



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Testimony of

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Department of Environmental Protection

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Good morning Chair Vitali, Chair Causer, and members of the House Environmental Resources and Energy Committee. My name is Kurt Klappowski 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 200 wells in the last 14 months – more than the previous nine years combined. I am happy to note that this represents a continued increase in pace; it took nine months to get to the first 100 wells and less than five months to reach the 200th well just last week.

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 has approximately \$22.5 million out in plugging contracts as of today to plug 227 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).

2023 MECHANICAL INTEGRITY REPORTING

Due to our current report set up, we are unable at this time to determine the bonding requirement for wells because the 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	545	68,346	11%	66%
Failed to submit	4359	34,455	89%	34%
Total required to submit	4904	102,801	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 the next ten years by the passage of Act 96 of 2022, which is currently in litigation before the Commonwealth Court.

It is worth taking a moment to discuss what those projected costs to the Commonwealth to plug improperly abandoned wells might be. 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 2023 through today, DEP has assessed over \$2.3 million in penalties on conventional oil and gas operators, issued dozens of administrative orders, and forfeited \$100,000 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 has applied for and expects to receive 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 in 2024.

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

DEP, Office of Oil and Gas Management reviewed data for inspections conducted between 01/01/2017 and 12/31/2023, using data downloaded on 1/23/2024, and identified 2,773 unique wells that were cited for improper abandonment during this period.

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. 279 wells reported production after last having been identified as abandoned, 1,743 wells reported production only before their first documented abandonment, and 664 never reported production. For the purpose of this report, the 279 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 2,494.

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 2,494 wells cited for abandonment between 1/1/2017 and 12/31/2023 that are remaining part of this analysis: **1,230 wells (approximately 49%) appear to have been abandoned after 1/1/2017; 518 wells (approximately 21%) appear to have been abandoned prior to 1/1/2017; and 746 wells (approximately 30%) were identified after 1/1/2017 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	648	582	1,230	49%
Prior to 01/01/2017	374	144	518	21%
Unknown*	609	137	746	30%
Total	1,631	863	2,494	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.

2023 CONVENTIONAL PRODUCTION REPORTING SUMMARY

- 4,933 operators are required to submit conventional annual production that includes 105,751 conventional oil and gas wells.
- 14% of operators submitted a 2023 annual production report on 68% of wells in DEP inventory that require a report
- 87% of operators failed to submit a 2023 annual production report which results in 33% of wells not reported in DEP inventory.

Of the wells not being reported (33,505 wells), 23,690 wells are considered Pre-act (not requiring a bond) based on SPUD date on or before 4/18/1985, which is approximately 71% of the non-reported wells.

Of the 4,265 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	668	72,246	14%	68%
Failed to submit	4265	33,505	86%	32%
Total required to submit	4933	105,751	100%	100%
BONDING				
	Well Count	% of wells needing bond		
Total Wells Not submitted	33,505	100%		
Bond Required	9,807	29%		
Bond Not Required	23,698	71%		
***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 01/01/2023 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	Penalty Amount Collected
ADORD - Administrative Order	17		
BDFT - Bond Forfeiture	4	\$100,000	\$75,000
CACP - Consent Assessment of Civil Penalty	14	\$93,925	\$93,925
CMPOR - Compliance Order	2		
COA - Consent Order and Agreement	11	\$1,547,000	\$1,507,000
CPA - Civil Penalty Assessment	17	\$549,715	\$441,190
CTORD - Court Order	4	\$25,000	
FDORD - Field Order	3		
NOV - Notice of Violation	572		
PTNEN - Petition to Enforce	2		
Grand Total	646	\$2,315,640	\$2,117,115

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. We are still dealing with 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 NW PA. 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 line up 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).

Sometime in 2021 or 2022, a DEP Oil and Gas Inspector (OGI) 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 we 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, as laid out above, 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 2024-25 budget proposes \$11 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 we look forward to continuing to work with our partners in the General Assembly.