Environmental & Natural Resource Protection Committee

State Representative Greg Vitali
Democratic Chairman
30 East Wing • PO Box 202166 • Harrisburg, PA 17120-2166 • (717) 787-7647 • Fax: (717) 705-2089
1001 Darby Road • Havertown, PA 19083 • (610) 789-3900 • Toll-Free: (833) 787-5131 • Fax: (215) 560-4197

MEMORANDUM

DATE: 6/4/2025

TO: House Environmental & Natural Resource Protection Members

FROM: Representative Greg Vitali, Majority Chairman
House Environmental & Natural Resource Protection Committee

RE: Environmental & Natural Resource Protection Committee Public Hearing –Thursday, June 12th

---

The House Environmental and Natural Resource Protection Committee will hold a public hearing on **Thursday, June 12th at 10:00am in Room G-50 Irvis Office Building.**

The subject of this hearing is "The Plugging and Abandonment of Oil and Gas Wells / HB 364"

Please contact Hayley Shupe at 717-787-7647 or hshupe@pahouse.net with any questions. If you are unable to attend this meeting, please submit an Official Leave of Absence Form prior to the start of the meeting. Members will have the option to attend virtually if you cannot be there in person.

Thank you,

GV/hs

House Environmental Resources & Natural Protection Committee

Public Hearing Agenda:

"The Plugging and Abandonment Oil and Gas Wells/ HB 364"
Thursday, June 12th, 2025
10:00am – 12:00pm
Room G-50, Irvis Office Building

10:00am – 10:10am	Call to Order Roll Call Opening Remarks
10:10am – 10:25am	Kurt Klapkowski Deputy Secretary, Office of Oil and Gas Department of Environmental Protection
10:25am – 11:10am	Ted Boettner Senior Researcher Ohio River Valley Institute Adam Peltz Director and Senior Attorney, Energy Transition Environmental Defense fund Melissa Ostroff Pennsylvania Policy and Field Advocate Earthworks
11:10am – 11:25am	Tyler Martin Environmental Care Coordinator Cameron Energy Company
11:25am – 11:40am	John Quigley Kleinman Center Senior Fellow University of Pennsylvania
11:40am – 11:50am	Closing Remarks
12:00pm	Adjournment

PRINTER'S NO. 320

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 364 Session of 2025

INTRODUCED BY VITALI, SAMUELSON, BRENNAN, PIELLI, HOHENSTEIN, HILL-EVANS, CIRESI, CEPEDA-FREYTIZ, FREEMAN AND STEELE, JANUARY 27, 2025

REFERRED TO COMMITTEE ON ENVIRONMENTAL AND NATURAL RESOURCE PROTECTION, JANUARY 27, 2025

AN ACT

Amending Title 58 (Oil and Gas) of the Pennsylvania Consolidated Statutes, in development, further providing for bonding.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Section 3225(a)(1) introductory paragraph and (iii) and (2) of Title 58 of the Pennsylvania Consolidated Statutes are amended to read:

§ 3225. Bonding.

(a) General rule.--The following shall apply:

(1) Except as provided in subsection (d), upon filing an application for a well permit and before continuing to operate an oil or gas well, the owner or operator of the well shall file with the department a bond covering the well and well site on a form to be prescribed and furnished by the department. A bond filed with an application for a well permit shall be payable to the Commonwealth and conditioned upon the operator's faithful performance of all drilling,

water supply replacement, restoration and plugging requirements of this chapter. A bond for a well in existence on April 18, 1985, shall be payable to the Commonwealth and conditioned upon the operator's faithful performance of all water supply replacement, restoration and plugging requirements of this chapter. The amount of the bond required shall be in the following amounts and [amounts under subparagraphs (i) and (ii)] may be adjusted by the Environmental Quality Board every two years to reflect the projected costs to the Commonwealth of plugging the well:

* * *

(iii) For a well other than an unconventional well, $2,500 per well. [For 10 years following the effective date of this subparagraph, the Environmental Quality Board and the department shall have no authority to adjust the amount under this subparagraph.]

(2) The following apply:

(i) Except as provided under subparagraph (ii), in lieu of individual bonds for each well, an owner or operator may file a blanket bond for the applicable amount under paragraph (1)(i) or (ii), on a form prepared by the department, covering all of its wells in this Commonwealth, as enumerated on the bond form.

(ii) As follows:

(A) An operator may file a blanket bond of $25,000 for all of the operator's wells in this Commonwealth that are not unconventional wells.

[(B) For every new well that is not an unconventional well drilled after six months after the effective date of this subsection, the bond

amount for that operator shall increase by $1,000.

(C) The total blanket bond for an operator's wells that are not unconventional wells shall not exceed $100,000.

(D) The blanket bond increase of $1,000 shall be waived by the department for a new well drilled under this subsection if the operator provides evidence to the department that the operator has plugged an orphan well at the operator's own expense for which the operator was not the responsible party within the previous 365 days that the operator has not yet received credit for under this subsection by the department.

(E) For 10 years following the effective date of this clause, the bond amounts for wells that are not unconventional wells may only be revised by the General Assembly. The Environmental Quality Board and the department shall have no authority to adjust bond amounts related to wells that are not unconventional wells during that time period.]

(F) The department shall conduct a study of its experience in implementing this section, report its findings to the Governor and the General Assembly and make recommendations for program amendments within 12 months of the effective date of this clause. The report shall contain information relating to:

(I) the cost to the Commonwealth to plug orphan and improperly abandoned wells;

(II) evaluation of industry trends relating to compliance with plugging and reclamation

requirements under existing law;

(III) evaluation of the effectiveness of existing enforcement authority in avoiding improper abandonment, including civil penalty authority and forfeiting oil and gas well bonds;

(IV) the system for reviewing operators' requests for regulatory inactive status approval and permit transfers and what impact approving those actions under current requirements have on future improper abandonment of active wells;

(V) the number of identified orphan and improperly abandoned wells eligible for plugging;

(VI) any recommendation on effective alternative financial assurance mechanisms, including, but not limited to, increased bond amounts for conventional oil and gas wells; and

(VII) the potential applicability of the mechanisms to oil and gas wells drilled prior to April 18, 1985.

* * *

Section 2. This act shall take effect in 60 days.

HOUSE OF REPRESENTATIVES
DEMOCRATIC COMMITTEE BILL ANALYSIS

Bill No:	HB0364 PN0320	**Prepared By:**	Andrew McMenamin (717) 783-4043,6941
Committee:	Environmental & Natural Resource Protection	**Executive Director:**	Evan Franzese
Sponsor:	Vitali, Greg		
Date:	2/3/2025		

A. Brief Concept

Restores the authority of the Department of Environmental Protection (DEP) and Environmental Quality Board (EQB) to change bonding amounts for conventional oil and gas wells.

C. Analysis of the Bill

HB 364 amends Section 3225 (Bonding) of Title 58 (Oil & Gas) to restore the authority of the DEP and the EQB to change bonding amounts for conventional oil and gas wells.

Bonding Amounts

Restores bonding amounts to the status quo prior to Act 96 of 2022. Bonding amounts for conventional wells would be $2,500 per well, with a blanket bond of $25,000 for all of the operator's conventional wells in Pennsylvania.

Study

Requires DEP to conduct a study on oil and gas well bonding, including recommendations and a report within 12 months of the effective date, looking at the following:

- the cost to the Commonwealth to plug orphan and improperly abandoned wells,
- evaluation of industry trends relating to compliance with plugging requirements,
- evaluation of the effectiveness of existing enforcement authority,
- the system for reviewing operator requests for regulatory inactive status and permit transfers,
- impact of approving inactive status requests and permit transfers on future abandoned wells,
- the number of identified orphan and improperly abandoned wells eligible for plugging,
- any recommendations on effective alternative financial assurance mechanisms, including potentially increasing bonding amounts, and
- the potential applicability of such mechanisms to wells drilled prior to April 18, 1985.

Effective Date:

60 days

G. Relevant Existing Laws

Bonding Amounts

Under Act 96, the DEP and the EQB have no authority to adjust bonding amounts on conventional wells (and other wells that are not unconventional) for 10 years. Only the General Assembly would be able to make adjustments during this period.

Currently, bonding amounts for conventional oil and gas wells are set at $2,500 per well, with a $25,000 blanket bond. The bond amount for an operator increases by $1,000 for every

additional well drilled, with a cap of $100,000. Operators can avoid paying the additional $1,000 per well if they plug an orphan well at their own expense.

Prior to the passage of Act 96, bonding amounts for conventional oil and gas wells were provided for under Act 87 of 2012 in section 1606-E of the Fiscal Code, set at $2,500 per well with a $25,000 blanket bond. This section was repealed by Act 96.

The $2,500 per well bond with a $25,000 blanket bond was first established by the Oil & Gas Act of 1984, and briefly increased after the passage of Act 13 of 2012. Between the passage of Act 13 and Act 87, there was no distinction between bonding amounts for conventional and unconventional wells.

Pre-1985 Wells

Section 1934-A of the Administrative Code (Act 175 of 1929) states that no bond or bond substitute is needed for any well drilled prior to April 18, 1985, and would not be affected by this legislation.

Definitions

Definitions

Title 58 contains the following definitions:

Abandoned well is defined to mean a well that meets the following conditions, unless it has been granted inactive status:

- has not been used to produce, extract or inject any gas, petroleum or other liquid within the preceding 12 months;
- equipment necessary for production, extraction or injection has been removed; or
- the well is considered dry and not equipped for production within 60 days after drilling, redrilling or deepening.

Orphaned well is defined to mean "a well abandoned prior to April 18, 1985, that has not been affected or operated by the present owner or operator and from which the present owner, operator or lessee has received no economic benefit other than as a landowner or recipient of a royalty interest from the well."

E. Prior Session (Previous Bill Numbers & House/Senate Votes)

HB 364 was previously introduced as HB 962 during the 2023-2024 Legislative Session. HB 962 was reported as amended from the House Environmental Resources and Energy Committee **12-9** (party line vote) on May 23, 2023. The bill did not receive further consideration.

EARTHWORKS

Pennsylvania House Environmental & Natural Resource Protection Committee
Public Hearing on The Plugging and Abandonment of Oil and Gas Wells / HB 364
Melissa Ostroff, MPH
Pennsylvania Policy and Field Advocate, Earthworks
June 12, 2025

Good morning, and thank you for the opportunity to speak today. My name is Melissa Ostroff, and I am the Pennsylvania Policy and Field Advocate with Earthworks. Earthworks' mission is to protect communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions.

In my role at Earthworks, I use my education in public health and training in optical gas imaging to make the impacts of invisible pollution from the oil and gas industry visible to policymakers and the public. This includes pollution from orphan and abandoned wells.

A little over a year ago, I spoke at a hearing held by Chair Vitali on the subject of addressing abandoned oil and gas wells in Pennsylvania. Unfortunately, almost nothing has changed in our commonwealth since that hearing. Bonding levels for both conventional and unconventional wells remain low enough that, in effect, we do not have financial assurance for oil and gas wells drilled in Pennsylvania today. Pennsylvania residents are paying the price for inaction now and future generations will pay more if we continue to sit on our hands.

The estimated hundreds of thousands of unplugged wells in Pennsylvania continue to represent a threat to both public health and our climate, and more are abandoned improperly every month. We know that unplugged wells not only vent methane – a potent greenhouse gas that heats our planet – but they also release carcinogenic pollutants including benzene and other volatile organic compounds into the air. This pollution impacts the health of Pennsylvania's children who are living with leaking abandoned wells in their backyards, schoolyards, and parks. Beyond impacting air quality, abandoned wells have also been known to contaminate water and have the potential to cause explosions.

As I mentioned last year, in my fieldwork with Earthworks as a certified optical gas imaging thermographer, I have captured footage of orphan and abandoned wells polluting Pennsylvania's recreational public spaces and backyards – places that no one should have to worry about running into oil and gas pollution. I told you about a teacher named Pam who I met in Forest County. Pam and her husband had resorted to using home insulation in an attempt to "plug" a smelly abandoned well in their backyard. You can see the abandoned well - and the garden she set up around it - in this picture. It's been almost 4 years since I met Pam, and her well has yet to be plugged. Similarly, a complaint I filed for a leaky abandoned well near a public pool in Coudersport has gone unaddressed after almost 2 years.

EARTHWORKS

Last spring, I filmed a leaky well at a public park in Allegheny County and filed a complaint. The well was listed as “active” by DEP, but appeared completely abandoned. An inspection was conducted following my complaint, and DEP issued ten notices of violation to the operator, including “failure to plug the well upon abandonment.” After almost a year of following up to ask when the well will be plugged – and who will be paying for it – I received this response from a DEP inspector who asked to remain anonymous, in reference to ongoing litigation with the operator: “I have seen these cases go on for years before the operator is removed from the equation. Oil and [g]as operators are given a consent order to plug unproductive wells, operators that are active and have an interest in continuing to produce gas as a business comply, in [operator name]’s case as in some others it’s like getting blood from a rock. There just aren’t the funds there. Eventually there is a settlement and the state assumes responsibility and plugs the wells.”

The problem is that Pennsylvania taxpayers don’t have the money to plug all of the wells that operators abandon – and continue to abandon every month. The Shapiro administration has done an excellent job of leveraging every federal dollar that Pennsylvania received under the Infrastructure Investment and Jobs Act to plug wells. However, if it wasn’t clear a year ago, it’s certainly clear now that we cannot rely on a taxpayer-funded solution to this problem. Not only are the funds insufficient compared to the scope of the problem, but they are subject to the whims of politicians in Washington. And, at the end of day, taxpayers cannot solve a problem that starts within the industry itself.

This is why we need systemic solutions like bonding reform. Earthworks was one of a number of organizations that filed petitions before the Environmental Quality Board to raise bonding levels for oil and gas wells in Pennsylvania in 2021. Shortly afterwards, the Pennsylvania legislature froze bonding amounts for conventional wells for a decade, keeping more residents like Pam stuck with leaking wells in their backyards. Chair Vitali’s legislation, HB 364, would prevent more Pennsylvanians like Pam from having to solve a problem they didn’t create. It would ensure that no one ever has to use home insulation to “plug” a well that a gas company abandoned.

But we know it’s not just conventional wells that are being abandoned. DEP reports more and more unconventional wells are being abandoned each month, and we are on a path to repeating the same mistakes in the unconventional industry that we’ve already seen play out with conventional operators. The legislation that froze bonding levels for conventional wells in Pennsylvania did not stop DEP from issuing a rulemaking to increase bonding for *unconventional* wells. And yet it has been more than 3 years since EQB voted for DEP to issue a report on the possibility of a rulemaking on unconventional bonding, and we still have not seen that report. Why are we sitting on our hands as this problem continues to balloon?

Bonding is one among many possible systemic solutions that could ensure taxpayers are not relied upon to foot the bill for a problem that starts and ends with polluters themselves. A production fee, as outlined in the Ohio River Valley Institute’s recent report, is another possible solution that could meet this problem head-on. As the report notes, “the cost per unit of

production becomes small" when spread out across the entire Appalachian basin. "Depending on the scope of the costs intended to be covered by the fund…the cost could range from $0.05 to $0.21 per Mcf at today's costs." This proposal is estimated to increase oil and gas jobs by 32% without impacting energy prices or future drilling.[1]

And make no mistake: workers are needed to tackle this problem. We know that through collaboration with organized labor, well plugging can increase workforce development and create more union jobs. I was heartened by the Shapiro administration's announcement of a partnership with the United Mine Workers of America last year to begin an apprenticeship program to train workers to plug oil and gas wells. We need more of these partnerships, which turn the enormous problem of abandoned wells in Pennsylvania into an enormous opportunity for Pennsylvania workers.

It is my hope that one year from now I do not have to come back to Harrisburg to say that nothing has changed again. That we are still leaving this up to taxpayers and political whims. I want to be able to proudly say that Pennsylvania has made real progress to address the systemic problem of abandoned oil and gas wells in our commonwealth. That we have shown other states how to get this done. That we have protected the health of Pennsylvania residents like Pam and the futures of our children. That we have a plan to address this problem at the root and put people to work in family-sustaining jobs at the same time. Let's get this done, Pennsylvania.

[1] https://ohiorivervalleyinstitute.org/wp-content/uploads/2025/05/Filling-the-Hole-Part-II-FINAL-2.pdf

June 12, 2025

Testimony of Adam Peltz
Director and Senior Attorney, Environmental Defense Fund
Pennsylvania House Environmental Resources & Energy Committee

Hello, my name is Adam Peltz, and I am a director and senior attorney in the Environmental Defense Fund's energy program. I have worked nationally on local environmental impacts of oil and gas development since 2011, including much effort in Pennsylvania, starting with Act 13. Since then I have worked closely with state legislators, PA DEP regulators and industry on a variety of issues, including a 78 subchapter C rulemaking, developing guidance for conventional and unconventional operators on offset wellbore assessments prior to hydraulic fracturing, and last year's carbon sequestration bill.

Today, I'd like to share with the committee a briefing on our project in conjunction with the PA DEP, Penn State Extension, the Oil Region Alliance, Moms Clean Air Force, Harrisburg University, Indiana University of Pennsylvania and McGill University, to pilot techniques to find undocumented orphaned and abandoned wells across Western PA, of which there are an estimated 300,000 to 700,000 on top of the 25,000 or so currently in the PA DEP database.

Additionally, I will share some updates on what states across the country are doing to reduce future orphaned and abandoned well burden on the public, and thoughts on potential priorities for the PA legislature on this topic.

Let's start with what we affectionately call the "PAW" or Pennsylvania Abandoned Well project. The story begins in 2020 – as the pandemic took hold, the oil and gas market crashed and a lot of oilfield service workers were out of a job. We and others saw an opportunity to pursue federal stimulus for orphan and abandoned well plugging, and we teamed up with the Interstate Oil and Gas Compact Commission, the Independent Petroleum Association of America and a bipartisan group of Senators to develop what was called the REGROW Act, a first-ever provision of federal support at scale to plug orphaned and abandoned wells across the U.S. introduced in April 2021. The REGROW Act included $4.7 billion dollars, primarily for disbursement to states and onward to oilfield service companies to do plugging and remediation work in the field, as well as money for the Department of Energy to develop techniques for finding and prioritizing undocumented orphan and abandoned wells.

The REGROW Act was included in the Infrastructure Investment and Jobs Act, which was signed into law in November 2021 – an incredibly fast turnaround that speaks to the broad spectrum, bipartisan and coast-to-coast interest in dealing with these wells, which are found in 30 states. As many of you know, Pennsylvania has by far the most of the these wells – the birthplace of the modern oil and gas industry was in Titusville, PA in the 1850s, which ushered in 100 years of intensive, unregulated and largely undocumented drilling in Western PA before the first oil and gas statute was passed in PA in 1959.

This legacy has left, as I said, around 25,000 documented and many hundreds of thousands of undocumented orphaned and abandoned wells in Western PA's forests, farms, and residential areas. These wells are problematic for many reasons – they can contaminate groundwater, release air toxics such as benzene, and emit methane, which is both a climate forcer and an

explosive gas, and the very worst part about these wells is when methane migrates from an old well into an enclosed structure like a basement and explodes, which has unfortunately happened repeatedly in Western PA. Their presence also reduces property values – a University of Pittsburgh study from several years ago found that the presence of these wells reduces building activity by half – while diminishing the economic viability of the geology (you cannot hydraulically fracture a well when these orphan and abandoned wells penetrate the confining zone without losing pressure and sometimes causing geysers, another unfortunately common occurrence in PA, especially in the early years of the shale boom).

Going back to the Infrastructure Act, Pennsylvania's share of the four plus billion dollars is based on its number of documented orphan and abandoned wells, and ended up at around $400 million. This is great, and hundreds of times more than PA DEP's historic budget for well cleanup, which until recently was typically less than a million dollars a year, only enough to cover a few egregiously dangerous wells leaking in close proximity to structures. But the true cleanup cost for the entire historic well fleet is more like in the tens of billions of dollars, and PA's share was smaller than it would have been had more of these old wells been documented.

To that end, we saw an opportunity to leverage the work the Department of Energy put into orphan and abandoned well discovery technology to help the PA DEP find more old wells in Western PA, both for immediate safety and environmental purposes but ultimately to properly catalog the full extent of these old wells in advance of future disbursements of federal funds for well closure, so PA can get more of its share – this money would be directly invested in Western PA counties, supporting local jobs and improving the economies of legacy oil patch regions, all while protecting the health and well-being of families that have lived there for generations.

Starting in early 2024, we began planning in close consultation with the PA DEP a series of instrumented surveys in Clarion and McKean counties in parcels selected to provide a heterogeneity of well ages and types, topographies, land use and land ownership – after all, if we were to make a road map for the PA DEP to do this work at scale, we needed to try out these technologies in all of the conditions that the DEP would find in the field.

In rural Northwest PA, our focus was on flying drones with magnetometers that could detect vertical metal casing in the ground, even if the pipe were cut dozens of feet beneath the surface, as was common in strip mine areas. Some of our flights were on Game Lands, but most were over private property. So we launched an extensive outreach effort, briefing state representatives and Senators, County Commissioners, municipal elected officials, local community groups, school boards, the conventional drillers industry through CDAC, the local pluggers, local press, local sheriffs, and the residents of our parcels themselves. We sent letters to over 100 different parcel owners several times with the opportunity to opt out of our surveys, which around 15-20% did. Last September, we held a series of open houses for parcel owners to come learn about what we were up to and why over dinner and beer – we had the drone and its operator on site, and gave away toy drones for residents' grandkids to play with.

Overall, the outreach was successful and our drone operator had few significant problems in the field, although some of the topography was too difficult to fly without a Beyond Visual Line of Sight waiver from the FAA – we are seeking a waiver, but as you can imagine, the FAA is quite busy at the moment. In any case, we ended up surveying eight square miles and found around 250 likely wells – PA DEP is currently ground-truthing the wells, and we are preparing to follow-up with some ground-based geophysics to verify the presence of some of the wells with no surface expression, as well as a small campaign to quantify methane emissions from some of these wells. But the density of expressions is consistent with the estimates of hundreds of

thousands of undocumented wells across the western third of PA, and speaks to the need of doing this work.

Having demonstrated the efficacies and shortfalls of drone surveys in northwestern PA, we are now turning our attention to more urbanized areas in southwest PA. The threat from undocumented orphan and abandoned wells is arguably greater in this region because of higher population densities, more built structures, and thus more health and safety risks. Working with the PA DEP, we have selected areas in Allegheny (Ross, Shaler, North Fayette and White Oak) and Washington (Charleroi and South Strabane) counties for the next round of surveys. All of these areas have open stray gas migration cases that seem not to be coming from the local distribution network, and undocumented orphan and abandoned wells are suspected. We will do some drone surveys in a limited number of parcels where the PA DEP is in touch with landowners who have requested them, but most of the work will be on public streets and sidewalks using a combination of cars with methane sensors capable of speciation and thus source attribution, and follow-up work with backpack magnetometers (think Ghostbusters suits) that can see vertical metal casings beneath houses from the sidewalk. Within these townships, we will target our efforts based on wells locations appearing on old farm and coal mine maps, which are being digitized by teams at Harrisburg University and Indiana University of Pennsylvania, in addition to the U.S. Geological Survey.

In advance of this next phase of work, we are once again engaged in an outreach effort to make sure as many people as possible in the survey areas understand what we are doing and why. We will be holding another series of open houses in mid-July, and expect surveying to begin shortly thereafter and continue for a number of weeks, with DEP inspector ground-truthing to follow.

Additionally, in partnership with Penn State Extension and the Oil Region Alliance, we are piloting a direct landowner outreach program in Northwest PA to encourage reporting of known undocumented orphan and abandoned wells on peoples' properties. Families who have lived on these lands for generations often know where these wells are, but have not reported them because they did not want to be liable for their cleanup (they are not, unless they were the wells' operators), did not think the DEP would do anything about them even if reported (which was true when the DEP had no money for cleanup, but now they have on track to have $400 million for this purpose), and because the system for reporting wells was historically not straightforward. In this program, landowners will learn about their lack of liability and the existence of these new funds, and Penn State Extension will send personnel out to the field to work with the landowners to document these wells and send them to the DEP – and we will provide a $100 bounty for new wells added to the system this way until our funding runs out. Instrumented surveys are great but expensive, and we are trying to be creative about the many different ways that orphaned and abandoned wells can be located and added to the database – a $100/well acquisition is pretty reasonable under the circumstances.

We're expecting to wrap up the project next winter and hand over a roadmap for PA DEP to pursue this work at scale as funding allows. The first step toward solving the historic orphan and abandoned well problem in Western PA is to find them.

* * *

While we grapple with the magnitude of the undocumented orphan and abandoned well population in PA, we must also address the current population of over 100,000 active and idle conventional and shale wells with operators of record, and make sure that these wells do not become tomorrow's public burdens. This is an issue I know the PA legislature has been

wrestling with for years. I wanted to provide some context of what other states with aging well populations are doing to make sure that end-of-life wells are properly and timely plugged and abandoned by their operators, as has been long required by law in every oil and gas state in the country, including PA.

- In the past month, the Texas Legislature passed an industry-sponsored bill (SB 1150) setting limits on how long wells can remain idle, requiring regular integrity testing of idle wells, authorizing rulemakings on idle well management (including financial assurance) and addressing the transfer of idle wells, and requiring annual reports to the legislature and Governor on the trajectory of the idle well population and its risk to Texas taxpayers and the economy.
- Also in the past month or so, the Oklahoma Legislature passed a series of bills on idle well management, financial assurance and orphan well plugging. These bills limit how long wells can remain idle, increase blanket bond amounts to better correspond with the number of wells covered under such bonds, and invest $20 million in well plugging over the next year.
- Louisiana's ongoing Legislative session is responding to a series of legislative audits that found the state's approach to end-of-life wells was insufficient to protect Louisiana taxpayers and the environment from mismanagement – bills under consideration would restructure the state's oil and gas regulator and the orphan well closure fund facility in response to the audit's suggestions, with which the regulator generally concurred. This follows an October 2023 regulatory effort to rein in idle wells through fees that rise the longer wells stay idle (until they are plugged).
- The New Mexico Oil Conservation Division is responding to a rulemaking petition that would increase financial assurance for idle wells and marginal wells producing less than 3 BOE/day, limit well idling to eight years, and provide more oversight on transfer to ensure that transferees have the capacity and wherewithal to comply with state regulations, including plugging responsibility. The hearing for this petition, and subsequent rulemaking, will occur this fall.
- The Utah Division of Oil, Gas and Minerals is several years into stakeholder efforts to develop updated financial assurance rules in response to a legislative audit that found, as in Louisiana, that the state's current rules created too high an orphan well burden risk for Utah taxpayers. The agency's proposal, following stakeholder input, limits blanket bond eligibility only to solvent operators by way of a production threshold and percentage of idle and <1 BOE/day wells within each operator's fleet, and requires all idle and <1 BOE/day wells to have single-well depth bonds. The matter is now before the state's Oil and Gas Board, with a goal to complete a rulemaking by the end of the year.

These legislative and regulatory developments in some of the country's largest and oldest oil and gas-producing states are useful context as the Pennsylvania Legislature considers how to manage its aging well fleet, which includes some shale wells drilled at the beginning of the Marcellus boom that are now becoming unproductive because of steep decline curves and facing NOVs for failure to comply with plugging orders.

Rather than opine on specific proposals, I will offer some principles on fair, balanced and protective end-of-life well oversight for the Legislature's consideration:

- Financial assurance proportional to risk and phased in carefully to avoid mass orphaning
- Limiting the duration wells can stay idle and requiring regular integrity testing to make sure those wells do not leak
- Well transfer rules that predicate transfer on a showing of transferee's ability to meet requirements, ideally backed up through financial assurance

- An orphan and abandoned well closure fund paid for by industry to plug and abandon wells not properly and timely P&A'd by their operators
- Workforce development and apprenticeship programs to bring more people into the plugging and remediation industries to enable the work to proceed at scale, at a reasonable cost, and benefiting workers in historic oil and gas communities
- Pilot programs exploring ways that end-of-life wells and sites can be reused for energy production and storage, including geothermal heat, gravity and other types of energy storage, and solar and wind development. Just because a well can no longer economically produce oil and gas does not necessarily mean it is useless, and the more we can leverage this existing infrastructure for modern energy needs, the better. It is worth noting that there is a bipartisan bill in Congress known as the Abandoned Well Remediation Research and Development Act that would fund the Department of Energy (including NETL in Pittsburgh) to invest in this very type of research, along with undocumented orphan well discovery and improved plugging technology and techniques
- Sufficient staffing at DEP to meet permitting, industry interfacing, rulemaking, inspection, and enforcement needs

* * *

Thank you very much for the opportunity to share these updates and ideas for progress with you today. The birthplace of the oil and gas industry has a tremendous (and urgent) opportunity to grapple with that legacy and set the stage for Pennsylvania's modern energy production economy to thrive while creating jobs and ensuring clean air and water for all of its residents. I look forward to working with you all on that journey.

Testimony of John H. Quigley

Senior Fellow, Kleinman Center for Energy Policy,
Stuart Weitzman School of Design, University of Pennsylvania

House Environmental & Natural Resource Protection Committee

Thursday, June 12, 2025

Chairman Vitali, Chairman Rader, and Members of the Committee, my name of John Quigley. I am currently a Senior Fellow at the Kleinman Center for Energy Policy in the Stuart Weitzman School of Design at the University of Pennsylvania.

Thank you for the invitation to offer testimony on the immense, urgent challenge of abandoned oil and gas wells.

These wells leak methane and pose other serious environmental risks, especially to groundwater. A study from the U.S. Geological Survey that was published just last month found that aquifers in several Appalachian states—including Pennsylvania—present the "maximum confluence" of risk factors for groundwater contamination from orphaned oil and gas wells.[1]

A comprehensive approach for Pennsylvania to tackle the abandoned well challenge is needed. It should include six elements.

1. Develop funding mechanisms to tackle the problem.

The $400 million of Biden-era federal funding to jumpstart severely and chronically underfunded state plugging efforts is, unfortunately, only a start. Long-term funding is required for abandoned well plugging and the other measures that I discuss here. The Ohio River Valley Institute's policy proposals along these lines are worthy of serious consideration at both state and Federal levels.[2]

2. An ongoing, technology-driven effort to identify abandoned wells

Advances in technology are enabling the detection of abandoned wells[3] at scale. A recently-announced partnership among DEP, the U.S. Department of Energy, McGill University, Moms Clean Air Force, and the Environmental Defense Fund will use drone-

[1] Woda, J., et. 2025. "A Geospatial Analysis of Water-Quality Threats from Orphan Wells in Principal and Secondary Aquifers of the United States." *Science of the Total Environment*. https://doi.org/10.1016/j.scitotenv.2025.179246.
[2] Boettner, T. and Purvis, D. 2025. Filling the Hole, Part II: The Solution." Ohio River Valley Institute. https://ohiorivervalleyinstitute.org/wp-content/uploads/2025/05/Filling-the-Hole-Part-II-FINAL-2.pdf.
[3] Saint-Vincent, P., et. al. 2021. "Historic and modern approaches for discovery of abandoned wells for methane emissions mitigation in Oil Creek State Park, Pennsylvania." *Journal of Environmental Management*. https://doi.org/10.1016/j.jenvman.2020.111856.

mounted magnetometers and advanced methane detection technologies to locate abandoned wells in portions of Clarion, McKean, and Venango Counties, starting this fall.[4] Pennsylvania needs a broader, ongoing, and consistent application of these technologies.

3. Modernize DEP's information systems to better manage the effort and provide public transparency.

Because of years—decades, really—of budget cuts and inadequate funding, DEP's data systems are inadequate to the task of managing this—and many other—complex problems. Further, DEP's data are also not easily accessible to the public. Serious investment in integrated information systems at DEP is required to provide the agency with the tools it needs to do its job, with full transparency to stakeholders and the public.

4. Ensure the most effective use of available well plugging funds by embracing advances in technology.

One aspect of the abandoned well challenge that hasn't received enough attention is the fact that, sooner or later,[5] plugged wells can, and do, leak.[6]

Current plugging methods employing mainly Portland cement and bentonite gel have been used for decades. But Portland cement can degrade,[7] and other added materials can shrink and break down mechanically or chemically, causing leaks[8] underground or into the atmosphere. To complicate matters further, plugged wells are not monitored for leakage.

Achieving a permanent seal capable of withstanding subsurface geomechanical and geochemical changes over the long term requires the development of engineered materials and processes to provide sealing in the early decades after plugging, and leveraging geological processes to take over and provide permanent seals.

Examples of current research on improved well-plugging include:

---

[4] Environmental Defense Fund. 2024. "Unearthing Pennsylvania's legacy of orphan and abandoned wells." https://www.edf.org/unearthing-pennsylvanias-legacy-orphan-and-abandoned-wells.

[5] Achang, M., et. al. 2020. "A Review of Past, Present, and Future Technologies for Permanent Plugging and Abandonment of Wellbores and Restoration of Subsurface Geologic Barriers." *Environmental Engineering Science*. https://doi.org/10.1089/ees.2019.0333.

[6] Aslani, F., et. al. 2022. "Additive and alternative materials to cement for well plugging and abandonment: A state-of-the-art review." *Journal of Petroleum Science and Engineering*. https://www.sciencedirect.com/science/article/pii/S0920410522005915.

[7] Chukwuemeka, A., et. al. 2023. "Plug and abandonment of oil and gas wells – A comprehensive review of regulations, practices, and related impact of materials selection." *Geoenergy Science and Engineering*. https://doi.org/10.1016/j.geoen.2023.211718.

[8] Vralstad, T., et. al. 2019. "Plug & abandonment of offshore wells: Ensuring long-term well integrity and cost-efficiency." *Journal of Petroleum Science and Engineering*. https://doi.org/10.1016/j.petrol.2018.10.049.

- using self-healing materials[9] for plugs
- thermal techniques[10] to melt well components to form a plug
- magnetic cements[11] and magnetic fields to change the properties of plugging material
- alternatives or additives to Portland cement such as geopolymers,[12]flyash,[13] and nanoparticles[14] to improve mechanical and physical properties and durability of barrier materials
- ultrasonic cleaning[15] of the wellbore to improve the placement of barrier materials
- expandable tubular technology[16] to close downhole gaps
- activating shale[17] by exposing it to different pressure, temperature, and chemical conditions to form a long-term natural barrier
- flexible expanding cement systems[18]—currently used for well integrity in some shale wells

Industry research[19] into better plugging materials and placement methods has been found to be significantly lagging behind advancements in drilling and completion technology.[20] That must change.

---

[9] Li, J., et. al. 2023. "A novel self-healing and degradable plugging material for high temperature gas well." *Journal of Molecular Liquids.* https://doi.org/10.1016/j.molliq.2023.121473.

[10] DeSouza, K., et. al. 2024. "Experimental and numerical investigation of the effect of alumina on thermite reation propagation for thermal plug and abandonment of oil wells." *International Journal of Heat and Mass Transfer.* https://doi.org/10.1016/j.ijheatmasstransfer.2024.125327.

[11] Krezinski, C., et. al. 2021. "Magnetorheological cements for plug setting control in oil and gas wells." *Journal of Petroleum Science and Engineering*. https://doi.org/10.1016/j.petrol.2020.108257.

[12] Singh, N. B., et. al. 2020. "Geopolymer cement and concrete: Properties." *Materials Today: Proceedings*. https://doi.org/10.1016/j.matpr.2020.04.513.

[13] Ledesma, R., et. al. 2020. "Zeolite and fly ash in the composition of oil well cement: Evaluation of degradation by CO2 under geological storage condition." *Journal of Petroleum Science and Engineering*. https://www.sciencedirect.com/science/article/abs/pii/S0920410519310770.

[14] Sircar, A., et. al. 2022. "Applications of nanoparticles in enhanced oil recovery." *Petroleum Research.* https://www.sciencedirect.com/science/article/pii/S2096249521000636.

[15] Zhang, X., et. al. 2020. "Study on removing calcium carbonate plug from near wellbore by high-power ultrasonic treatment." *Ultrasonics Sonochemistry.* https://doi.org/10.1016/j.ultsonch.2019.03.006.

[16] Filippov, A., et. al. 1999. "Expandable Tubular Solutions." *SPE Annual Technical Conference and Exhibition*. https://doi.org/10.2118/56500-MS.

[17] Van Oort, E., et. al. 2022. "Simplifying Well Abandonments Using Shale as a Barrier." *SPE Drill & Compl.* https://doi.org/10.2118/199654-PA.

[18] Chukwuemeka, A., et. al. 2023. "Plug and abandonment of oil and gas wells – A comprehensive review of regulations, practices, and related impact of materials selection." *Geoenergy Science and Engineering*. https://doi.org/10.1016/j.geoen.2023.211718.

[19] Technology Subgroup of the Operations & Environment Task Group. 2011. "Plugging and Abandonment of Oil and Gas Wells." *Working Document of the NPC North American Resource Development Study.* *https://www.npc.org/Prudent_Development-Topic_Papers/2-25_Well_Plugging_and_Abandonment_Paper.pdf*.

[20] Achang, M., et. al. 2020. "A Review of Past, Present, and Future Technologies for Permanent Plugging and Abandonment of Wellbores and Restoration of Subsurface Geologic Barriers." *Environmental Engineering Science*. https://doi.org/10.1089/ees.2019.0333.

DEP must stay current on field-ready innovations and incorporate them into well plugging requirements.

5. Use technology to monitor abandoned and plugged wells.

Just as methane detection technology should be leveraged to monitor emissions from the oil and gas sector and find abandoned wells, it should also be employed to monitor abandoned and plugged wells for emissions to enable better environmental outcomes.[21]

6. Combat the abandonment of more wells.

Current bonding requirements in state law are wholly inadequate.[22] The passage of Act 96 in 2022 made the situation even worse by taking from the Environmental Quality Board its never-exercised authority over well bonding. Restoring that authority, as proposed in HB 364, would be an important step in the right direction.

Full-cost bonding requirements would incentivize well plugging, particularly for unconventional operators. Other solutions are likely needed for conventional wells.

But it's also obviously necessary to look at the subject of enforcement. This year, DEP has already issued or continued 228 violations to 62 conventional oil and gas well owners for abandoning and not plugging their wells. The contagion is spreading to the unconventional industry. So far in 2025, DEP has issued or continued 49 violations to 22 shale gas drilling companies for abandoning and not plugging their wells.[23]

In December 2022—in a remarkable self-own—the previous administration reported that non-compliance with regulatory and statutory requirements was "an acceptable norm in the conventional oil and gas industry."[24] That didn't just happen on its own.

It's clear that DEP needs additional inspection, compliance, legal, and other staffing to adequately and effectively enforce the law—and not just in the Oil and Gas program.

---

[21] Quigley, J. 2024. "Remote Sensing-Based Monitoring Networks for the Next Generation of Energy and Environmental Policymaking." Kleinman Center for Energy Policy. https://kleinmanenergy.upenn.edu/wp-content/uploads/2024/12/KC-Paper-17-Remote-Sensing-Based-Monitoring-Networks.pdf.

[22] Weber, J. 2016. "Bonding Requirements for Oil and Gas Wells in Pennsylvania: Cost-Based Recommendations." Environmental Quality Board. https://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2021/November%2016/04_Petition_Conventional%20Well%20Bonding/4a_Petition%20Attach%20C-F_SC_Conventional.pdf.

[23] Hess, D. 2025. "PA Oil & Gas Weekly Compliance Dashboard - May 31 to June 6 - Horizontal Drilling Spill; 'Control Issue' Blows Drilling Mud Out a Flare; Failure to Notify DEP of Spills; More Abandoned Wells." *PA Environment Digest Blog*. https://paenvironmentdaily.blogspot.com/2025/06/pa-oil-gas-weekly-compliance-dashboard.html.

[24] Department of Environmental Protection. 2024. "Governor's Lapsing Statement Report 2022-12-29." https://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/Governor's_Lapsing_Statement_Report_2022-12-29.pdf.

It is also clear that DEP must enforce tougher penalties for well abandonment, including increased fines, and fully exercise its authority to suspend or revoke permits and block new well permits for non-compliance.

That requires seriousness, intent, and permission, if not direction, from the Governor's Office—now, and going forward.

Pennsylvanians' right to clean air and pure water and the Commonwealth's trustee duties under Article 1 Section 27 of our state constitution require a serious, comprehensive approach to the challenge of abandoned oil and gas wells, and many other environmental challenges.

Thank you again for the opportunity to provide this testimony.

REFERENCES

Achang, M., et. al. 2020. “A Review of Past, Present, and Future Technologies for Permanent Plugging and Abandonment of Wellbores and Restoration of Subsurface Geologic Barriers.” *Environmental Engineering Science*. https://doi.org/10.1089/ees.2019.0333.

Aslani, F., et. al. 2022. “Additive and alternative materials to cement for well plugging and abandonment: A state-of-the-art review.” *Journal of Petroleum Science and Engineering*. https://www.sciencedirect.com/science/article/pii/S0920410522005915.

Boettner, T. and Purvis, D. 2025. Filling the Hole, Part II: The Solution.” Ohio River Valley Institute. https://ohiorivervalleyinstitute.org/wp-content/uploads/2025/05/Filling-the-Hole-Part-II-FINAL-2.pdf.

Chukwuemeka, A., et. al. 2023. “Plug and abandonment of oil and gas wells – A comprehensive review of regulations, practices, and related impact of materials selection.” *Geoenergy Science and Engineering*. https://doi.org/10.1016/j.geoen.2023.211718.

Department of Environmental Protection. 2024. “Governor's Lapsing Statement Report 2022-12-29.” https://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/Governor's_Lapsing_Statement_Report_2022-12-29.pdf.

DeSouza, K., et. al. 2024. “Experimental and numerical investigation of the effect of alumina on thermite reation propagation for thermal plug and abandonment of oil wells.” *International Journal of Heat and Mass Transfer.* https://doi.org/10.1016/j.ijheatmasstransfer.2024.125327.

Environmental Defense Fund. 2024. “Unearthing Pennsylvania’s legacy of orphan and abandoned wells.” https://www.edf.org/unearthing-pennsylvanias-legacy-orphan-and-abandoned-wells.

Filippov, A., et. al. 1999. “Expandable Tubular Solutions.” *SPE Annual Technical Conference and Exhibition*. https://doi.org/10.2118/56500-MS.

Hess, D. 2025. “PA Oil & Gas Weekly Compliance Dashboard - May 31 to June 6 - Horizontal Drilling Spill; 'Control Issue' Blows Drilling Mud Out a Flare; Failure to Notify DEP of Spills; More Abandoned Wells.” *PA Environment Digest Blog*. https://paenvironmentdaily.blogspot.com/2025/06/pa-oil-gas-weekly-compliance-dashboard.html.

Krezinski, C., et. al. 2021. “Magnetorheological cements for plug setting control in oil and gas wells.” *Journal of Petroleum Science and Engineering*. https://doi.org/10.1016/j.petrol.2020.108257.

Ledesma, R., et. al. 2020. “Zeolite and fly ash in the composition of oil well cement: Evaluation of degradation by CO2 under geological storage condition.” *Journal of Petroleum Science and Engineering*. https://www.sciencedirect.com/science/article/abs/pii/S0920410519310770.

Li, J., et. al. 2023. “A novel self-healing and degradable plugging material for high temperature gas well.” *Journal of Molecular Liquids.* https://doi.org/10.1016/j.molliq.2023.121473.

Quigley, J. 2024. “Remote Sensing-Based Monitoring Networks for the Next Generation of Energy and Environmental Policymaking.” Kleinman Center for Energy Policy. https://kleinmanenergy.upenn.edu/wp-content/uploads/2024/12/KC-Paper-17-Remote-Sensing-Based-Monitoring-Networks.pdf.

Saint-Vincent, P., et. al. 2021. “Historic and modern approaches for discovery of abandoned wells for methane emissions mitigation in Oil Creek State Park, Pennsylvania.” *Journal of Environmental Management*. https://doi.org/10.1016/j.jenvman.2020.111856.

Singh, N. B., et. al. 2020. “Geopolymer cement and concrete: Properties.” *Materials Today: Proceedings*. https://doi.org/10.1016/j.matpr.2020.04.513.

Sircar, A., et. al. 2022. “Applications of nanoparticles in enhanced oil recovery.” *Petroleum Research.* https://www.sciencedirect.com/science/article/pii/S2096249521000636.

Technology Subgroup of the Operations & Environment Task Group. 2011. “Plugging and Abandonment of Oil and Gas Wells.” *Working Document of the NPC North American Resource Development Study*. *https://www.npc.org/Prudent_Development-Topic_Papers/2-25_Well_Plugging_and_Abandonment_Paper.pdf*.

Van Oort, E., et. al. 2022. “Simplifying Well Abandonments Using Shale as a Barrier.” *SPE Drill & Compl.* https://doi.org/10.2118/199654-PA.

Vralstad, T., et. al. 2019. “Plug & abandonment of offshore wells: Ensuring long-term well integrity and cost-efficiency.” *Journal of Petroleum Science and Engineering*. https://doi.org/10.1016/j.petrol.2018.10.049.

Weber, J. 2016. “Bonding Requirements for Oil and Gas Wells in Pennsylvania: Cost-Based Recommendations.” Environmental Quality Board. https://files.dep.state.pa.us/PublicParticipation/Public%20Participation%20Center/PubPartCenterPortalFiles/Environmental%20Quality%20Board/2021/November%2016/04_Petition_Conventional%20Well%20Bonding/4a_Petition%20Attach%20C-F_SC_Conventional.pdf.

Woda, J., et. 2025. “A Geospatial Analysis of Water-Quality Threats from Orphan Wells in Principal and Secondary Aquifers of the United States.” *Science of the Total Environment*. https://doi.org/10.1016/j.scitotenv.2025.179246.

Zhang, X., et. al. 2020. “Study on removing calcium carbonate plug from near wellbore by high-power ultrasonic treatment.” *Ultrasonics Sonochemistry.* https://doi.org/10.1016/j.ultsonch.2019.03.006.

Pennsylvania
Department of
Environmental Protection

Testimony of

Deputy Secretary Kurt Klapkowski

Office of Oil and Gas Management

Department of Environmental Protection

Before the House Environmental and Natural Resource Protection

Committee

Thursday, June 12, 2025

Good morning, Chair Vitali, Chair Rader, and members of the House Environmental and Natural Resource Protection Committee. My name is Kurt Klapkowski and I am the Deputy Secretary for the Office of Oil and Gas Management (OOGM) at the Department of Environmental Protection (DEP). On behalf of DEP, thank you for the opportunity to provide information about the proper abandonment of oil and gas wells in the Commonwealth, the oil and gas industry's record of compliance with those requirements and potential approaches to address these issues.

Pennsylvania has a long history of oil and gas development with the first commercial oil well drilled in 1859 near Titusville, Pennsylvania. Since then, it has been estimated that as many as 300,000 to 760,000 oil and gas wells have been drilled in the state. A significant number of wells were drilled and abandoned prior to enactment of Pennsylvania's modern oil and gas statute, which was established in 1984 (1984 Oil and Gas Act). The 1984 Oil and Gas Act required an operator to plug a well that was not used to produce, extract or inject any gas, petroleum or other liquid within the preceding 12 months or from which equipment necessary for production was removed. Other wells have been abandoned by operators who declare bankruptcy or move operations out of Pennsylvania, leaving their wells unplugged and posing a potential threat to public health, public safety and the environment.

This threat is why plugging orphaned and abandoned wells is a top priority for the Shapiro Administration. Under Governor Shapiro's leadership and thanks to unprecedented federal funding, we have been able to plug more than 300 wells since the beginning of this Administration – more than the previous decade combined. Unfortunately, reviewing inspection and compliance data developed since 2017, DEP has identified widespread non-compliance with laws and regulations in the conventional oil and gas industry, particularly regarding improper abandonment of oil and gas wells, but also not reporting hydrocarbon and waste production and conducting mechanical integrity assessments.

Wells that are improperly abandoned may pose environmental and public health and safety threats such as gas migration into occupied structures, water supply impacts, surface water impacts, hazardous air pollutant emissions, methane emissions, and soil and groundwater contamination. These wells may become the responsibility of the state's taxpayers to plug, along with remediation and reclamation of the well site. The failure to report denies DEP critical information about the operating status of individual wells. Significant changes in the conventional oil and gas industry's reporting practices will need to occur before meaningful improvement can happen.

Although the recent compliance trends are troubling, the good news is that DEP possesses the authority and some tools necessary to begin to address these issues. These tools include the use of administrative orders, civil penalty assessments, bond forfeiture, entry and docketing of liens, criminal referrals when appropriate, permit denials and increased scrutiny of permit transfer and regulatory inactive status requests.

We are also beginning to address these threats using funds provided by the Infrastructure Investment and Jobs Act, or IIJA, signed into law by President Biden on November 15, 2021. DEP received approximately $25 million via the IIJA Initial grant and has plugged 220 wells across the state. And we will be doing more IIJA work in the years to come with the potential for an additional $386 million in federal well plugging funding between now and 2030.

DEP is also interested in working with conventional oil and gas operators who get it right – properly plugging their wells when they become unproductive and meeting the annual reporting deadlines. One hundred percent compliance is always the goal and understanding what works or how processes, systems and information or training can be improved to get to higher levels of compliance are important efforts to undertake alongside enforcement.

Ensuring proper abandonment of conventional wells and protecting the taxpayers of the Commonwealth from bearing those costs will require additional resources, especially in the Bureau of District Oil and Gas Operations (in particular, field inspectors and enforcement personnel such as Compliance Specialists as well as permitting geologists) and the Office of Chief Counsel which provides the legal guidance to identify responsible parties and compel compliance.

The primary statutory provisions that apply to the conventional oil and gas industry are codified in Title 58 of the Pennsylvania Consolidated Statutes, Chapter 32 (relating to development). For shorthand, this law is often referred to as "Act 13 of 2012" or the "2012 Oil and Gas Act." The primary regulations applicable to conventional oil and gas development are in 25 Pa. Code Chapter 78 (relating to oil and gas wells). Other Pennsylvania statutes and regulations, such as the Solid Waste Management Act, the Clean Streams Law, the Dam Safety and Encroachments Act, the Air Pollution Control Act and regulations developed under the authority of those statutes, may also apply to conventional oil and gas operations, depending on the activity being conducted.

Section 3220 of the 2012 Oil and Gas Act states in relevant part:

> § 3220. Plugging requirements.
>
> (a) General rule.--Upon abandoning a well, the owner or operator shall plug it in the manner prescribed by regulation of the department to stop vertical flow of fluids or gas within the well bore, unless the department has granted inactive status for the well or it has been approved by the department as an orphan well.

Proper plugging of conventional oil and gas wells at the end of their economic life is critical for protecting public health and safety as well as the environment. Improperly plugged or unplugged wells can cause a myriad of problems, including gas migration into occupied structures, water supply impacts, surface water impacts, hazardous air pollutant emissions, methane emissions, and soil and groundwater contamination. Improperly plugged wells have been tied to fatal explosions in Pennsylvania and other states, so this is a category of potentially significant violations.

Failure to properly plug an abandoned well also means that the task of properly plugging the abandoned well might fall to the Commonwealth – "the plugger of last resort" – and costs to do so passed along to Pennsylvania taxpayers. The issue of plugging obligations passing to the Commonwealth is especially critical for wells abandoned today but drilled before April 15, 1985, as these wells have no bonds that could be forfeited to cover at least a portion of the cost of plugging them (*see*, Act 57 of 1997, the original waiver through Administrative Code amendments of bonding requirements for such oil and gas wells; Act 87 of 2012, Fiscal Code amendments that retained the Act 57 provisions and Act 96 of 2022, which amended the 2012 Oil and Gas Act to continue this waiver).

Locating and Documenting Abandoned Wells

In addition to plugging abandoned wells with known locational data, DEP is taking action to identify and document abandoned wells that whose locations are unknown. DEP designated a portion of IIJA funding for this purpose. On January 16, 2025, DEP entered into a $350,000 one-year contract with Harrisburg University of Science and Technology (HUST) and Indiana University of Pennsylvania (IUP) to assist with locating undocumented oil and gas wells by digitizing and georeferencing historic well records. The Department has georeferenced more than 212,000 total wells in Pennsylvania (including more than 27,000 abandoned wells) but over 300,000 additional well records may exist where the locations have not been established. These well records come from various sources that include but are not limited to mine maps, farmline maps and permit files. Since the first month of activity in February 2025, HUST and IUP reported the digitizing and processing of 2,353 mine maps that includes wells in Washington and Indiana Counties. From these maps, they have digitized 19,991 well features. The Department is cross-referencing this information with existing DEP databases and is beginning the process of "ground-truthing" this locational data through field work. Georeferencing undocumented wells will greatly improve DEP's efforts to document undocumented abandoned wells and allow for the prioritization of efforts to address these abandoned wells. The Department is currently reviewing a proposal from the Pennsylvania State University to conduct similar undocumented well georeferencing.

2024 MECHANICAL INTEGRITY REPORTING

Due to current search limitations, DEP is unable at this time to determine the bonding requirement for wells because the date a well is drilled (aka, SPUD date) is not included in these reports. However, based on the numbers below you can see the percentage of well inventory being submitted and the percentage of operators submitting reports.

Mechanical integrity assessment and reporting have been required by section 78.88 of the Department's regulations since 2011 and implemented since 2015. This reporting is particularly important because it represents the "self-check" conducted by conventional well operators indicating the condition of the well and any necessary repairs or remedial actions.

MECHANICAL INTEGRITY REPORTING	Count of operators	Count of wells	% of Operators	% Wells
Submitted	638	77,647	13%	76%
Failed to submit	4,314	24,620	87%	24%
Total required to submit	4,952	102,267	100%	100%

This is probably a good moment to discuss bonding levels. As noted above, due to the adoption of Act 57 of 1997 a significant number of active conventional oil and gas wells are not subject to any bonding requirements. Even those conventional oil and gas wells that are subject the bonding requirements in section 3225 of the 2012 Oil and Gas Act only have a maximum bond of $2,500 per well or $25,000 for all conventional oil and gas wells operated by a specific company in Pennsylvania. Further, the Environmental Quality Board was stripped of authority to amend this level of bonding for ten years by the passage of Act 96 of 2022, which is currently in litigation.

. This lack of bonding, or inadequate bonding poses a challenge given the costs of plugging that DEP currently encounters. DEP plugged more than 3,500 abandoned and orphan wells between 1989 and the present. Analysis conducted around a decade ago indicated that the historic average per-well plugging cost was around $33,000 per well plugged. As part of a statistical analysis conducted as part of the Commonwealth's submission of a Notice of Intent to Apply for a Formula Grant to the Department of the Interior in December 2021, DEP estimated that future costs to plug wells would average around $68,000 per abandoned well plugged. DEP's "request for bid" contracts issued as part of the Initial Grant activity under the Infrastructure Investment and Jobs Act have come in at around $110,000 per abandoned well plugged. It is clear that the current conventional well bond amounts under the 2012 Oil and Gas Act neither cover the "the projected costs to the Commonwealth of

plugging the well" nor do those bond amounts provide an adequate financial incentive for operators to properly plug the well (especially if the bond amount is zero). Many operators do choose to follow the regulations and properly plug their wells, even without this incentive, but the compliance information outlined above makes it clear that other operators do not take such steps.

Compliance Response

In response to this non-compliance, DEP has undertaken significant efforts to compel compliance with Pennsylvania's rules and regulations or penalize operators. From January 2024 through today, DEP has assessed over $1.3 million in penalties on conventional oil and gas operators, issued dozens of administrative orders, and forfeited over $80,000 in bonds.

Bonding Alternatives

As for conventional oil and gas well bonding, as noted above the General Assembly has significantly limited the EQB's authority to change bond amounts for conventional wells drilled after April 18, 1985, or even require bonds for wells drilled before that date. DEP continues to seek other avenues to make improvements to programs designed to reduce future orphaned well burdens, such as alternative funding mechanisms for orphaned well programs to protect taxpayers from assuming additional liabilities, and reforms to programs relating to well transfer or temporary abandonment, as noted above. DEP is currently working to compile information regarding how other states approach these issues and make recommendations for any reasonable legislative or regulatory changes that might assist in avoiding improper abandonment. Finally, the Department applied for and subsequently received more than $44 million in federal funding under the Inflation Reduction Act's Methane Emission Reduction Program, which will provide grants to fund the plugging of "marginal" conventional oil and gas wells. DEP published two reimbursement grant solicitations in October 2024 to plug marginal conventional wells and expects to announce the award of successful grant applicants in mid-2025.

Recent Record of Compliance with Reporting Requirements and Performance Requirements Under Existing Law

DEP's Office of Oil and Gas Management reviewed data for inspections conducted between January 2017 and December 2024, and identified 3,150 unique wells that were cited for improper abandonment during this period that have not been plugged, granted inactive status, or returned to active status.

To approximately determine when these wells were first identified as abandoned, DEP identified the first recorded abandonment violation date and treated that as the abandonment date.

The most recent reported production for each well was identified. 42 wells reported production after last having been identified as abandoned, 2,058 wells reported production only before their first documented abandonment, and 1,050 never reported production. For the purpose of this report, the 42 wells that reported production after last having been cited for well abandonment violations are presumed to have been brought back into service, reducing the total number of abandoned wells to 3,108.

Wells were categorized in this review with a suspected estimated date of when they were abandoned, before or after 1/1/2017, or unknown, based upon when the well was drilled, when production reports were submitted and not submitted, and the inspection history. For example, wells drilled in 2017 or later or having reported production in 2017 or later were determined to be abandoned after 1/1/2017, unless production was reported after the well was identified as abandoned. Some wells were identified as abandoned before 2017, then subsequently used for production after 2016, and then were abandoned again.

Overall, of the 3,108 wells cited for abandonment between January 2017 and December 2024 that are remaining part of this analysis: 1,608 wells (approximately 52%) appear to have been abandoned on or after January 2017; 530 wells (approximately 17%) appear to have been abandoned prior to 2017; and 970 wells (approximately 31%) were identified after the start of 2017 as having been abandoned, but the precise date of abandonment is unknown based on the data included in this analysis.

Suspected Period of Abandonment	Count of Pre-Act Wells (No Bond Required)	Count of Post-Act Wells (Bond Required)	Total Well Count	Percentage of Total Well Count
On or after 01/01/2017	826	782	1,608	52%
Prior to 01/01/2017	425	105	530	17%
Unknown*	819	151	970	31%
Total	**2,070**	**1,038**	**3,108**	**100%**

*Based upon data included in this analysis

Of concern to DEP, is the general lack of compliance with reporting requirements in the 2012 Oil and Gas Act and Chapter 78, including hydrocarbon production and waste produced, as well as how that waste was managed. Without accurate production reporting, DEP cannot determine if a well has been "used to produce, extract or inject and gas, petroleum or other liquid within the preceding 12 months." If a well is not so used, it is defined by the 2012 Oil and Gas Act as abandoned and must be plugged.

The failure to report how much waste is generated and how the waste was managed poses obvious problems for an agency charged with overseeing proper waste management practices. In addition to production reporting, conventional oil and gas operators are also required to investigate and report on the mechanical integrity of their wells. This integrity review and information is crucial for protecting the environment and public health and safety.

As the following tables show, reporting non-compliance is widespread. DEP does note that this analysis includes home use well owners (a subset of conventional wells used by homeowners or businesses for consumptive use on the property where the well is located and typically operated by non-industry persons), owners of 10 or fewer wells, as well as larger operators with eleven or more conventional oil and gas wells.

2024 CONVENTIONAL PRODUCTION REPORTING SUMMARY

- 4,946 operators are required to submit conventional annual production that includes 105,104 conventional oil and gas wells.
- 15% of operators submitted a 2024 annual production report on 77% of wells in DEP inventory that require a report
- 85% of operators failed to submit a 2024 annual production report which results in 23% of wells not reported in DEP inventory.

Of the wells not being reported (23,708 wells), 19,644 wells are considered Pre-act (not requiring a bond) based on SPUD date on or before 4/18/1985, which is approximately 83% of the non-reported wells.

Of the 4,204 operators failing to submit a report, 89% of those operators have at least one well where no bond is required. However, they also may own wells that do require bonding.

PRODUCTION REPORTING	Count of operators	Count of wells	% of Operators	% Wells

Submitted	753	81,396	15%	77%
Failed to submit	4204	23,708	85%	23%
Total required to submit	4946	105,104	100%	100%
BONDING				
	Well Count	**% of wells needing bond**		
Total Wells Not submitted	23,708	100%		
Bond Required	4,064	17%		
Bond Not Required	19,644	83%		
***89% of Operators failing to submit APR operate at least 1 well not requiring a bond.				

Enhanced enforcement for conventional oil and gas wells from 01/01/2024 through today

OOGM is working with DEP's Office of Chief Counsel to develop standard operating procedures to issue administrative orders, forfeit bonds and issue civil penalty assessments. "Template" orders and standard processes will reduce review time for compliance and legal personnel. Given the significant potential for threats from abandoned, unplugged wells to the environment and public health and safety, as well as the potential fiscal impacts to the Commonwealth's taxpayers, the more frequent use of enhanced enforcement is a prudent step to take in these cases. Violations of final orders requiring plugging of abandoned wells would also give the DEP authority to deny applications for new well permits and deny permit transfers, an additional deterrent.

Enforcement Type	Count	Penalty Amount Assessed
ADORD - Administrative Order	10	
BDFT - Bond Forfeiture	6	$88,600
CACP - Consent Assessment of Civil Penalty	15	$60,540
CADJ – Consent Adjudication	1	$100,000
CMPOR - Compliance Order	10	
COA - Consent Order and Agreement	4	
CPA - Civil Penalty Assessment	10	$1,123,155
CTORD - Court Order	4	$10,000
NOV - Notice of Violation	655	
PTCON – Petition for Contempt	1	
PTNEN - Petition to Enforce	1	
Grand Total	**717**	**$1,382,295**

Enhanced Enforcement Actions Relating to Improper Well Abandonment

There are many operators that DEP staff are looking at for further enforcement action to address

abandoned wells that were identified either through the review of annual production reports or knowledge of regional operations. However, conducting inspections, gathering information regarding the permitted operator, conducting deed/lease searches at local courthouses to help accurately identify a responsible party, etc., take a significant amount of time; this is in addition to completing various other everyday job duties – investigating complaints, investigating water supply/gas migration cases, conducting drilling operation inspections, conducting plugging operation inspections, reviewing plugging certificates and alternate plugging method requests, etc.

Once information is collected and the decision is made to initiate an enforcement action, additional time is needed by Compliance Specialists to assemble the information and draft the enforcement document and oversight, and review is needed by the Environmental Group Manager and Regional Counsel. Additional time, and sometimes a significant amount of time, is needed if that enforcement action is appealed.

Even if not appealed, there is additional time involved to ensure compliance with the action taken. If non-compliance is identified, this case then becomes even more time intensive as it requires the drafting of petitions (to enforce or for contempt), review time by counsel and then the time needed for any associated court hearings within Commonwealth Court. The court hearings consume additional time, as multiple staff (sometimes 2-3 staff, and sometimes more depending on the complexity of the case) need to travel to Harrisburg, participate in the hearing and then travel back to their District Office. Given the travel time, the court hearings require an overnight stay which then results in additional time as those involved in the hearings are out of the office. In all, depending on whether an operator complies with the action taken, cases can take upwards of a year or more. DEP continues to manage several cases involving improper abandonment that were initiated more than five years ago.

An example may provide a sense of the time needed to identify and locate abandoned wells for enforcement purposes. An operator in Venango County has responsibility for plugging around 210 wells in Northwest Pennsylvania. These wells were originally drilled by Quaker State Oil during the late 1970's and early 1980's but were transferred to this operator in the early 2000's. Oil and Gas staff initiated a review of the operator's wells, including abandoned wells, during the mid-2000's. At that time, the operator was still operating wells and had been working with the Department to address the observed violations. However, during the 2018-2020 time period, NWDO staff became aware that the operator had stopped operating the wells and had started another business venture. NWDO began to inspect the operator's well inventory so that an enforcement action could accurately identify the necessary corrective actions, including the specific location of each abandoned well.

Most wells within the inventory of the operator, if not all, were project wells and were not specifically located on the plat map associated with the well permit. Project wells are identified on a plat map as a distance and range/bearing from a key well that is identified on (typically from that time period) a hand drawn plat map. A common scenario that is encountered is that the key well was not drilled in the exact location identified which in turn throws off the distance and range/bearing numbers to every other well in that project. Some of these well projects have hundreds of wells, some close to one another so it can become very difficult to know which well is which – that is if the well can even be found. Given the age of some of these wells, some have been cut off at the ground surface, or are in the middle of a multiflora rose patch, or inundated by a beaver dam, etc. In addition to that, lease boundaries do not always align with the boundaries of the well projects so having that information can sometimes be useless (although it took quite a bit of time to get that lease information from the courthouse or other repository).

A DEP Oil and Gas Inspector (OGI) subsequently attempted to map each of the specific wells by this operator. The project took maybe 6 – 8 months in total. One of the compounding issues was vegetative cover when attempting to locate the wells. The OGI started in the winter/spring time frame when vegetation was less sparse but given the difficulty with everything mentioned above, that process extended into the summer/fall growing season when finding a cut off well in the middle of an overgrown wooded area can be almost impossible. Once a few wells were located, a geologist (with GIS experience) began working with the OGI to geo-reference the found wells and then they made assumptions to the location of the unfound wells, but all the wells were not located. The NWDO

started an enforcement action to require the plugging of the abandoned wells, but because DEP could not locate all the wells, the priority of the action was lowered. This took the better part of a year to attempt to identify all the wells for one operator, without even moving on to the time involved with the drafting of an enforcement action or any other time after the action is issued.

Conclusion

Pennsylvania has a troubling history of improper abandonment of conventional oil and gas wells – a problem that, unfortunately, persists among a portion of the industry. This record of compliance will require DEP to develop and refine its techniques for deterring violations and encouraging compliance with relevant statutory and regulatory provisions both to protect the public and the environment as well as ensure a level playing field for operators who are doing the right thing.

Wells that are improperly abandoned may pose environmental and public health and safety threats and may become the responsibility of the Commonwealth to plug along with remediation and reclamation of the well site. The reporting non-compliance denies DEP critical information about individual wells and the overall industry and has become so widespread among operators with 11 or more conventional oil and gas wells as to be the rule rather than the exception.

Although the recent compliance trends for the conventional oil and gas industry are troubling, DEP does possess some of the necessary authority and tools needed to take appropriate steps to address these issues. It cannot be emphasized strongly enough, however, that increased oversight of the conventional oil and gas industry and enforcement will require additional resources, especially in the DEP Office of Chief Counsel and the Bureau of District Oil and Gas Operations.

Governor Shapiro's 2025-26 budget proposes $19 million to continue finding and plugging wells and the important mission of this office. Developing a stable funding source to fund these efforts will be critical to successfully altering the current course of non-compliance in the conventional oil and gas industry in Pennsylvania, and DEP looks forward to continuing to work with our partners in the General Assembly.

Ohio River Valley Institute

June 12, 2025

Testimony of Ted Boettner
Senior Researcher, Ohio River Valley Institute, Johnstown, Pennsylvania
Pennsylvania House Environmental and Natural Resource Protection Committee

Chairman Vitali, Chairman Rader, and members of the Committee, thank you for inviting me to testify today on the issue of abandoned wells in Pennsylvania. My name is Ted Boettner and I am a Senior Researcher for the Ohio River Valley Institute where my research and analysis has focused extensively on solving problems associated with abandoned wells in Appalachia.

Oil and gas have been vital to America's economy and living standards. Whether it's providing energy for transportation, manufacturing, and heating or as feedstock for plastics and fertilizers.[1] Natural gas has also been pivotal to renewable energy development and grid stability, providing 'just in time' dispatchable power to backup intermittent renewables such as solar and wind power on the electric grid.[2] At the same time, the upstream oil and gas industry has left behind a remarkable amount of environmental damage over the last 165 years. And unfortunately, Pennsylvania is the epicenter of this damage.[3]

Today, there are an estimated 341,000 undocumented and 27,000 documented orphaned wells in the state, along with over 100,000 conventional wells that are likely to become orphaned unless swift action is taken by state policymakers.[4] The good news is improving well abandonment compliance and implementing long-overdue reforms can create thousands of jobs in the oil and gas industry while also improving health, the environment, and property values in our communities.[5]

As it stands today, plugging a well is de facto voluntary, unless operators are under a consent order agreement or operators are filling a well to drill a new one.[6] Bonding amounts are so low that they have little to no effect on inducing well plugging.[7] As far as I am aware of, the oil and gas natural gas industry is the only industry where bonding levels do not match project costs. Moreover, the "culture of non-compliance" is pervasive, especially among conventional well owners.[8] To improve abandoned well compliance, there are a number of steps that state policymakers and the PADEP should consider. This includes a production fee, implementing trust fund accounts, requiring inactive wells to be decommissioned on a deadline, updating the state's well management system, exercising existing statuary authority, and improving the process for plugging orders.

Production Fee
Why does Pennsylvania need a production fee on oil and gas extraction? There are several reasons. First, no amount of bonding is going to pay for decommissioning the state's undocumented and documented orphaned wells. Based on current decommissioning

costs of about $85,000 per well, this amounts to about $31 billion (368,000 orphaned wells).[9]

Second, most of the state's conventional wells are likely to become orphaned. Despite making up about 86% of the state's active wells, conventional wells accounted for just 1% of total oil and gas production and about $200 million in total production value in 2024.[10] Over the next 30 years, the total production value of conventional wells will likely be about $4 billion.[11] This is less than half of what it will cost to decommission the 105,000 active and abandoned unplugged conventional wells. While instituting higher levels of bonding along with compliance reform can lead some operators to decommission their conventional wells, the vast majority of these wells are uneconomic and owned by financially unhealthy operators.[12]

Third, the PADEP needs more resources to enforce well abandonment compliance and other duties that protect Pennsylvanians from environmental damage. Ohio collected $58 million in oil and gas severance taxes in 2022, with 90% going to the Oil and Gas Fund to help decommission orphaned wells while 10% went to a geological mapping program.[13] West Virginia collected $556 million in state oil and gas severance taxes in 2022, and used $1.8 million of this amount for plugging abandoned oil and gas wells.[14]

Lastly, a severance tax or production fee can improve compliance by incentivizing operators to submit accurate production reports in a timely manner due to tax liability.

Based on projections from the US Energy Information Administration, Pennsylvania could put $24 billion back into its economy from a 10 cent Mcf fee and $37 billion from a 15 cent Mcf fee from 2025 to 2050.[15]

Site-Specific Trust Accounts

For new wells and recently drilled wells, Pennsylvania could require each well to have a Site-Specific Trust Account (SSTA) that includes a surety bond as an insurance backstop.[16] The operator would deposit money into the Trust Account at the PADEP or third-party government sponsored entity for the first 15 years of the life of the well that matched its anticipated decommissioning cost. These accounts would follow the well for its entire life and ensure that if the well was transferred to other operators, it would be decommissioned.

Improving Compliance and Well Inventory Management at PADEP

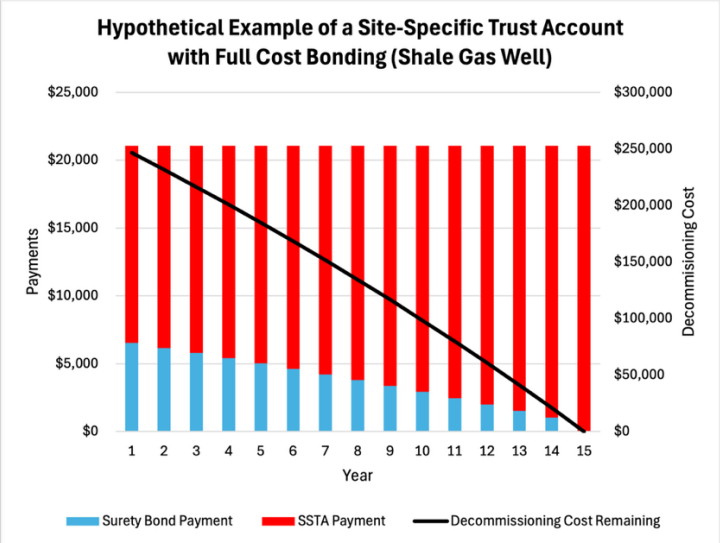
Today, the onus to prove that a well is abandoned seems to fall on the PADEP staff rather the operators. It should be the opposite. The PADEP should issue administrative plugging orders to operators that have routinely failed to submit a production report, repurpose their well, or put the well in regulatory inactive status. Notices of Violation for failure to plug should be issued not just during on-site inspections, but administratively. This would expedite enforcement. The PADEP should also use its power to deny permits to operators with wells that are not in compliance. A well without production report for more than two years, should be considered abandoned and appropriate action should be taken.

The PADEP would also benefit from an automated and centralized data management system to expedite inspection outcomes, violations, operator reports, and well inventory status. Currently, there are 20,000 conventional wells listed as "active" but have not furnished a production report and the majority haven't produced in over 5 years.[17] The PADEP's Abandoned List also contains dozens of wells from active operators and companies that have the means to decommission these wells.[18] To remedy some of these issues, the PADEP should join the Ground Water Protection Council's Risk Based Data Management System (RBDMS) to help better manage its well inventory and compliance measures, and adopt the recommendations included in Governor Wolf's 2023 report.[19]

Policymakers could also consider modifying the states minimum production threshold.[20] The state should establish a minimum production threshold at which point a well is either put into regulatory inactive status, is brought back to producing in economic qualities, repurposed for other uses, or decommissioned within a reasonable time-frame. Having no production threshold allows operators to push decommissioning into the future, which inflates the value of the company and the well. Having a minimum threshold of production can result in market efficiencies, reveal risks of abandonment, and force operators to plug wells that are uneconomic.

Conclusion

Pennsylvania has had a long successful history of oil and gas production, but has also accumulated hundreds of thousands of unplugged wells and tens of billions of dollars in private liability creating public risk. The problem of funding decommissioning will not be solved by marginal revisions to policies, so it is time to either give up on the objective of proper well abandonment or embrace a path that includes regulatory reform and a targeted fee on the remaining industry that would create jobs while making Pennsylvania a better state to live, work, and raise a family.



[1] U.S. Department of Energy: Office of Oil and Natural Gas, "U.S. Oil and Natural Gas: Providing Energy Security and Supporting Our Quality of Life," September 2020. (Link)
[2] Elena Verdolini et al.," Bridging the gap: Do fast-reacting fossil technologies facilitate renewable energy diffusion?," Energy Policy (Vol.116, pp.242-256), May 2018. (Link)
[3] Dwayne Purvis and Ted Boettner, "Filling the Hole Part I (The Problem) and Part II (The Solution)," Ohio River Valley Institute, May 2025. (Link)
[4] Ismot Jahan et al.," Data-driven estimates of undocumented orphan oil and gas wells with implications to the environment," *Science of Total Environment* (Vol. 967), March 2025. (Link) and Chrisopher M. Guise," Status of DEP's Orphan and Abandoned Well Plugging Initiatives in PA," PA Office of Oil and Gas Management, April 22, 2025. (Link) Note: The PADEP listed approximately 20,800 wells on the DEP Abandoned List and 6,300 on the DEP Orphan List, but notes that the 27,000 wells have
no viable owner to plug" them in Pennsylvania. This is the standard definition of an orphaned well.
[5] Ibid, Purvis and Boettner, Part II.
[6] See Greg Rogers and Rob Schuwerk, "They only fill when they drill: The economic motives behind plugging uneconomic wells," Carbon Tracker Initiative, July 2021. (Link) Note: The PADEP has approximately 28 consent order agreements (COAs) covering about 2,800 wells of which over 900 have been plugged. The COAs were obtained by ORVI from the PADEP in March 2025.
[7] See for example, U.S. Government Accountability Office, "Oil and Gas: Bureau of Land Management Should Adress Risk from Insufficient Bonds to Reclaim Wells," September 18, 2019. (Link)
[8] Governor Tom Wolf, Notice of Bill Enacted without Signature, Governor's Office, July 30, 2022, (Link) and PA DEP, Report and Recommendations on PA DEP's oversight of the oil and gas industry, Table 3 (Dec. 29, 2022). (Link)

[9] Interstate Oil and Gas Compact Commission, "Idle and Orphan Oil and Gas Wells: State and Provincial Regulatory Strategies," 2024, (Link) (Note: In 2023, the latest year available, decommissioning cost per well in Pennsylvania was $85,291 based on $12.6 million in state and federal funds cand 148 wells plugged.)
[10] Based on PADEP Production Reports (Link) and PADEP Oil and Gas Operator Well Inventory Reports (Link) As of June 5, 2025, conventional wells produced 76.8 Bcfe (billion cubic feet of natural gas equivalent) in 2024 compared to 7.4 Tcfe for unconventional wells. Among active wells, there were 101,550 conventional wells and 13,360 unconventional wells (89%). In 2024, 73,000 conventional wells produced 71.4 bcf of natural gas, 872,757 barrels of oil, and 33,735 barrels of lease condensate (NGLs). Using a 2024 annual natural gas price of $1.72 per Mcf (Jesse Bushman, "Economic and Natural Gas Update", PA Independent Fiscal Office, January 30, 2025, Link), $76.63 for oil (US EIA Cushing, OK WTI Spot Price, 2024, Link), and $24.32 (Diversified Energy Corporation, 2024 Annual Report, Link), total production value is estimated at $192 million.
[11] This assumes conventional well production for the 73,000 producing wells (today) will decline by 3% per year from 2025 to 2054. Over this 30-year period, gas production would total 973 Bcf while production would be 11.2 million barrels. Using onshore lower 48 natural gas and oil projected prices (UA EIA AEO 2025, Table 58 and 59, Link), this amounts to $4.2 billion (2024$)in production value from 2025 to 2054.
[12] See Adam Peltz, "Testimony of the Environmental Defense Fund, Before the House Environmental Resources and Energy Committee," April 24, 2023. (Link) (Note: An analysis of producing conventional wells in Pennsylvania in 2024 by ORVI found that 51,000 active conventional wells produced less in production value than base operating expenses of $2,855)
[13] Ohio Department of Taxation, Annual Report of Fiscal Year 2024, p.84. (Link); Ohio Department of Natural Resources, GIS & Mapping Service. (Link)
[14] West Virginia Taxation Division, Severance Tax Collections: Fiscal Years 2015 to 2024. (Link)
[15] In 2024, Pennsylvania comprised 56% of eastern United States natural gas production (US EIA, Assumptions to the Annual Energy Outlook 2025: Hydrocarbon Supply Module, April 2025. Link; US EIA, Natural Gas Gross Withdraws and Production, Link). US EIA Annual Energy Outlook of 2025 (Table 59. Link)

projects east dry natural gas production to total 435 Tcf from 2025 to 2050. Assuming Pennsylvania produces 56% of east dry gas production, this is 243.5 Tcf. A 10 cent per Mcf fee therefore yields an estimated $24.3 billion and a 15 cent per Mcf fee yield $36.5 billion from 2025 to 2050.

[16] The state of Louisiana uses Site-Specific Trust Accounts upon the transfer of oil and gas well sites, but does not require SSTAs for all operators. However, a 2024 audit of Louisiana's Department of Energy and Natural Resources' progress toward addressing orphaned oil and gas wells recommended the expansion of SSTA program to all new permitting wells since it is "based on an estimate of actual plugging costs" conducted by an approved contractor that estimates and updates plugging costs." Louisiana Legislative Audit, "Progress Report: State Efforts to Address Orphaned Oil and Gas Wells: Office of Conservation – Department of Energy and Natural Resources," October 24, 2024. (Link)

[17] The PADEP's Oil and Gas Operator Inventory Report (link) lists approximately 115,000 wells as "active" while only about 90,000 wells are producing or active (e.g. injection wells) according to 2024 Oil and Gas Production Reports (link). About 950 of these wells are unconventional (horizontal). Of the 25,000 non-producing oil and gas wells, 16,000 contain production data and 2,000 contain a spud date. There are also about 2,000 conventional wells with production data listed as not drilled. Of the 16,000 with production data, approximately 73% have not produced or submitted a production report in over five years.

[18] Of the 20,800 wells on the DEP Abandoned List (link) nearly 6,500 have a client status of "Active-Non-Government" which should mean a viable owner. For example, Essential Utilities owns 605 wells on the Abandoned List under the Peoples Gas Company, Equitable Gas Company, and Dominion Peoples Gas Company. The PADEP also lists Pennzoil Producing Company as "out of business" with 729 wells included on their DEP Abandoned List. According to public records, Pennzoil Producing Company merged into Pennzoil company in 1986. Pennzoil Company is owned by Shell, a large multinational oil and gas company.

[19] Groundwater Protection Council, Risk Based Data Management System. (Link)

[20] See Jeremy G. Weber et al.," Identifying the end: Minimum production thresholds for natural gas well," Resources Policy (Vol.74), December 2021. (Link)

Cameron Energy Company
507 Cherry Grove Road
Clarendon, PA 16313
Office: (814) 968-3337
Fax: (814) 968-3330

Testimony of Tyler Q. Martin
Environmental Care Coordinator, Cameron Energy Company
Before the Pennsylvania House Environmental Resources and Energy Committee
Abandoned Wells Hearing – Thursday, June 12, 2025
Harrisburg, PA

Chairman and members of the Committee, thank you for the opportunity to speak today.
My name is Tyler Martin, and I am the Environmental Care Coordinator at Cameron Energy Company, a family-run conventional oil and gas producer based in Pennsylvania. We are a team of 50 Pennsylvanians — not a conglomerate, not a faceless corporation — working every day to responsibly develop the energy resources that have long been part of our region's heritage.
At Cameron, I handle regulatory compliance and environmental coordination across our operations. That includes everything from reporting production and working with DEP inspectors, to planning erosion and sediment controls, supporting new permit applications, and identifying orphan wells for plugging. Compliance is not just a job title — it's a full-time job, and a serious one.

The Reality of the Proposed Bonding Increase
Under current law well bonding is set by the legislature. Under this proposed legislation well bonding would be set by the Environmental Quality Board. The proposed bonding amount is $38,000 per well. Let's examine what that would mean for a company like Cameron.
For context: Cameron operates approximately 1,800 conventional wells. Under this proposal, our bonding obligation would balloon to $68.4 million.
Let me be blunt: We cannot afford this. No small or medium-sized conventional operator can. Bonding at that level requires cash or collateral — and banks don't issue surety bonds without dollar-for-dollar backing. We don't have $68 million in a vault — and no one in our sector does.
To put it in perspective:
The average conventional well generates around $1,100 annually in natural gas sales. That's not a typo — $1,100.
Asking conventional producers to comply with a $38,000-per-well bond is like asking us to fly. We simply can't do it. Increased bonding doesn't just ignore economic reality — it threatens the very existence of responsible operators like Cameron Energy Company.

Flawed Data and Misleading Assumptions
Much of the well bonding discussion has been based upon flawed data. When arguing in favor of the $38,000 bond the Sierra Club presented a chart claiming that Cameron Energy had abandoned over 1,600 wells in a single year. In reality, every one of those wells was active and reported as producing to the DEP. The Sierra Club presented similar false claims about dozens of other conventional oil and gas operators.
The source of the flawed data was DEP's own database, which failed to reflect submitted production reports. The Sierra Club later admitted its mistake, calling the situation "weird," but the damage had already been done — to reputations, to public trust, and to policy direction.

This isn't just a data issue — it's a credibility problem. Cameron Energy has found, reported, and submitted over 400 wells for orphan status, yet DEP has failed to add most of them to the official orphan list — and in some cases has wrongfully responsibility for the orphan wells to our company. That misclassification paints a false picture and obscures the real issue: the majority of unplugged wells in Pennsylvania are truly orphaned.
Without a reliable and transparent database, responsible operators are unfairly maligned, while the real plugging challenge — orphan wells from decades or centuries past — remains improperly addressed.
(See attached graph from Sierra Club)

Our Compliance Burden – Already Heavy, Already Working
At Cameron, our staff spends thousands of hours annually complying with existing DEP requirements. That includes:

- Annual reports
- Site visits with DEP inspectors
- Erosion and sedimentation planning and implementation
- Submitting orphan well candidates to DEP
- Assisting with new well permit applications
- Ensuring everything is tracked, recorded, mapped, and logged
- Complying with thousands of pages of regulations, including water quality, air quality, oil & gas permitting, endangered species and more.

What is in place is already working. Cameron's core operations are in the Allegheny National Forest (ANF) where there are more than 12,000 "active" conventional wells. The ANF routinely conducts environmental studies of the Forest, and the most recent ANF report concludes that the 2,126 miles of streams in the ANF is the cleanest water in the state.
In regards to well abandonment, Cameron is not only NOT abandoning wells. Cameron, like many other conventional operators, is plugging wells. In the past 12 years Cameron has plugged 260 wells — on our own dime. Most of these were orphan wells — orphans of the state, not our responsibility, but we did the work anyway. We take care of our backyard.
Let me be clear: This proposed legislation is not ordinary regulation— it is extraordinary. This legislation would NOT lead to better enforcement or more responsible production — it would drive out the very operators who are doing things the right way.
If this committee advances this proposal and it becomes law, you will not solve the abandoned well problem — you will make it exponentially worse. Dozens of companies like ours will be forced to shut down, and the very wells we currently manage in full compliance will be at risk of abandonment. Not because we want to walk away — but because we'll have no choice.

In Closing
I urge this committee to consider the real-life impact of these proposals on the conventional industry — on families like ours, on workers in your own communities, and on companies that are playing by the rules.
Let's build policy on accurate data, economic reality, and a true understanding of the industry's diversity.
Thank you for the opportunity to testify. I'd be happy to answer any questions.

Attachment:

Graph Prepared by the Sierra Club