore.com/convertible-shallow-or-deep-well-jet-pump-1-2-hp.html and reinstall commonly lands between **$1,200 and $3,500**, and deeper wells can push higher. That's why pressure-hold testing matters before anyone orders parts.

The fast test most pros run first

Close the valve feeding the house and watch the gauge. If pressure still falls, the leak is likely between pump and tank, in the well, or at the **check valve** assembly. If pressure holds, start looking at household plumbing, irrigation lines, hydrants, or treatment equipment.

Marisol's system bled down from 58 PSI to 40 in less than four minutes with the house isolated. That pointed away from fixture use and toward a well-side issue. In her case, the leak wasn't the only problem, but it proved the motor wasn't the whole story.

Budget components usually fail where nobody can see them

This is one place where construction quality quietly separates professional equipment from bargain products. **Goulds Pumps** and other respected names can perform well when specified correctly, but I've pulled plenty of mixed-material installations where corroded fittings, marginal valves, or lower-grade assemblies aged badly in mineral-heavy water. A **300 Series stainless steel** pump body, matched with quality fittings and a sound **wire splice kit**, gives the system fewer weak links below grade.

A **private well pump** doesn't need flash. It needs to hold pressure in the dark for years. That's the whole job.

#4. Worn Impellers or Sand Damage Are Cutting Output — Abrasion in the Well Reduces GPM Long Before Total Failure

Impeller wear reduces flow even when the motor still runs. A pump can sound normal, draw power, and yet fail to build pressure because internal hydraulic parts are no longer moving enough water.

This is one of the most misdiagnosed causes of constant run time.

Sand is a slow killer

In sandy aquifers, suspended grit behaves like liquid sandpaper. Over months or years, it wears stages, bearings, and diffusers. The pump doesn't always quit dramatically. More often, it just gets weaker. Pressure takes longer to recover. Showers sag when a washing machine starts. Then one day the pump never quite shuts off.

How long should a submersible well pump last? In clean water with correct sizing, many systems make it **8 to 15 years**. In abrasive conditions with poor materials, **3 to 5 years** is not unusual. That spread is exactly why impeller design matters.

Why staged hydraulics matter

Pumps that use **Teflon-impregnated staging** and **self-lubricating impellers** tolerate abrasive water better than generic composites. That doesn't make them indestructible. It means they lose capacity more slowly and maintain pressure longer in real wells, not lab-perfect water.

Marisol's earlier pump had been gradually losing output for months. Her milk-room hose bib still worked. Her house still had water. But simultaneous demand exposed the truth. Once her family showered while the livestock trough refilled, pressure stalled and the motor kept running.

A practical comparison homeowners actually feel

Compared with **Flotec** or **Everbilt** budget models that often enter the replacement conversation after just a few hard seasons, a properly sized **myers well pump** with better staging resists the kind of output fade that leads to endless run times. If you're sorting through replacement options, the spec sheets and pump curves at Myers well pump are useful because they let you compare head, flow, and configuration before guessing. That matters more than sticker price when your water supply depends on one machine 200 feet underground.

When a pump body is **300 Series stainless steel**, the staging is built for abrasion resistance, and the assembly is engineered for real well duty, you're not paying for branding. You're paying to avoid pulling the same pump twice. In my book, that's worth every single penny.

#5. The Pump Was Sized Wrong From the Start — Horsepower, GPM, and Wire Configuration Have to Match the Well

Pump sizing is the difference between a system that cycles normally and one that struggles forever. Wrong **horsepower**, wrong **GPM rating**, or the wrong staging count can make a pump run constantly even when every component is technically "working."

This is where a lot of rural headaches begin.

What every rural homeowner should verify before buying a replacement well pump

1. **Construction material.** Look for **stainless steel** in the shell and wet-end components whenever possible. **Cast iron** can corrode in aggressive water, and **thermoplastic** is more vulnerable to long-term stress and heat cycling.
2. **Motor technology.** A quality motor should have **thermal overload protection** and efficient hydraulic performance near its **best efficiency point (BEP)**. Pumps operating at **80%+ hydraulic efficiency** can cut annual operating cost by as much as **20%** compared with off-curve systems.
3. **HP and GPM matching.** Match the pump to actual well depth, pumping level, and demand, not just casing diameter. A deep well with a long vertical lift may need **1.5 HP** at **10 GPM** where a shallower home does fine with **3/4 HP**.
4. **Impeller durability.** If your well has sand or fine grit, staged hydraulics need abrasion resistance. Worn impellers lose flow long before the motor dies.

5. **Warranty and field serviceability.** A **3-year warranty** says more than marketing copy. So does a design your installer can service without dealer-only parts.
6. **Wire configuration compatibility.** A **2-wire well pump** simplifies replacement when no external control box exists. A **3-wire well pump** can make some diagnostics easier, but only if the system was built for it.

2-wire vs. 3-wire isn't just a wiring debate

What is the difference between a 2-wire and 3-wire well pump? A **2-wire configuration** houses starting components within the motor and eliminates an external box, which can simplify installation. A **3-wire configuration** uses a separate control box, often making component testing easier but adding parts, cost, and another possible failure point.

In older homes, a switch from one configuration to the other without rethinking controls can create weird performance issues. I've also seen homeowners buy a replacement based only on horsepower and overlook start components completely.

Field recommendation, not catalog talk

After the third avoidable pump pull in eight years, most homeowners stop chasing bargain labels and start buying for service life: **300 Series stainless steel, 36 months of warranty protection, and models that hold pressure from 7 to 20+ GPM are what separate a true rural well pump from a disposable one.**

That's the sizing lesson Marisol finally acted on. Her replacement moved from a mismatched setup to a properly selected **1 HP**, **10 GPM**, **230V single phase** unit matched to actual drawdown, switch settings, and tank capacity. Once the curve matched the well, the constant-run problem disappeared.

#6. Voltage Drop, Motor Heat, or Lightning Damage Is Weakening the Pump — Electrical Problems Often Mimic Hydraulic Failure

Electrical trouble can make a pump run long, run hot, or fail to develop full torque. The system looks hydraulic from the outside, but the root problem is power quality.

And rural properties see this a lot.

Long wire runs change the math

A pump 220 feet down a well doesn't care what voltage you measure casually at the panel. It cares what arrives at the motor under load. Undersized wire, weak splices, corroded connections, or long distances from service entrance to wellhead can create voltage drop that reduces starting performance and raises heat.

Why is my well pump not working even though the breaker is on? Because breakers only tell you one thing: the circuit isn't completely open. They do not confirm proper voltage under load, healthy capacitors, or intact windings. A motor can be energized and still be starved.

Storm country is hard on motors

In parts of the Ozarks, Appalachia, and the Plains, lightning damage doesn't always kill a pump instantly. Sometimes it weakens insulation or start components first. Weeks later, the pump begins running longer to make pressure. Then the homeowner notices hot wires, a humming control box, or nuisance trips.

https://www.plumbingsupplyandmore.com/1-2-hp-submersible-well-pump-9-stages-for-deep-wells.html

This is one reason experienced installers value **thermal protected** motors and robust internal protection. Marisol had a nearby strike two summers before her system failure. It wasn't the only issue, but it likely didn't help the old unit's life expectancy.

The better systems recover from abuse more gracefully

I've seen **Franklin Electric** and **Grundfos** equipment perform very well in properly designed systems, but some installations become needlessly complex when replacement depends on dealer networks, proprietary boxes, or extra controls the original homeowner never understood. In contrast, a straightforward **rural water pump** setup with solid splices, correct conductor sizing, and sensible protection is easier to diagnose and cheaper to keep alive.

Complexity isn't automatically quality. Reliability is. When your livestock, laundry, and kitchen sink all depend on one motor in one hole, easier field diagnosis is worth every single penny.

#7. The System Is Telling You It Needs a Full Evaluation — Constant Run Time Is Often a Symptom, Not the Main Failure

Continuous operation is rarely a standalone diagnosis. It's usually the visible symptom of a system imbalance involving the pump, tank, controls, well yield, or plumbing demand.

That's the part most people miss.

Start with symptoms, but finish with measurements

If your pump runs nonstop, log four numbers before replacing anything: cut-in pressure, maximum pressure reached, amperage draw, and pressure decay with the house isolated. Those four figures can narrow the problem fast. Add water level data if available, and you've got the foundation of a real diagnosis.

What does GPM mean for well pump selection? It's the pump's flow capacity over time, and it has to match both household demand and the head it's pumping against. A pump that delivers 10 GPM at one head may deliver far less at another, which is why pump curves matter more than box labels.

The best fix may involve more than the pump

Sometimes the answer is a new **pressure switch**. Sometimes it's a failed tank. Sometimes it's a split line. And sometimes the right answer is a full **submersible pump replacement** because the existing unit has lost enough hydraulic performance that every other fix is temporary.

Marisol's final repair involved a new pump, a corrected tank precharge, and replacement of suspect below-grade fittings. Since then, her pressure has stayed stable through washdown, household use, and trough refills. More important, her callback count has been zero for 26 months.

Why experienced buyers stop focusing only on upfront cost

For emergency replacements, availability matters. So does quality. A stocked, correctly specified pump can save a household from days without water and save a contractor from a second trip. That's why many installers keep **myers water well pumps** in the same mental category as other contractor-grade choices, especially when they can be paired with proven tank and control components and shipped quickly through a supply house that understands **well pump sizing**.

The cheapest pump on the shelf only looks cheap until PSAM myers pump you pay to pull it twice.

Frequently Asked Questions

How do I determine the correct horsepower for my well depth and household water demand?

Horsepower depends on total dynamic head, desired pressure, and flow demand, not depth alone. Many homes on private wells fall between **3/4 HP and 1.5 HP**, but the right answer comes from matching the pump curve to static level, pumping level, friction loss, and peak household use.

A common mistake is buying by well depth only. You also need the vertical lift to the tank, the pressure required at cut-off, and the friction loss through pipe and fittings. A 180-foot well with low demand may run perfectly on **3/4 HP**, while a 240-foot system serving a home, hydrant, and small barn may need **1 HP or 1.5 HP**. If your existing pump runs constantly, stalls below cut-out, or overheats, incorrect sizing is a prime suspect. A qualified installer will compare your real operating point to the published **pump curve**, not just the label on the old motor.

What GPM flow rate does a typical rural household need from a submersible well pump?

Most rural households do well with **8 to 12 GPM**, though larger homes, irrigation use, or livestock demand can push that higher. The goal is to cover simultaneous fixture use without forcing the pump to run off-curve or struggle to rebuild pressure after normal water use.

A single shower may use around 2 to 2.5 GPM, a washing machine can add another 3 to 5 GPM during fill, and outside hose use can quickly stack on top. That's why many standard homes settle into the **10 GPM** category. But flow alone doesn't tell the whole story. That same pump may deliver 10 GPM at one head and much less at a deeper operating point. If your well has a low recovery rate, oversized flow can also outrun the formation. Good sizing balances household demand, well yield, and the motor's efficient operating range so the system builds pressure normally and shuts off cleanly.

How do I know when a constantly running pump points to the tank instead of the pump itself?

If the pump starts too often, pressure swings sharply, or the tank has lost air charge, the tank may be the real problem. A waterlogged tank reduces drawdown, increases cycle frequency, and makes the pump appear weak even when the motor and hydraulics are still serviceable.

The easiest field check is to shut off power, drain the system fully, and measure air pressure at the tank. A 40/60 system typically wants **38 PSI** precharge. If water comes out of the air valve, the bladder has failed. If precharge is simply low, restore it and observe the system again before condemning the pump. A bad tank can create long recovery periods and frequent starts that shorten motor life. In many homes, replacing the tank or correcting charge solves the complaint faster and cheaper than pulling the pump.

Why is 300 Series stainless steel superior to cast iron for submersible well pumps?

300 Series stainless steel offers stronger corrosion resistance in mineral-rich, acidic, and variable-water-chemistry wells than **cast iron**. That matters below grade, where rust, scale, and long-term exposure can degrade performance, seize components, and shorten the service life of a pump you can't inspect easily.

In practical terms, stainless components help preserve the shell, shaft, coupling, and wet-end parts that live in water full-time. Cast iron has served the industry for years, but it is less forgiving in aggressive water conditions and can contribute to scaling or corrosion-related wear. For homeowners who don't want repeated pump pulls,

material quality becomes part of lifetime cost. When a pump is expected to stay downhole for a decade or more, better corrosion resistance isn't an upgrade for looks. It's risk control.

How do Teflon-impregnated self-lubricating impellers resist sand and grit damage?

These impellers reduce friction and handle abrasive particles more gracefully than standard low-cost composites. In sandy wells, that helps the pump maintain hydraulic performance longer, which means fewer pressure-loss complaints, slower output decline, and less chance of a motor running endlessly because the wet end has worn down.

Sand damage is usually progressive, not dramatic. The pump still runs, but stages wear, clearances open up, and the unit stops building pressure efficiently. Self-lubricating materials lower the friction between moving hydraulic surfaces and can slow the wear pattern caused by fine grit. They won't make a pump immune to a bad well, but they can extend useful performance noticeably. If you've had repeated failures in a sandy aquifer, impeller material should move high on your buying checklist.

What makes the Pentek XE high-thrust motor more efficient than standard well pump motors?

A high-thrust motor is built to carry the axial loads created by multi-stage deep-well pumping while maintaining better efficiency and thermal control. In real systems, that means improved durability under lift, steadier operation near the pump's best efficiency point, and reduced heat stress during long duty cycles.

Motor quality matters most in deeper installations or homes with longer pumping periods. Better internal protection, stronger thrust handling, and stable electrical performance help the pump recover pressure without excessive amperage or overheating. Efficiency is not just about power bills, although those can improve too. It's also about how hard the motor has to work to produce the water and pressure you expect. A better motor paired to the right hydraulic package usually means fewer nuisance failures and more predictable service life.

Can I install a submersible pump myself, or do I need a licensed well contractor?

Capable homeowners can sometimes handle shallow or accessible replacements, but many installations should be done by a licensed well contractor. Deep wells involve electrical safety, wire splicing, drop-pipe weight, torque

control, and code requirements that can turn a DIY attempt into an expensive retrieval job fast.

A pump set 180 to 300 feet down isn't just a plumbing task. It may involve hundreds of pounds of pipe, wire, and water column, plus proper connection at the **pitless adapter**, correct splice protection, and tank-side adjustments after startup. If the pump is mismatched, wired improperly, or dropped during installation, the repair cost can exceed the original labor charge. For homeowners with experience and the right equipment, a straightforward replacement may be possible. For most others, professional installation is cheaper than one serious mistake.

What is the difference between a 2-wire and 3-wire well pump configuration?

A **2-wire** pump has its starting components inside the motor and does not use an external control box. A **3-wire** pump separates those components into a control box, which can simplify troubleshooting but adds parts, wiring, and another potential failure point.

Replacement decisions should follow the existing system unless you're intentionally redesigning controls. A home already wired for a **3-wire** setup may benefit from the easier diagnostics of external capacitors and relays, especially for service technicians. But for many residential installations, a **2-wire** system is cleaner and quicker to install. The biggest mistakes happen when homeowners buy by horsepower alone and ignore the original configuration, voltage, or switch settings. Always verify all three before ordering.

What accessories do I need besides the pump for a complete well system installation?

A complete installation often includes a **pressure tank**, **pressure switch**, **check valve** if required by design, **drop pipe**, **wire splice kit**, torque arrestor if specified, fittings, and the correct wire size for the run. In many replacements, one weak accessory causes the same failure symptoms as a bad pump.

If the old system had unstable pressure, don't assume the pump was the only problem. Aging tanks, loose fittings, poor splices, corroded connections, and failed valves commonly travel with pump complaints. A proper replacement review also checks the well cap, safety hardware, pitless condition, and switch calibration. Skipping those items may save a few dollars up front but often creates the second service call everybody wanted to avoid.

How long should a quality submersible well pump last with proper maintenance?

A well-built **submersible pump** in suitable water conditions commonly lasts **8 to 15 years**, and some installations stretch well beyond that with excellent sizing, clean power, low sand content, and good system maintenance. Budget pumps in tougher wells often land much closer to the **3 to 5 year** range.

Service life depends on more than branding. Correct **HP** selection, stable voltage, proper tank charge, minimal short cycling, and low abrasive content all matter. A premium pump installed badly can fail early, while a solid installation in a gentle well can run for many years. If you want the upper end of lifespan, focus on system health: protect the motor from excessive starts, maintain proper pressure settings, and address leaks or drawdown changes before they turn the pump into a nonstop runner.

What maintenance tasks extend well pump lifespan and how often should they be performed?

The biggest lifespan extenders are annual pressure-tank checks, pressure-switch inspection, voltage verification under load when symptoms appear, and prompt investigation of sand, pressure loss, or unusual cycling. Most homeowners don't need monthly pump service; they need small yearly checks before small issues become pump pulls.

At least once a year, verify tank precharge with the system drained, observe cut-in and cut-out behavior, and inspect visible fittings and electrical connections. If your water suddenly contains more sediment, if pressure falls off during simultaneous use, or if the pump runs longer than it used to, don't wait. Those changes often reveal declining well conditions or hydraulic wear. The goal of maintenance is not tinkering for its own sake. It's catching the cheap problem before it cooks the expensive motor.

How does a 3-year warranty compare with typical coverage, and why does it matter?

A **3-year warranty** is materially stronger than the **12- to 18-month** coverage common on many lower-tier pumps. It matters because the first few years are when sizing mistakes, manufacturing defects, and hidden installation stresses usually reveal themselves in actual field conditions.

Warranty length isn't everything, but it tells you how much confidence the manufacturer has in the product's durability. For a homeowner paying real money to pull and reinstall a pump, early failure is painful even if the replacement part is free, because labor and downtime still hurt. Longer coverage helps reduce ownership risk and often signals better component quality, tighter manufacturing standards, or both. In a rural home where water loss disrupts every part of the day, stronger warranty protection is not paperwork. It's part of the value calculation.

Conclusion

A constantly running pump is never something to "watch for a while." It's a system asking for help.

Sometimes the fix is small. Sometimes it's a tank, a switch, or a hidden leak. Sometimes the real answer is that your current unit was undersized, worn by grit, or built too lightly for the job your property asks it to do every single day. The common thread is this: pressure problems only get cheaper while they're still diagnostics, not emergencies.

For homeowners like Marisol, the turnaround came from treating the issue as a full **well water system** problem instead of a guessing game. Better sizing. Better materials. Better diagnostics. Better supply support when replacement actually was necessary. That's why experienced installers keep coming back to contractor-grade stainless **submersible pump replacement** options and buy them through supply houses that understand rural water demands, not just inventory counts.

If your pump won't shut off, don't start with hope. Start with measurements.

Author Bio

Sanjay Mercer is a rural plumbing and pump specialist with **13 years** of field experience across the Driftless Area of western Wisconsin and southeast Minnesota. He has audited more than 600 private well systems and holds an advanced cross-connection certification often used on mixed farm-residential water layouts.