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FINDING PENNSYLVANIA'S ORPHAN AND ABANDONED WELLS

Environmental Defense Fund and Moms Clean Air Force have teamed up with The Pennsylvania Department of Environmental Protection, The Department of Energy and McGill University on a project to find hidden "orphan and abandoned" wells in multiple areas around Western Pennsylvania over the next two years.

The project will find wells by flying drones with magnetic sensors over three parcels of land in Clarion, Venango and McKean counties. These locations were provided to us by the Department of Environmental Protection (DEP), based on current and historical data, as areas with a high probability of having undocumented orphan and abandoned wells.



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What are orphan and abandoned wells?

An orphan well is an oil and gas well that was left behind by their owner prior to 1985 and is no longer in service. An abandoned well is an oil and gas well that has not produced in the previous 12 months. The equipment may have been removed, but the well was not plugged by the owner.

These wells have not been plugged or cleaned up. They may still be polluting Pennsylvania's air and water, harming people's health and threatening property values. They are all over the Commonwealth and could be in building basements, farm fields, forests, waterways, and around homes. They may even be in your neighborhood.

Pennsylvania has the most orphan and abandoned wells in the United States. While 30,000 have been documented, there are perhaps as many as 300,000-700,000 undocumented orphan wells in the Commonwealth.

Western PA is home to some of the oldest oil wells in the country and has a long legacy of drilling spanning from the mid 1800's when the industry was largely unregulated to the recent Marcellus shale development.

Why should we care about orphan and abandoned wells?

Orphan and abandoned wells put the safety of those who live nearby at risk. They can leak oil, gas, and other toxic chemicals into our air, soil, and water. Children who live, learn, and play near orphan and abandoned wells and their pollution are especially vulnerable to harm. These wells also are a significant source of harmful methane pollution.

By finding wells, additional funding can be leveraged to create good paying jobs with local well plugging companies, increase property values for the landowners, and return lands for potential new, economically beneficial uses.

Finding undocumented wells

To address this problem, which is nationwide, this project will use techniques that the Department of Energy's (DOE) orphan well program is developing to find these wells quickly and efficiently so that they can be properly plugged and remediated.

This can include:

1. Analysis of maps to determine the regions with the highest probability of having orphaned wells.
2. The use of drones to locate magnetic signatures of wells and detect methane emissions.
3. On the ground surveys by DEP staff to verify well locations after drone surveys. Some of the wells will also be measured in the field for methane emissions by DOE, McGill University and EDF scientists

How do drones find wells?

The drone, equipped with sensors, will be flying 100 feet above the ground, collecting magnetic and methane gas information. With these types of sensors, there is no private information collected, such as pictures or video of people or buildings, in the areas being flown. With the information gathered by these sensors, DEP staff can predict where suspected oil/gas wells can be found.

The drone will make a buzzing noise, similar to a gas lawnmower, but won't be distracting. It will fly over a location several times, so it isn't unusual if you see it flying in the same area for a few minutes.

As safety is a priority, at all times, there is a drone pilot, who is supported by crew members. They all work together to make sure that the drone avoids obstacles (birds, tall trees, and other planes). The drone will always remain in sight of the crew, and at no times is it allowed to fly unattended.



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What happens when a well is found?

If it is determined that the well is an emergency, DEP will address it as soon as possible. DEP will evaluate the risk of each well found and add it to the plugging schedule. More than 200 oil and gas wells were plugged in 2023-24.

The federal Infrastructure Investment and Jobs Act (IIJA), which was signed into law on November 15, 2021, has the potential to provide approximately \$400 million to Pennsylvania to plug and remediate orphan and abandoned oil and gas wells across the commonwealth through 2030. By finding and documenting additional wells, more federal funding (potentially billions in support) could be leveraged in the future.

The status of well plugging and other detailed information regarding IIJA plugging projects can be viewed at the DEP IIJA Dashboard at dep.pa.gov/IIJAOilGas.

Additionally, in response to a new state law, the DEP has established a grant program for accelerated plugging of orphan wells. By plugging these orphan and abandoned wells, we can create jobs, raise property values, cut pollution, improve our health and create a brighter future for us all.

For more information on this project, please visit edf.org/paw.