

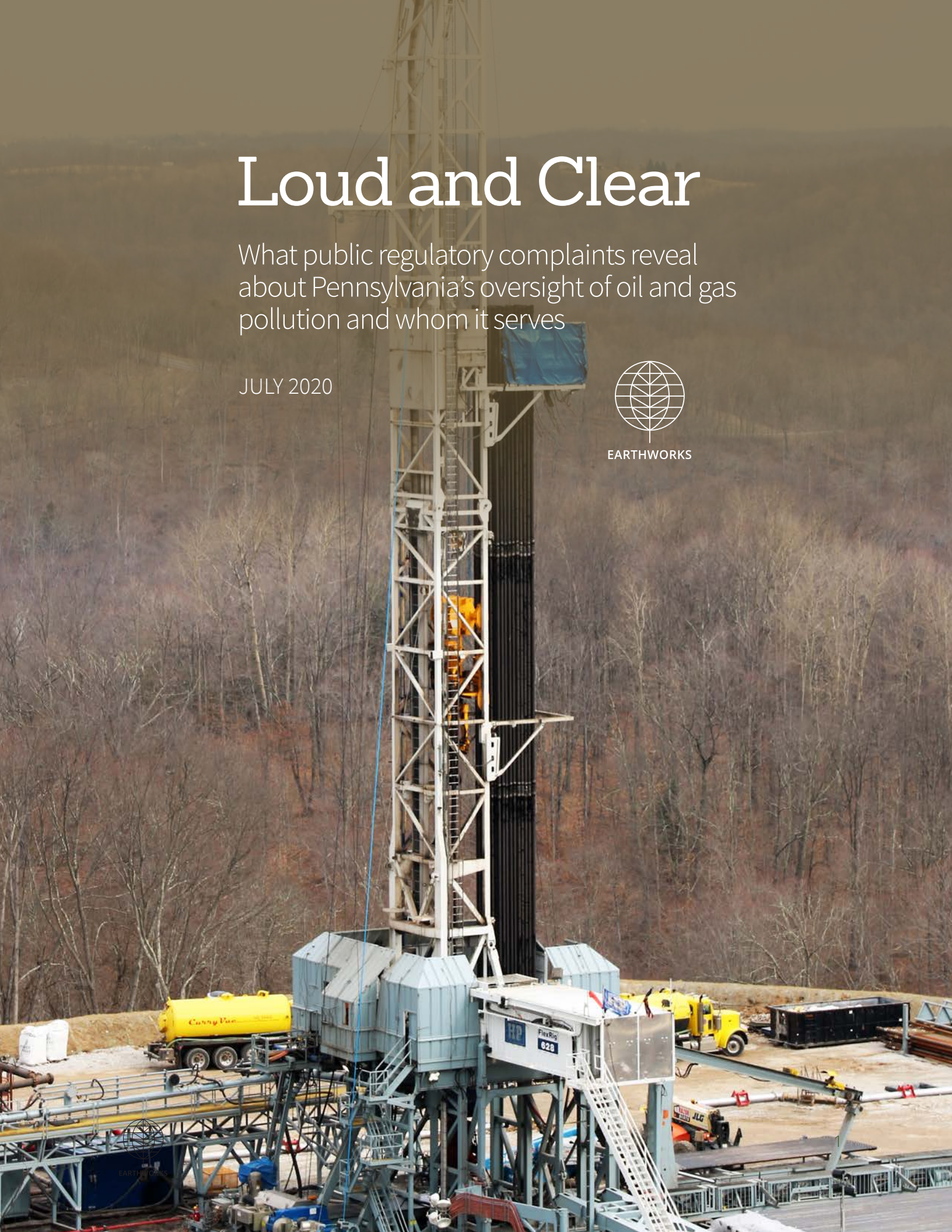
# Loud and Clear

What public regulatory complaints reveal about Pennsylvania's oversight of oil and gas pollution and whom it serves

JULY 2020



EARTHWORKS





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Report available at [earthworks.org/loudandclear-PA](http://earthworks.org/loudandclear-PA)

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*Earthworks is dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions.*

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# 1

## Introduction: The Oil and Gas Pollution Threat

**The rapidly expanding oil and gas industry in Pennsylvania is releasing large volumes of greenhouse gases – despite scientific consensus that current fossil fuel pollution must be greatly curtailed to prevent the most catastrophic effects of climate change.<sup>1</sup> This includes methane, which is 86 times more powerful than carbon dioxide over a 20-year time scale.<sup>2</sup>**

At the same time, air quality is threatened in the communities near oil and gas operations. The main reason is increased pollution from methane and volatile organic compounds (VOCs), which a growing body of science associate with a range of health problems.<sup>3</sup>

Yet despite these trends, policymakers (and the general public) continue to assume that state and federal governments have both the will and the resources to adequately oversee a complex and increasingly polluting industry. Years of research and field experience by Earthworks have demonstrated that this is not the reality on the ground.<sup>4</sup>

Currently, state regulatory and enforcement agencies are:

- Inconsistent and insufficient in how they respond to the public
- Primarily focused on issuing permits quickly
- Underfunded and short-staffed
- Subject to the political influence of the oil and gas industry





## Earthworks' Community Empowerment Project: Documenting Pollution to Protect People and the Planet

Earthworks started the Community Empowerment Project (CEP) because the oil and gas industry is putting people and the climate at risk – and agencies are failing in their responsibility to prevent that from happening.

Most air pollution from oil and gas operations is invisible, making it easy for companies and regulators to dismiss residents' concerns. CEP's certified thermographers use optical gas imaging (OGI) to make visible the pollution caused by intentional safety releases, equipment failures, and operator errors in oil and gas fields.

CEP staff then use that OGI evidence to file regulatory complaints with relevant state agencies and to document gaps in how they track and address oil and gas air pollution. It is a critical time to do so, with some states already committed to reducing oil and gas pollution and others moving in that direction. This report details findings of CEP's work in Pennsylvania from 2018-2020.

Nearly all state regulatory agencies have a complaint system. If properly designed and implemented, residents can notify regulators about problems at oil and gas sites – being critical “eyes and ears” while gaining needed assistance from public agencies.

For oil and gas regulatory regimes to be effective – in both combating pollution and protecting the public – complaint systems must be accessible, usable, responsive, and transparent.

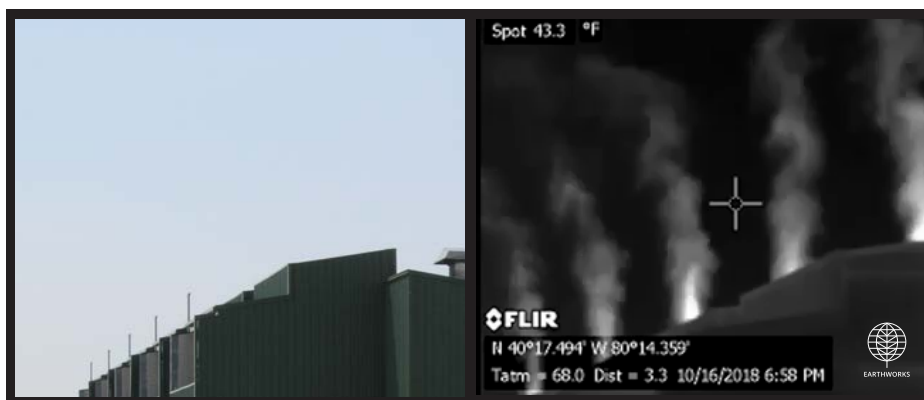
### Robust complaint systems can help to:

- Reduce pollution that harms health and the climate.
- Build trust in agencies mandated to both work with industry and serve the public.
- Respond to community concerns and experiences.
- Make government agencies more effective.
- Foster agency and operator accountability.



Seeing is Believing.

Earthworks uses Optical Gas Imaging to make invisible pollution visible.



Pollution viewed with the naked eye versus an OGI camera.

MarkWest Liberty Midstream Brighich Compressor Station, Chartiers Township, Washington County, Pennsylvania.



# 2

## The Complaint Process: Slow and Hidden from View

### Pennsylvania's Complaint System: Slow, Disjointed, Opaque

In Pennsylvania, the Department of Environmental Protection (DEP) oversees nearly all oil and gas operations and accepts complaints by phone, email, and an online form. In addition, the Department of Conservation and Natural Resources handles complaints specifically related to well sites prior to production (i.e., on site preparation and land impacts).

DEP's procedure is to log all formal complaints it receives in an internal Complaints Tracking System (CTS). These are assigned a complaint ID, location, date received and resolved, description, and potential responsible party (e.g., an operator). However, the system is not publicly available and there is no way for an outside party to confirm if complaints are in fact entered into the CTS or to track what happens to them.<sup>5</sup>

The CTS contains information on how DEP responded and resolved complaints, but without access the public cannot assess whether and how the agency is holding operators accountable for problems. In the past, Earthworks has filed formal Right-to-Know requests and reviewed dozens of physical files to obtain information on pollution events and inspections at specific sites, a complicated and time-consuming process even for the organization's professional staff.<sup>6</sup>

In a 2014 review of how DEP monitors oil and gas impacts on water quality, Pennsylvania's Auditor General identified problems with the agency's ability to respond to resident complaints, stating that, "the only way for the public to know the full story of what happened during a well site inspection is to make a Right-to-Know Law inquiry or visit the applicable regional office and search for a specific inspection report(s)—some of which may be missing or lost."<sup>7</sup>



The public has full access to DEP's online system for oil and gas information (eFACTS), which contains notations on inspections (including those prompted by complaints). However, it can take months for entries to appear in eFACTS and there is no way to connect DEP's actions to specific complaints.

In addition, supporting information in eFACTS about problems that occurred at sites and DEP's response is available only for those inspections that resulted in a violation. According to a 2015 State Review of Oil and Natural Gas Regulations (STRONGER) report on DEP's Bureau of Air Quality, eFACTS is "not user-friendly and may lack all necessary data and transparency for the general public."<sup>8</sup>

DEP provides the public with online, searchable databases of inspections and violations, including associated documents and photographs.<sup>9</sup> The agency also has an online Oil and Gas Mapping tool for wells across Pennsylvania that includes permit, drilling, and other site information, as well as some inspection reports.<sup>10</sup>

However, as with eFACTS, these tools have a significant lag time between events and the availability of information and it is nearly impossible for the public to link available documents and records to complaints. Earthworks staff have periodically checked the map and database and were often unable to find reports that might be associated with complaints that we had filed months before.

**Without access to DEP's complaints tracking system, the public cannot assess whether and how the agency is holding operators accountable for problems.**

## Lack of Agency Accountability Can Harm the Public

While DEP appears to have made progress in recent years on making more information transparent and available, the public still has to rely on multiple sources to piece together the puzzle of agency activities – for which some pieces may always be missing. This is a burdensome process for impacted residents seeking to understand whether the agency took action in response to complaints about pollution and other problems caused by oil and gas operations – that is, problems they are forced to live with.

DEP's website states that submitted complaints "will receive an e-mail acknowledgment that the complaint has been received and referred for action. DEP staff will provide information on the status of the investigation by telephone or in writing."<sup>11</sup> However, DEP cannot be held to account because it doesn't tell the public when they can expect a response.<sup>12</sup>





A 2013 DEP memo (the most recent that Earthworks could find) lays out requirements for staff to respond to and resolve complaints; as the table below shows, timeframes can range from immediate for emergencies (e.g., fires and explosions) to several months if staff assign a lower “priority level.” If DEP categorizes the issues experienced by impacted residents, such as persistent odors and diminished air quality, as “routine” or “long term,” the agency would have several months to reach a resolution.

DEP COMPLAINT RESPONSE PRIORITY <sup>13</sup>				
	PRIORITY 1 Emergency	PRIORITY 2 High	PRIORITY 3 Routine	PRIORITY 4 Long Term
<b>First Response</b> start of investigation	Immediate	3 days	10 days	28 days
<b>Response Due</b> latest date to start investigation	1 day	14 days	42 days	56 days
<b>Date Resolved</b> investigation completion	7 days	28 days	84 days	112 days

## Complaints Prompted Action but Pollution Reduction was Limited

In the course of about two and a half years, Earthworks made 22 trips to 17 Pennsylvania counties to film oil and gas pollution. We made 200 visits to more than 100 well sites, compressor stations, and processing plants, and documented significant pollution problems at many of them.

During this time, Earthworks staff filed 49 complaints with DEP based on OGI and direct field documentation (i.e., odors and health symptoms experienced while at sites). We also submitted one complaint to the Allegheny County Health Department and two directly to operators.

Only eleven (21%) of Earthworks’ complaints resulted in actions intended to reduce pollution. Nearly a third (16, or 31%) generated some oversight action by regulators, in the form of inspections. Another third of the complaints (17, or 33%) didn’t generate any regulatory action. The results of the remainder (8, or 15%) are unclear, as they were filed more recently and remain open at the time of writing. None of Earthworks’ complaints to date resulted in the issuance of violations to operators.



**Earthworks made 200 visits to over 100 well sites, compressor stations, and other oil and gas facilities in the last two years in Pennsylvania.**





RESULTS OF COMPLAINTS — FILED BY EARTHWORKS IN PENNSYLVANIA   AS OF JUNE 2020	
Closed — Action taken to reduce pollution	11
Closed — Other regulatory action taken	16
Closed — No action taken	17
Open Complaints	8
<b>Total Complaints Filed by Earthworks with DEP</b>	<b>52</b>

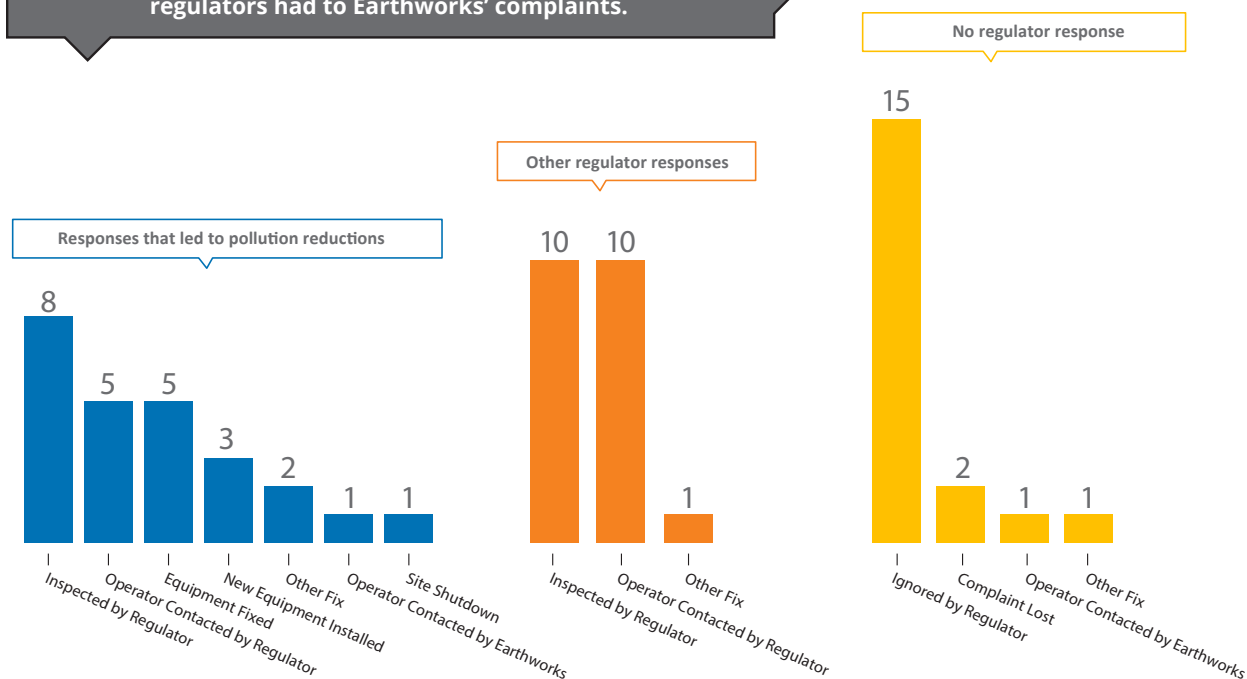
Earthworks uses the following three categories to track the regulator and operator responses to our complaints:

- ❶ **Action taken is a regulator action specifically intended to reduce emissions** (i.e., the regulator requires an operator to replace or fix a piece of equipment).
- ❶ **Action taken is a regulator action specifically intended to reduce emissions** (i.e., the regulator requires an operator to replace or fix a piece of equipment).
- ❷ **Other action is a regulator action** that, while not leading to pollution reductions, does potentially support more oversight (i.e., a regulator inspection or informing an operator of a problem).
- ❸ **No action taken** means that agencies lost or ignored complaint submissions or otherwise declined to take action in response to a complaint.

Most of Earthworks’ complaints generated at least one type of response, although regulators often gave more than one response to a complaint (for example, contacting an operator and requiring an equipment fix that reduced emissions).



These graphs show the types of responses Pennsylvania regulators had to Earthworks' complaints.



## Complaint Management: Inconsistent and Insufficient

Problems with how DEP handles complaints, in particular related to transparency and communication with complainants, have persisted in the years since both Earthworks and the Pennsylvania Auditor General identified them.<sup>14</sup> These were evident during the course of our latest project focused on air pollution-related complaints.

While Earthworks staff – trained professionals focused on this project – successfully communicated with DEP about specific complaints and (as detailed above) were able to pursue many to a point of resolution, the process was time-consuming and results were inconsistent, often unclear, and frequently unsatisfactory from the perspective of impacted residents. This underscores the fact that frontline residents, without the benefit of dedicated resources and expertise, simply cannot rely on the public complaints system for resolution to the harm they experience.

DEP inspectors at regional offices initially seemed unsure how to respond to Earthworks' complaints and handle accompanying OGI footage. In some cases, we received responses within a day or two, including through direct phone calls and emails, in turn opening lines of communication with DEP regional staff that yielded important information about inspections and particular sites and revealed key issues regarding the limited capacity of inspectors to address complaints. Other inspectors spoke to the difficulty of getting approval for the overtime or after-hours work that would be needed to conduct a physical site inspection, despite the fact that many residents report increased problems occurring outside of regular business hours (i.e., at night and on the weekends).

**Frontline residents, without the benefit of dedicated resources and expertise, simply cannot rely on the public complaints system for resolution to the harm they experience.**





However, in other instances, we didn't receive a response for a year or more and DEP responded only after Earthworks had filed multiple complaints related to the same site. In one instance, an inspector told Earthworks staff to keep filing complaints and to ask impacted residents to do the same, because this would facilitate their obtaining the necessary permission to conduct field inspections. Yet in another instance, an inspector responded to Earthworks' initial complaint but not to subsequent complaints about the same site filed over the course of several months.

Over time, it became clear that DEP had conducted some site inspections as a result of our complaint submissions and, with persistent outreach to inspectors, we were able to obtain information on what they found and various actions taken. In other instances, local residents informed Earthworks that an inspection or other enforcement actions had occurred at the wells or facilities near them because of our complaints – even if DEP hadn't taken the step to inform the complainant (i.e., Earthworks field staff).

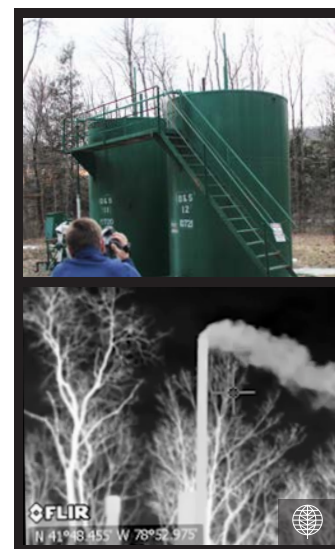
More broadly, Earthworks' collection of OGI evidence of pollution has affirmed the concerns and experiences of frontline residents, and in some cases encouraged them to file complaints, ask for regulators to respond, engage their local officials, and become advocates for protections and regulatory enforcement (sometimes using OGI footage to bolster their case). In addition, Earthworks' complaint submissions and engagement in local and state rulemaking processes (using OGI and other field evidence, as well as field tours with decisionmakers) helped draw attention to the critical need for Pennsylvania to increase state oversight of oil and gas operations and hold industry accountable for growing volumes of oil and gas pollution.

## Limited Inspection Capacity as Industry Surges

The 2014 Auditor General's report on DEP's handling of oil and gas impacts emphasized that even a 40% increase in inspectors (from 58 in 2009 to 81 in 2012) "was not sufficient for DEP to meet the responsibilities of its inspection policy."<sup>15</sup> Similarly, STRONGER's 2015 report on the ability of DEP's Bureau of Air Quality's ability to monitor and regulate a growing oil and gas industry emphasized the critical need for DEP to have more inspectors.<sup>16</sup>

DEP agreed with both these findings and has added more inspectors in the last few years, particularly to the Bureau of Air Quality. Disappointingly, these levels still fall short given steep budget cuts for environmental protection, spurred by the legislature and Governors seeking to promote the industry. Even as oil and gas operations have greatly expanded in the last decade, DEP's declining budget has meant an overall 25% reduction in agency staff from 2003-2018.<sup>17</sup>

Governor Wolf's proposed 2020-2021 state budget includes funds for increased staff at DEP's Bureau of Air Quality.<sup>18</sup> In addition, DEP recently began



**Pollution viewed with the naked eye versus an OGI camera.**

**TOP: American Oil, Well Site FC-172, Corydon Township, McKean County, Pennsylvania.**

**BOTTOM: EQT Hunter Well Site, Marianna, Washington County Pennsylvania.**



a rulemaking to more than double permit fees to cover the growing cost of enforcing oil and gas regulations.<sup>19</sup> Pennsylvania’s environmental board has approved DEP’s request, largely intended to make up for budget and staffing cuts.<sup>20</sup> (At the time of writing, the future of the fee implementation and any actual budget increases in the long-term are unclear in the wake of the COVID crisis, state deficits, and legislative attempts to restrict DEP’s authority and inspection work.)

The table below highlights the limited number of DEP oil and gas inspectors charged with enforcing Pennsylvania’s very large and growing number of active permits.

PENNSYLVANIA OIL AND GAS INDUSTRY INSPECTION CAPACITY — 2019					
	# Active Permits (as of May 2020)	# Inspectors	Ratio of wells and emission sources to inspectors	# Inspections in 2019 (including administra- tive reviews)	# Inspections per inspector in 2019
DEP	129,187 <sup>21</sup>	109 <sup>22</sup>	1,185	35,287 <sup>23</sup>	324



Photo: Robert Donnan





# 3

## Pennsylvania's Pollution Measures: Making Progress, but Far Too Slowly

In about a decade, the Marcellus Shale boom has transformed Pennsylvania into the nation's second highest producer of natural gas.<sup>24</sup> Along with this has come considerable public scrutiny and extensive scientific, peer-reviewed evidence of the adverse impacts to communities and the environment.<sup>25</sup>

Oil and gas operations release significant levels of methane and ethane, which contribute to the formation of ground-level ozone.<sup>26</sup> This challenges Pennsylvania's ability to maintain overall air quality standards. The entire state has the status of non-attainment (i.e., unable to meet) for federal limits on ozone and is part of the Ozone Transport Region, a 13-state area across which the US Environmental Protection Agency requires measures to control pollutants that create ozone.<sup>27</sup>

Yet despite these pressing realities, as a whole, state government – Governors, the legislature, and public agencies such as DEP – have been slow to respond, have supported the growth of the industry, and at times have directly thwarted proposed efforts to establish health and environmental protections.

Several years ago, Pennsylvania began taking steps to strengthen rules on how operators construct sites, manage waste, and other activities.<sup>28</sup> More recently – faced with considerable public pressure and irrefutable evidence of the climate and health impacts of oil and gas operations – DEP launched a process to establish air pollution reduction measures for the oil and gas industry.

**Oil and gas operations release significant levels of methane and ethane, which contribute to the formation of ground-level ozone and, in turn, serious health impacts.**



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## Leak Detection and Repair: Almost There but Gaps Remain

Pennsylvania's strategy to reduce oil and gas pollution has two parts: permit requirements for new sources and regulations for existing sources, both of which are designed to control methane, VOCs, and hazardous air pollutants (HAPs).<sup>29</sup>

In 2018, DEP finalized two new general permits for new processing plants and compressor and transmission stations (the GP-5) and unconventional well sites and pigging (i.e., pipeline cleaning) stations (the GP-5A).<sup>30</sup> At the time of writing, DEP is in the final stages of finalizing similar measures for well sites and facilities that already exist, in the form of regulations.<sup>31</sup>

Both the permits and regulations require many operators to follow Leak Detection and Repair (LDAR) protocols and install new pollution control technologies. In line with federal requirements and those adopted in other states, Pennsylvania operators have to conduct LDAR on a quarterly basis using OGI or another approved monitoring method.

Unfortunately, DEP has created exceptions to the rule that promise to compromise the effectiveness of enacted measures. First, some types of operations would be allowed to decrease the frequency of LDAR if operators report a low percentage of leaks in the course of just half a year (two quarterly inspections). This "step down" provision is counterproductive because leaks can occur any time and are more likely to occur if equipment is not fully inspected and maintained on a regular basis. In addition, even small leaks can release large volumes of emissions if left unaddressed, so basing the provision on the percentage of leaking components does not address the volume of emissions being released.

Another gaping hole in Pennsylvania's permits and proposed rules is an exemption for conventional operations (i.e., those in formations other than shale), which comprise about 90% of the oil and gas wells classified as "active" in the state.<sup>32</sup> The permit requirements apply only to unconventional (i.e., shale and high-volume fracturing) wells and newer facilities. The proposed rules for existing sources exempt low-production wells (defined as under 15 barrels of oil equivalent per day); in fact, DEP estimates that only about 300 conventional oil and gas wells would be covered, out of the more than 71,000 that report production volumes to the state.<sup>33</sup>

**DEP has created exceptions to the pollution control rule that promise to compromise its effectiveness—including letting conventional operators off the hook for monitoring and fixing their equipment.**





In addition to the sheer number and geographic spread of conventional wells, they continue to account for many regulatory violations, the proportion of which increased in the last two years.<sup>34</sup> This calls into question whether and how conventional operators are inspecting and maintaining their sites and addressing pollution problems.

In 2016, a peer-reviewed study on methane leaks from oil and gas operations in the Marcellus Shale region concluded that conventional wells can have far higher leakage rates than unconventional ones due to a greater prevalence of equipment maintenance problems.<sup>35</sup> This underscores why “low producing” wells aren’t necessarily “low emitters.” In addition, the sheer number of these conventional wells exacerbates the problem.

Taken together, these factors strengthen the need for frequent LDAR inspections at all oil and gas sites – which is borne out by Earthworks’ field investigations. Using OGI, we have found rampant problems at conventional wells in Pennsylvania, including notable emissions from well heads and tanks.

## Tracking of Pollution: Available but Incomplete

While Pennsylvania has made progress in establishing measures to track and reduce oil and gas emissions, the state simultaneously continues to foster a dramatic expansion of the oil and gas industry, and thus its ever-increasing pollution. Given this divergence – as well as the long delay in establishing pollution controls in relation to the state’s rapid natural gas boom – it is impossible to ascertain whether current measures will be sufficient to actually bring down total oil and gas pollution levels over time. This reality is underscored by a recent analysis showing that methane emissions in Pennsylvania are more than 15 times higher than what operators report to the state.<sup>36</sup>

Existing pollution reporting and tracking inventories provide some information for regulators, policymakers, researchers, and the public on trends that can be used to determine the way forward, but also but also fall short in significant ways.

**A recent analysis shows that methane emissions in Pennsylvania are more than 15 times higher than what operators report to the state.**

### ■ EPA’s Greenhouse Gas Reporting Program (GHGRP)

Pennsylvania’s oil and gas operations with the largest volumes of pollution submit annual data on their estimated greenhouse gas emissions directly to the GHGRP.<sup>37</sup> This database is frequently used by regulators and policymakers to judge how much the oil and gas sector emits. However, it only covers sources permitted to release more than 25,000 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) – the common measurement of total greenhouse gases – per year. This effectively excludes thousands of wells, compressor stations, and other facilities that report lower volumes of emissions or are exempt from GHG reporting requirements entirely, but nonetheless collectively have a widespread, significant pollution impact.

A preliminary analysis by Earthworks comparing emissions levels reported by operators to the GHGRP and to the DEP inventory (discussed below) found significant discrepancies between data in the two sources, even for the same facilities and reporting years. In addition, many facilities did not report to both emissions inventories in the same year, making it difficult to assess the accuracy of the data.



## ■ Unconventional Natural Gas Emissions Inventory

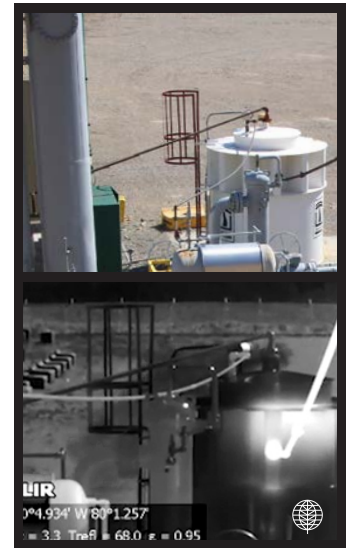
Since 2012, DEP has collected annual emissions reports on unconventional production and processing operations in Pennsylvania.<sup>38</sup> The public can download the inventory and search it by site and facility name.<sup>39</sup> It includes data on VOCs, carbon monoxide, particulate matter, sulfur dioxide, HAPs, and greenhouse gases (i.e., carbon dioxide, methane, and nitrous oxide).

Yet the inventory doesn't provide a full picture of Pennsylvania's oil and gas pollution for a few key reasons.

- 1) The inventory covers only unconventional operations, excluding the tens of thousands of conventional wells statewide – the pollution burden of which Pennsylvania isn't tracking but (as noted above) appears to be quite significant. In fact, a recent scientific analysis attributes more than half of Pennsylvania's oil and gas methane emissions to conventional operations.<sup>40</sup>
- 2) As with most emissions inventories, Pennsylvania's is based on self-reported estimates by operators. DEP allows companies to select from ten different emissions calculation methods, including company-run equipment tests and monitoring, provided they report their methodology to the agency.<sup>41</sup>
- 3) Often, reported emissions are based on calculations that rely on engineering specifications of particular equipment, known as "emissions factors." Previous research by Earthworks in Pennsylvania revealed a practice by operators of "mixing and matching" emissions factors for the purpose of applying for permits.<sup>42</sup>

Particularly concerning was the fact that the selection of certain emissions factors can help keep estimated emissions levels low and allow for the classification of facilities as "minor sources" that only require standard state permits. But the selection of a different emissions factor for the same equipment could potentially move the facility into the "major source" category – which would in turn require a federal permit, greater application scrutiny, public participation, and inclusion in the GHGRP.

- 4) The two primary categories of data (pollutants and sources" are split. This makes it impossible for the public to determine which sources at a given site (e.g., venting or tanks) are the source of certain pollutants (e.g., nitrogen oxides or methane), and in turn the reasons for specific pollution problems. Ascertaining such answers would require a review of DEP data that are available only through time-intensive Right-to-Know requests.



**Pollution viewed with the naked eye versus an OGI camera.**

**TOP: EQT Mad Dog 2020 Well Site, Scenery Hill, Washington County Pennsylvania**

**BOTTOM: Dominion Energy JB Tonkin Metering and Regulation Station, Murrysville, Westmoreland County Pennsylvania**





## ■ Natural/Coal Bed Methane Emissions Inventory

Since 2013, operators of midstream facilities (e.g., compressor stations and processing plants) that aren't classified as "unconventional" have to report their estimated emissions of VOCs, particulate matter, nitrogen oxide, sulfur dioxide, ammonia, carbon monoxide, and greenhouse gases.

DEP's Bureau of Air Quality processes more than 1,200 emissions statements from these sources annually.<sup>43</sup> The resulting data is added into an inventory for stationary sources, which is searchable and downloadable.<sup>44</sup> As with the larger state emissions inventory (described above), this inventory excludes emissions from all conventional natural gas production wells, along with coal bed methane wells.





# 4

## Looking Ahead

Pennsylvania's Governor and the DEP appear eager to improve the state's oil and gas pollution policies and establish a legacy of climate leadership. In 2019, Pennsylvania joined the US Climate Alliance, which is committed to reducing greenhouse gas (GHG) emissions in order to meet international climate goals.<sup>45</sup> Pennsylvania has also established its own goal of reducing greenhouse gas emissions by 26% by 2025 and 80% by 2050, based on 2005 levels.<sup>46</sup>

Pennsylvania's primary approach to meeting these goals mirrors that of the US Climate Alliance as a whole: expand renewable energy use and improve energy efficiency (e.g., in the electric, manufacturing, and building sectors). These are laudable goals, but belie an inherent contradiction in the state's approach.

At the same time that Pennsylvania's climate plan indicates that the vast majority (88%) of greenhouse gas emissions are currently attributable to energy production and consumption, the plan estimates that only about 6% of emissions reductions by 2020 and 7% by 2050 (from 2005 levels) will come from changes on the energy production side.<sup>47</sup>

Yet the plan explicitly names only one strategy for reducing pollution from oil and gas production and processing: policies and practices to reduce fugitive methane emissions through LDAR (discussed above). The plan in effect fails to address the incompatibility of limited emission reduction measures with the near-constant growth of the industry as a whole. It also makes no mention of potential pollution contribution of the state's estimated 200,000 abandoned and orphan wells.<sup>48</sup>

**Pennsylvania joined the US Climate Alliance, in order to meet international climate goals. Yet the state's climate plan fails to address the gap between limited emission reduction measures and the constant growth of the industry.**



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# 5

## Recommendations

According to calculations by Clean Air Task Force, Pennsylvania’s new permits and proposed rules to rein in oil and gas methane and VOCs, if properly enforced, could achieve a lower level of methane, VOC, and hazardous air pollution than in the absence of such regulations, with total reductions of about 309,000 metric tons projected by the end of 2019; upcoming rules could further reduce this pollution by 3,500 metric tons of annually.<sup>49</sup>

While such emissions reductions are needed, they are clearly only a fraction of what the oil and gas industry is projected to generate in coming decades. According to Pennsylvania’s assessment of the state’s energy resources, by 2050, greenhouse gas emissions will have increased over 70% due to gas production and 50% due to oil production compared to 2015 levels—growth that could potentially add nearly 3 million more metric tons of carbon dioxide equivalent to the atmosphere.<sup>50</sup>

**Given this disparity between current measures and growing emissions, Pennsylvania needs to do much more to rein in oil and gas pollution and engage frontline residents, including:**

- 1 Adopt a public service lens when assessing complaint systems.** A complaint system is supposed to serve the impacted public. Currently Pennsylvania’s only does so if complainants invest considerable time and effort, or indirectly to the extent that professional groups like Earthworks can make use of it in service of communities. A properly functioning system would allow residents to use the complaint system themselves easily and without assistance.
- 2 Shift the burden of proof for problems underpinning complaints.** Earthworks’ experience filing complaints and assessing agency response in Pennsylvania has shown the need for a fundamental shift as to who regulators are accountable to, and where the “burden of proof” regarding impact lies. Contrary to the agencies’ current attitude, if the problems residents are experiencing haven’t been resolved, inspectors should continue to investigate until operators can demonstrate they’re not causing harm.
- 3 Work directly with impacted community members.** Inspectors often “resolve” complaints by contacting operators directly to inquire whether there was an operational problem or not. The people living daily with oil and gas impacts should be confident that regulators won’t dismiss their experiences in favor of communication with industry. Inspectors should follow up with residents directly and promptly and view their concerns as possible grounds for enforcement action.



- 4 Create a publicly accessible tracking system for complaints.** Any resident should be able to go online and easily obtain information about the oil and gas facilities that concern them, including the status of complaints they or others have filed about specific operations and concerns (e.g., persistent odors, noise, and onset of health symptoms). The timeframe for which complainants can expect a response and/or resolution should be made publicly available, alongside the information for reporting complaints.

Every time a member of the public files a complaint, they should receive a tracking number, guidance on use of the complaint tracking system, and information on DEP's procedures for following up on the identified problems and responding to complainants. Impacted residents should not be forced to make multiple calls, send numerous emails, and "connect the dots" among several sources of information.

- 5 Create a publicly accessible map of all complaints.** Community members should be able to easily see where complaints have been filed, via a map that reflects data in the complaint tracking system. They should be able to identify the operators and facilities nearby that could be connected to the problems they're experiencing. This map could also include additional data layers already mapped by DEP, such as well sites, violations and inspections.

- 6 Expand field measurement projects to determine actual volumes of oil and gas pollution.** Operators should continue to be required to report data to the DEP emission inventory, but this does not provide a full, accurate picture. Several studies demonstrate that measured emissions can be significantly higher than what operators report to inventories, including in Pennsylvania.<sup>51</sup> This should occur at minimum near significant pollution sources (e.g., compressor stations, processing plants, and large well pads). DEP should then integrate this information into its review of the data submitted by operators to emission inventories to verify the accuracy of those data.

- 7 Develop an inventory of "excess" emissions.** It's important to track and assess events that cause pollution above permitted levels (e.g., malfunctions and 'blowdowns'). Given Pennsylvania's climate goals and expressed commitment to reining in oil and gas pollution, greenhouse gases, VOCs, and hazardous air pollutants should be included in this inventory. These data would aid in determining whether state policies and regulations to rein in oil and gas pollution are actually effective, or not.

This inventory would also help paint a clearer picture of oil and gas impacts on health. Environmental health research confirms that large, episodic emission events can cause health impacts immediately or in as little as 1-2 hours, in part because toxicity is determined by the concentration of the chemical and intensity of exposure.<sup>52</sup>



**8 Expand and improve both methane and VOC monitoring in oil and gas regions.** Accurate data is the only way to know the levels of health-harming pollution Pennsylvanians are being exposed to. Given the role of methane and ethane in forming ground-level ozone pollution, reducing oil and gas emission will be key to Pennsylvania's ability to meet federal air quality standards.

More monitors are needed in areas with growing numbers of oil and gas wells and facilities, particularly in close proximity to more developed and populated areas. The public should be able to access regularly updated information on the monitors and facilities near them. While DEP's ambient air monitoring network has expanded in recent years, the pollutants being tracked are limited and inconsistent, while key oil and gas areas continue to lack coverage.<sup>53</sup>

**9 Review project proposals with state climate goals and health in mind.** Since 2015, Pennsylvania (along with the neighboring states of Ohio and West Virginia) has been actively encouraging—through tax incentives, permits, and other measures—the expansion of gas development for use in the power sector and as a feedstock for the fertilizer and plastics industries.<sup>54</sup> Yet in promoting these large-scale projects, Pennsylvania has not sufficiently considered impacts on health and the climate. DEP should develop a process to review permit applications to assess their potential clash with the state's emission reduction targets.



# Endnotes

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