

PA Majority Senate Policy Committee
Testimony of Bryce Yeager
September 12th, 2024

My name is Bryce Yeager. I was born, raised, and have spent the majority of my career in Pennsylvania. During my 22 years in the oil and gas industry, I have had the opportunity to work on a variety of wells that range from shallow open hole wells in northwest PA, to deep Marcellus, and Utica wells in northeastern and southwestern corners of the state. I am currently the Vice President for the Eastern US for BioSqueeze, a company that utilizes a unique process where bacteria are used to seal leaking oil and gas wells.

I am here to today to speak about the methods and provide feedback for the Pennsylvania Department of Environmental Protection to increase productivity in plugging orphan wells, while ensuring all wells are leak free.

I do want to recognize the DEP for increasing its level of plugging orphan wells from historic averages. Completing 206 wells with IJJA funds exceeds the prior 10 years of Orphan well program activity combined. The recent award from the Department of the Interior for both the IJJA Initial and Formula Phase 1 grants required significant internal systems and processes to be developed and implemented. But this increase in pace is still not enough. Based on the Departments estimates on the current number of orphan and abandon wells and the current pace of well plugging, Pennsylvania will still be dealing with this issue decades into the future. For all of the legacies that make Pennsylvania great, this is not one of them, and I don't want to leave it for my grandchildren to clean up.

From my experience, addressing the following three issues will eliminate roadblocks to increased orphan well plugging annually and should be prioritized by the Department:

1. Embracing new technologies for well plugging
2. Modernizing existing plugging regulations
3. Training and education for DEP staff

First: In recent years, there has been an increased focus on plugging methods to eliminate failures and address complex downhole situations that can arise when a plugging job does not go according to plan. While cement remains the mainstay for creating a long-term seal in a well, it has been recognized that cement does not create a competent seal in all situations. A certain percentage of wells that have been plugged continue to leak hydrocarbons. Both operators and the DEP's Orphan well group spend incremental rig time, manpower, and funds on drilling out the failed cement plugs and starting from scratch.

BioSqueeze has a proven solution to eliminating this unnecessary rework. Our unique solution of utilizing a safe, non-pathogenic bacteria combined with an agriculture grade food source are injected at surface, or downhole into the failed cement. The bacteria consume the food source and deposit calcium carbonate (the main component of limestone) in the cracks and leak pathways of the cement. The hardness of deposited material is same or greater than the cement being sealed, which will last for the life of the well. BioSqueeze has sealed over 150 wells to date across the domestic US and Canada.

With a local footprint in southwestern Pennsylvania, BioSqueeze is positioned to help the DEP's Orphan well program to increase the number of wells plugged per year by eliminating time spent on drilling out failed cement.

Second: Pennsylvania's plugging regulations have not been significantly updated since 1987. These regulations are vague which requires a significant level of interpretation to create a tactical plan. The men and women carrying out the work need clearly defined rules and guidance in order to eliminate downtime waiting on interpretations.

However, efforts are underway to update PA's plugging regulations. The PA DEP Technical Advisory Board (TAB) has commissioned a plugging workgroup, led by Jeff Walentosky with Moody and Associates, to begin the process of addressing this issue. With representation by the Department, oil and gas operators, and service providers, the group is collaborating on revisions that will increase operating efficiency while ensuring protection of the Commonwealth's resources.

Unfortunately, after 10 months of discussions, the workgroup has been unable to advance past the first regulation on the agenda. This is not for a lack of effort by any members of the group but rather a lack of resources within the DEP. The individuals representing the Department are also the same individuals that have been tasked with creating systems and filing for grants for the IJJA programs in addition to managing the departments day to day tasks. It is clear the department needs additional tenured resources in order to advance on multiple fronts simultaneously.

Third: It is critical that relevant staff overseeing Orphan well plugging and regulation enforcement have a thorough understanding of downhole operations. This unique skill set allows regulators and those overseeing plugging operations to make prudent decisions based on the limited data available at surface.

One option for educating the next generation of leaders in the Department about downhole operations is through the non-profit group TopCorps. TopCorps is administered by three academic institutions: Penn State, Colorado School of Mines, and University of Texas at Austin. They have developed an online curriculum that is supplemented with 3 in person workshops to provide a well-rounded education of oil and gas operations specifically for regulators. TopCorps provides this to state or federal regulators at no cost (except for travel expenses).

Last week, I presented at a TopCorps training session held here, in Pittsburgh, There were regulators in attendance from at least 15 different states across the county. PA DEP did have a representative present but had no one in attendance as a student. This is disheartening, as it is a great opportunity to both learn relevant content but also to meet regulators from other states in your pier group. I strongly encourage the Department to embrace opportunities such as TopCorp for workforce development.

In conclusion, I have touched on only a few of many opportunities for the Department to increase its operational efficiency in the Orphan well plugging space. My hope is for increased collaboration in the future so that the Department can address this legacy issue and protect our resources for future generations.