Ohio River Valley Institute

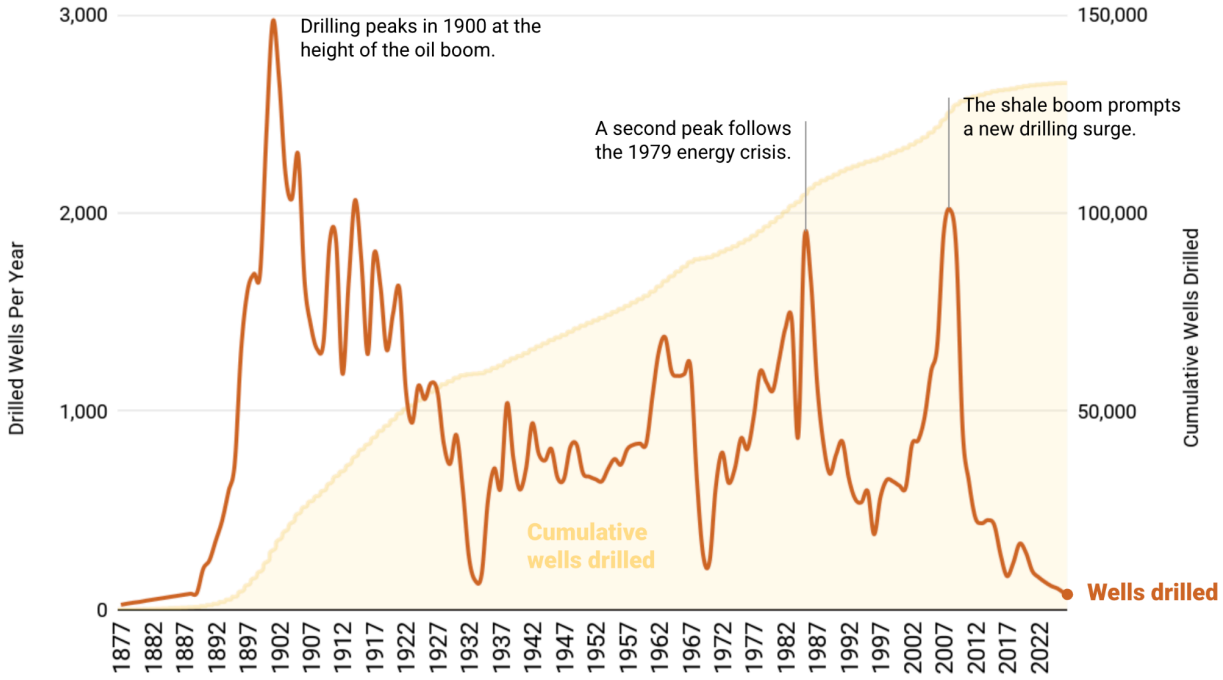
West Virginia's Abandoned Well Problems

West Virginia's long history of oil and gas extraction has left the state saddled with tens of thousands of abandoned wells, many of which are leaking hazardous pollution into the air and ground. **Cleaning up these old wells could create thousands of jobs, reduce toxic emissions, and protect nearby communities—but the state's system for well plugging and regulation isn't currently equipped to fix the problem.**

Tracing the history of West Virginia's orphaned well problem

West Virginia has drilled more than 130,000 wells in its 150-year history of oil and gas exploration.

Figure 1: The peaks and valleys of well drilling in West Virginia
Historic Oil and Gas Wells Drilled in West Virginia, 1875-2025



Source: *Arnold and Kemnitzer (1931) from 1875 to 1929. Data for wells drilled from 1930 to 1986 are from WV Department of Mines, Office of Oil and Gas, Annual Reports, WV Geological and Economic Survey, The American Institute of Mining, Metallurgical, and Petroleum Engineers, and American Association for Petroleum Geologists. Data from 1987 to 2025 is from the WV Department of Environmental Protection and the Center for Asset Retirement Accountability's Upstream Energy platform.*

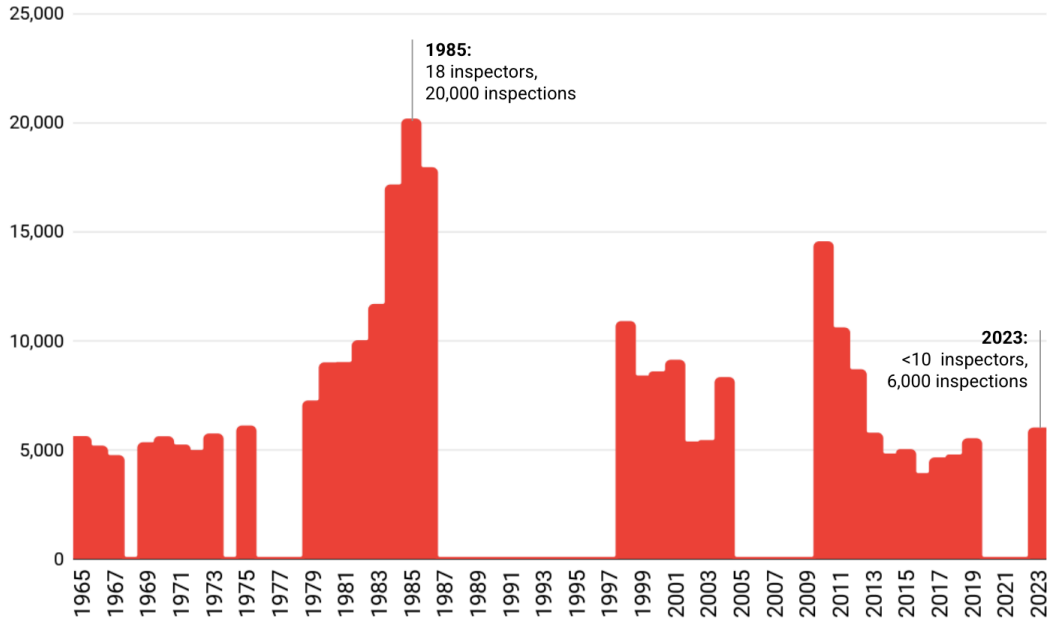
Early regulations advised operators to plug old wells with rocks or wooden plugs. More modern plugging methods and bonding were not put into place until the 1960s and 1970s. Regulatory scrutiny peaked in the early 1980s and passage of the Abandoned Well Act (1992) included additional regulations. Today, regulators are failing to stay on top of accelerating well abandonment, though funding from additional severance tax revenues has provided a much-needed boost to enforcement efforts.

Two critical problems have prevented West Virginia from addressing its growing abandoned well problem: there are too few inspectors, and the state's 'bonding' system has failed to adequately fund well plugging efforts.

Too few inspectors

The West Virginia Department of Environmental Protection's Office of Oil and Gas (OOG), the state agency in charge of inventorying and inspecting abandoned wells and enforcing plugging requirements, is severely under-resourced and understaffed. As of 2025, OOG employs 18 field inspectors—an untenable ratio of one inspector for every 8,700 wells in the state.

Figure 2: Total inspections have fallen sharply since their height in the 1980s.
Total Oil and Gas Inspections, FY 1965-2023



Source: *West Virginia Department of Environmental Protection, Annual Reports FY 1965-67, 1969-1973, 1979-1986, 1998-2004, 2010-2019, and 2023.*
Note: *Years based on availability. Inspections from 1965 to 1985 include drilling and plugging inspections.*

The lack of inspectors has led to fewer inspections, fewer identified violations, and an incomplete database of wells:

- **Inspection and violation frequency is far below neighboring states and even historical highs.** West Virginia conducted 5,929 total well inspections in 2023, well below its peak of roughly 20,000 in 1985, and just a fraction of Pennsylvania's total 2023 inspections (44,746). Pennsylvania regulators issue a notice of violation for nearly 23% of all inspections; West Virginia regulators issue violations for just over 1% of all inspections.

- **A 2012 audit revealed OOG was "not requiring operators to decommission their abandoned wells."** In the last decade, at least 6,000 wells that were legally required to be decommissioned have been abandoned and left unplugged.

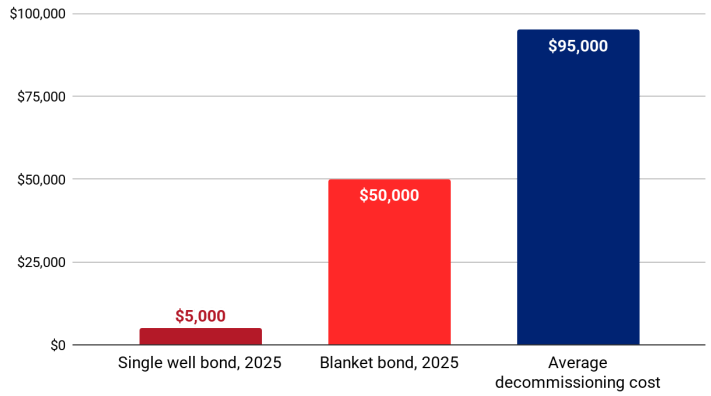
- **OOG's abandoned wells database falls tens of thousands of wells short of expert estimates.** OOG's database lists roughly 16,000 abandoned wells, including about 4,500 orphaned wells without a known or solvent operator. Analysts say there are more than *50,000* unplugged abandoned wells in the state—a massive discrepancy, and one due largely to the lack of documentation of wells drilled before 1929 and subsequent shortcomings in regulatory oversight.

The failures of bonds

West Virginia has a **surety bond**-based system for the financial assurance of oil and gas wells. Operators looking to drill a new well pay an insurer a small annual premium on a modest bond amount set by OOG, and the insurer agrees to pay the state if the operator fails to perform its legal duty to decommission the well at the end of its producing life.

But bonding amounts have failed to keep pace with the cost of proper well decommissioning. Today, a single well bond for a conventional, vertical well is set at $5,000, while a blanket bond covering all of a company's wells is set at $50,000. The average plugging cost of a conventional well is $95,000.

Figure 3: Bonding amounts cover just a fraction of the cost to plug a single well.
Vertical well bonding amounts vs. average decommissioning cost, 2025



It's far cheaper for operators to continue paying the small annual bond premium than to pay for the cost of decommissioning a well. And with inspections so infrequent due to insufficient regulatory staffing, many are able to skirt their plugging operations altogether. Enforcing the law—e.g., recovering bonding funds from an insurer or making sure operators cover cleanup costs—can become a lengthy legal process requiring investigations, site visits, and a large amount of staff time. In many cases, OOG doesn't have the resources to make this happen.

The flaws in West Virginia's bond-based system have forced regulators to pursue **long-term consent agreements** with operators to try to address the state's abandoned well problem. These consent agreements require operators to plug or reactivate a set number of wells within ten years while shielding them from immediate plugging requirements.

Consent agreements have led to some well decommissioning, but they have failed to stem the tide of abandoned wells. From 2013 to 2024, West Virginia signed 88 consent agreements with dozens of operators, ordering about 4,500 wells to be plugged or reactivated in that time. OOG records show just 3,424 wells were plugged in that time, while the documented total of abandoned wells continued to grow by thousands.

Opportunities and recommendations:

Fixing West Virginia's abandoned well problem presents an opportunity to boost the state's economy, revitalize oil and gas employment, and protect communities and the environment.

1. **Decommissioning the state's remaining orphaned well inventory could support thousands of jobs and much-needed tax revenue.** Remaining funding from the Bipartisan Infrastructure Law could decommission 1,393 orphaned wells through 2031, supporting an estimated 810 total job-years, according to IMPLAN modeling. Decommissioning an additional 4,000 orphaned wells from 2032 to 2041 would create more than 2,000 job-years, or 207 jobs per year over the ten year period. These jobs could help employ hundreds of oil and gas workers who have lost their jobs over the last several years as the drilling boom has subsided.

2. **A production fee on oil and gas** will help procure enough funding to quickly and completely address West Virginia's spiraling abandoned well problem while growing the local economy.

3. **The federal, bipartisan Orphan Well Prevention Act of 2025 offers a model for West Virginia policymakers.** The act outlines a production fee and requires oil and gas operators to set aside funds to decommission wells as they are completed for production.

Glossary:

Active Well: Any well that a) produces oil and gas in commercial quantities or b) is used for underground injection or hydrocarbon storage.

Abandoned Well: A well that hasn't produced in 12 consecutive months and has no "bona fide future use."

- **Orphaned Well:** An abandoned well with an unknown or insolvent operator. Plugging orphaned wells is the responsibility of the state.