Breaking All the Rules

THE CRISIS IN OIL & GAS REGULATORY ENFORCEMENT

STATES ARE BETRAYING THE PUBLIC BY FAILING TO ENFORCE OIL AND GAS DEVELOPMENT RULES

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EARTHWORKS™
OIL & GAS ACCOUNTABILITY PROJECT

Photo by: Kari Matsko

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Please visit the Earthworks web site for state-specific fact sheets and enforcement information, as well as research that did not make it into this report. http://enforcement.earthworksaction.org

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PRIMARY ACRONYMS and ABBREVIATIONS IN THIS REPORT

AOC	Administrative Order of Consent (Colorado)
BLM	Bureau of Land Management (federal)
CACP	Consent Assessments of Civil Penalties (Pennsylvania)
COGCC	Colorado Oil and Gas Conservation Commission
DEC	Department of Environmental Conservation (New York)
DEP	Department of Environmental Protection (Pennsylvania)
DMR	Division of Mineral Resources (New York)
DOGRM	Division of Oil and Gas Resource Management (Ohio)
EMNRD	Energy, Minerals and Natural Resources Department (New Mexico)
LOV	Letter of Violation
NMED	New Mexico Environment Department
NOAV	Notice of alleged violation
NOV	Notice of violation
OCD	Oil Conservation Division (New Mexico)
ODNR	Ohio Department of Natural Resources
RBDMS	Risk Based Data Management System (Ohio)
RRC	Railroad Commission (of Texas)
STRONGER	State Review of Oil and Natural Gas Environmental Regulations, Inc.

Executive Summary

A CRISIS IN PUBLIC OVERSIGHT:
STATES DO NOT ENFORCE OIL AND GAS EXTRACTION REGULATIONS

The U.S. faces a crisis in the enforcement of rules governing the oil and gas industry. The shale gas and shale oil boom has brought an expansion of oil and gas activity unseen in many parts the country since the 19th century. Unfortunately, as this report shows, states are dangerously unprepared to oversee current levels of extraction, let alone increased drilling activity from the shale boom.

Battles over rulemakings can be intense – stakeholders spend considerable effort to influence the process whenever regulations are created or revised. They do so because they believe that rules matter – that after the rules are created, the government will enforce them. This report reveals, in the case of state oil and gas rules, that is simply not true.

Based on their own data, every state we studied fails to adequately enforce regulations on the books.

Among our findings:

- Every year hundreds of thousands of oil and gas wells – 53 to 91% of wells in the states studied (close to 350,000 active wells in the six states in 2010) – are operating with no inspections to determine whether they are in compliance with state rules.
- When inspections do uncover rule violations, the violations often are not formally recorded – and the decision whether or not to record a violation is often left to the discretion of the individual inspector.
- When violations are recorded, they result in few penalties.
- When penalties are assessed, they provide little incentive for companies to not offend again.

The full report examines in detail the current state of oil and gas enforcement in Colorado, New Mexico, New York, Ohio, Pennsylvania and Texas. It also addresses systemic factors that impede enforcement. Woven throughout are commonsense recommendations to fix the problem.

INSPECTIONS: INADEQUATELY STAFFED, ARBITRARILY CARRIED OUT

Inspection capacity – egregiously lacking

Overall, and without exception, inspection capacity for each of the six states examined is egregiously lacking.

However, there is significant variation in inspection capacity among the states. Inspectors in New Mexico and Texas have much larger workloads than their counterparts in other states. The average number of inspections carried out by each inspector in 2010 varied from as few as 154 (New York) to 1,598 (New Mexico). The total number of inspections in

from as few as 154 (New York) to 1,598 (New Mexico). The total number of inspections in Colorado and Pennsylvania was similar (approximately 16,000), but Colorado performed the inspections with one-fifth of the number of inspectors as Pennsylvania.

In all six states, the number of wells that go uninspected each year is immense. For example, in 2010 Pennsylvania inspectors were unable to monitor more than 82,000 active wells (91% of the state's active wells), Ohio failed to inspect more than 58,000 wells (91% of active wells), and Texas inspectors did not inspect approximately 139,000 wells (53% of active wells).

A few states have developed guidelines or made statements regarding how frequently wells should be inspected. For example, Pennsylvania recommends at least five inspections, and New York recently announced it would require at least 13 inspections of each well during the drilling and completion stages, and Pennsylvania recommends at least one inspection per year thereafter for producing wells. Despite the importance of monitoring potential contamination from inactive and plugged wells, no states have explicit requirements for periodic inspections of these wells.

None of the six states come anywhere near to meeting this recommended inspection guideline.

Some states, such as Pennsylvania, Colorado, and Ohio, have increased their overall oil and gas agency budgets in response to increased drilling. Even with the budget increases, however, funding remains insufficient to provide for thorough and adequate inspections of oil and gas activities.

Additionally, inspectors are rarely provided with the equipment necessary to catch all of the problems that may be occurring at oil and gas facilities. For example, there may be leaks or air emissions that pose health and safety concerns but cannot be seen and often not smelled. It is possible to instantaneously detect air emissions, but few oil and gas agencies have the equipment to do so.

RECOMMENDATION: *Inspection capacity needs to be increased in all states. This can be accomplished by increasing agency budgets, staff numbers, and employee remuneration to retain experienced staff.*

RECOMMENDATION: *Agencies should establish required minimum inspector-to-well ratios, and annual-inspections-per-well requirements for each stage of well development (including inactive wells, which fail over time). Also, follow-up inspections should be conducted as frequently as is necessary to ensure that violations have been corrected in a timely and complete manner.*

RECOMMENDATION: *To ensure consistency of inspections across a state, agencies should develop binding inspection protocols on how to carry out inspections, and how to document and respond to violations.*

RECOMMENDATION: *To ensure that actual operating conditions are observed, the bulk of inspections should not be announced or planned in advance with the operator.*

RECOMMENDATION: *State agencies should invest in equipment to help inspectors detect emissions from oil and gas facilities as a matter of everyday practice, not as an exceptional procedure.*

RECOMMENDATION: *Companies should be required to transparently conduct comprehensive and ongoing environmental monitoring of air, water, and soil in order to detect concentrations of emissions that can damage ecosystems or cause acute or chronic health problems for workers and residents.*

RECOMMENDATION: *Statistics on inspections and individual inspection files should be recorded in an electronic format that is easy to use and available to the public.*

RECOMMENDATION: *Agencies should increase fees for permits related to oil and gas development to help cover the costs of inspection, monitoring, and enforcement.*

RECOMMENDATION: *Oil and gas agencies should continue to press state legislatures to increase agency enforcement budgets. In states where oil and gas severance taxes are collected, oil and gas agencies should request that sufficient funds from this income source be allocated to their agencies to cover enforcement budgets.*

Public inspectors

Citizens living in or near oil and gas fields have the potential to play an important role in aiding agency enforcement staff because they live with the development on a daily basis. Other than workers at a well site or facility, citizens are the ones most likely to notice when problems such as spills and releases occur.

Information gathered for this report suggests that citizen complaints have led to inspections that have, in turn, found violations. Unfortunately, the agency responses to citizen complaints have not always been immediate or thorough, and there may be little or no follow-up with the citizen who filed the complaint. Also, many states do not track citizen complaints in a manner that allows either agency staff or citizens to determine whether or not complaints have been adequately resolved.

Texas prioritizes citizen complaints about active pollution or safety, and requires inspectors to respond, typically within 24 hours. This is just a policy, however, that would be much more beneficial codified as an enforceable regulation so that inspectors would be required to take citizen complaints, pollution events, and other hazards seriously.

RECOMMENDATION: *Agencies should be required to maintain publicly accessible complaint databases that include basic information including the operators and/or oil and gas facilities, if an inspection occurred as a result of the complaint, any violations found, any enforcement actions taken, and when and how the complaint was fully resolved.*

RECOMMENDATION: *Agencies should be required to publish a binding policy that outlines how to respond to citizen complaints (e.g., required response time, follow-up procedures) to ensure fair treatment of all complaints, transparency, and clear communication with the public.*

VIOLATIONS: INFREQUENTLY AND UNEVENLY ASSESSED

Information on oil- and gas-related violations is poorly tracked in most states.

In New Mexico and Colorado, information on violations is accessible on a well-by-well basis but statistics on the overall number of violations are not publicly available. In New York no data on violations are available. Texas tracks statistics on violations, but up until this year, statistics were not published in an online, publicly accessible format.

Currently, statistics on violations are not a reliable indicator of non-compliance because not all operators who break the rules are issued violations. For example, in Colorado, even though some inspections are "unsatisfactory," violations of rules may not be recorded. And, if the violations are not recorded, these unsatisfactory inspections become invisible to the public.

New Mexico is particularly troublesome in the discretion afforded to inspectors to decide whether or not to issue a Letters of Violation. Because of this unfettered discretion, operators may receive different treatment simply because their site is visited by inspector X instead of inspector Y, or their well is located in a district A rather than district B.

Largely as a consequence of the discretion in the field and the lack of systematic reporting, there is no clear trend in violations data for the six states examined for this report. Violations have increased in some states, decreased in others, or have fluctuated from year to year with no discernible pattern.

In Pennsylvania, violations have increased in the past few years. Violations had been on the decline in Ohio, but increased in 2011. In both of these states, it appears that when the number of inspections increases, more violations are found.

In Texas, the number of violations found by inspectors decreased between 2006 and 2010, but with more than 70,000 violations identified in 2010, it is clear that a very serious problem with compliance still exists. Texas inspectors find more violations per inspection than their counterparts in other states.

What data are available indicate that even where violation reports are routinely made, they are ineffective in getting companies to come into compliance. The data show that companies continue to violate the same rules at many well sites and the same rules get violated year after year.

RECOMMENDATION: *Agencies should issue notices of violation whenever rules are broken. If combined with adequate penalties, these could greatly deter potential violators.*

RECOMMENDATION: *Agencies should monitor and analyze violations data to better understand where to focus their enforcement efforts.*

RECOMMENDATION: *Agencies should document violations in a consistent manner with clear definitions, and publish statistics and details of violations in a publicly accessible, online, searchable format.*

RECOMMENDATION: *Agencies should track operators that repeatedly violate rules and/or refuse to resolve problems in a timely manner. Operators that demonstrate a pattern of non-compliance should be singled out for stronger enforcement action.*

RECOMMENDATION: *When serious violations occur, such as well blowouts, significant chemical spills, waste dumping, or illegal venting, the associated facilities should generally be shut down until the environmental and property impacts are fully remediated.*

ENFORCEMENT ACTIONS/SANCTIONS:
Infrequently assessed, and too small to deter

Enforcement actions do not appear to be consistently applied in most states.

When violations are found, oil and gas agencies have a variety of enforcement options. These include informal conversations with operators, letters alerting operators to issues of non-compliance, orders requiring operators to come into compliance by a certain date, or the assessment of penalties for violations.

In 2010, for the six states reviewed, Pennsylvania had 866 enforcement actions, Colorado had 332 and Texas had 447 enforcement referrals – recommendations to enforce, not actual enforcement actions. Ohio, New York, and New Mexico undertake very few enforcement actions every year.

Although Pennsylvania took the most enforcement actions, the percentage of violations resulting in enforcement action is decreasing in that state as the gas industry expands. In 2008, enforcement action was taken on more than half of the oil and gas violations in Pennsylvania, but by 2011 action was taken on less than a quarter of violations.

Despite the shale oil and gas boom, enforcement actions have not kept pace. The numbers of enforcement actions and total dollar amount in penalties have either remained fairly constant or have dropped in all six states over the past few years. The only exception is Colorado, where penalties collected in 2010 and 2011 increased because a backlog of old enforcement cases was finally addressed.

Financial Penalties
One of the enforcement options with the greatest potential to deter irresponsible operators is the financial penalty, i.e. fines.

Data from Texas and Pennsylvania show that numerous oil and gas operators are repeat violators. For example, in 2009 Chesapeake Energy had 123 violations. In 2010, Chesapeake received the largest oil and gas-related fine in Pennsylvania history, which should have improved Chesapeake's subsequent behavior. However, the next year the company's compliance record actually got worse – in 2011 Chesapeake had 161 violations.

The likely reason fines are failing as a deterrent is that the dollar amounts are too low. In 2010 Pennsylvania and Colorado collected about a million dollars each in total penalties. Ohio, New York, and New Mexico each collected less than $200,000. Penalty data for 2010 could not be found for Texas, but in 2009 the state collected more than $2 million in penalties from oil and gas violations.

To illustrate this issue, the value of the gas from one average Marcellus shale gas well is $2.9 million. So, the value of the gas in one well is greater than the total penalties collected by each state in 2010. And in 2010 there were between 10,000 and 260,000 active wells in each state we studied. So there is no financial incentive in the current value of the fines to operate wells in a more responsible manner – it is cheaper to simply accept a small fine and keep on operating without change.

(EIA 6/2012 wellhead price: $2.54 per 1,000 cubic feet. http://www.eia.gov/dnav/ng/hist/n9190us3M.htm. USGS 7/2012 mean "estimated ultimate recovery" of an Interior Marcellus well: 1.158 billion cubic feet http://pubs.usgs.gov/of/2012/1118/OF12-1118.pdf)

The explanation for these low fine totals: maximum penalties are set by outdated state statutes.

New Mexico has not updated its penalty schedule since 1934, while many other states have not changed penalties in the past few decades. Pennsylvania recently increased the maximum penalty for violations at unconventional oil and gas wells from $25,000 to $75,000 plus $5,000 for each day that the violation continues. It is too soon to know if the increase will improve operator compliance.

RECOMMENDATION: *Agencies should develop policies that set the appropriate enforcement action for different types of violations, and require all inspectors to consistently adhere to these policies. Policies should include escalating penalties/enforcement for operators who repeatedly violate rules and multiple offenses of the same type, and possibly mandatory enforcement actions for significant violations.*

RECOMMENDATION: *Agencies should codify their penalty schedules to reduce the discretion used in assessing the amount of a fine.*

RECOMMENDATION: *Penalties must be increased so that they are sufficient to deter future violations. Penalty amounts should include the following considerations: the actual impact of the type of violation in question (e.g., permanent damage to drinking water supplies or wildlife habitat), the true subsequent cost to the public with regard to remediation and continued oversight, and the economic value that would have been realized by the operator had the violation gone undetected.*

RECOMMENDATION: *Agencies should publicize significant penalties to highlight bad actors, as a means of deterring other companies from violating the rules.*

Operation suspension/prevention

In addition to penalties, most states have even stronger tools to deter violations:

- The power to suspend operations where violations occur; and
- The power to prevent an operator from receiving new permits to drill when they control other operations that are in violation of the rules.

These tools are more powerful because they stop revenue generation. Wells that can't produce gas also can't generate revenue. And an operator who can't receive new permits will have a much harder time attracting new investment capital.

"Bad actor" rules prevent operators in violation at one operation from receiving new permits to drill at other locations. Pennsylvania and Colorado have this provision, although there are constraints on its use. For example, in Colorado there has to be evidence of a "knowing and willful pattern of violation." Even with this threshhold, however, Colorado regulators have denied some operators new permits to drill.

Most states in this review have some form of regulatory power to suspend operations at a site that is in violation of the rules. These powers can take different forms, including

- Cease and desist orders that leave the operating permit and lease intact,
- Powers to suspend, modify and revoke the permit but leave the lease intact, and
- The power to sever the operator's underlying lease.

Although these powers exist, all states we examined that have them have two things in common: 1) They use them very rarely and 2) The decision making process through which they are used is largely hidden to the public.

RECOMMENDATION: : *Agencies should send a clear message that non-compliance will not be tolerated by making greater use of the range of enforcement tools at their disposal. All states must have the power to shut down production and the ability to suspend or modify existing permits and deny new permits until an operator's existing wells are in compliance.*

RECOMMENDATION: *To increase the deterrence value of these enforcement actions, agencies should track and publicize the use of cease and desist orders, shutting-in of wells, and placing holds on permits, and make data on these actions publicly available.*

Citizen enforcement

In most states, citizens lack the statutory right to challenge companies that fail to comply with oil and gas rules. Although these "citizen suit" provisions exist in many federal laws, and have been used effectively to stimulate better compliance, they are notably absent in the majority of state environmental laws. This point is especially critical in light of the lack of adequate enforcement staffing and resources available to state agencies.

Other issues that act as barriers to citizen involvement in enforcement efforts include a lack of cooperation between state agencies and citizens, intimidation by industry representatives of citizens who try to document problems or publicly express concerns with industry practices, and lack of training that would enable citizens to spot and properly document violations. Additionally, the inaccessible nature of key information (e.g., data on oil and gas permits, wells, and enforcement and compliance records) can make it difficult for citizens to monitor operations or conduct thorough file reviews in order to make objections or push for enforcement in specific cases.

RECOMMENDATION: *States should add citizen suit provisions to oil and gas statutes and environmental statutes that pertain to oil and gas operations. This would enable citizens to hold companies accountable for following rules to protect the environment, public health and safety, and, in turn, facilitate the prevention and remediation of damage caused to individuals and property.*

OTHER FACTORS IMPEDING ENFORCEMENT

Staffing Issues

The relationship between oil and gas agency staff and the industry they regulate is often very close. In some states, agency employees are even allowed to receive small gifts from oil and gas companies. This issue, as well as the movement of employees between public oil and gas agencies and private companies raises questions as to the impartiality of state regulators – and thus their ability to fully hold violators accountable.

Relatively low agency salaries are a serious problem in many states, and act as a barrier to enlisting and retaining experienced inspection and enforcement staff. There are many examples of agency employees who have opted to leave government for higher-paying industry jobs. This represents not only a loss of institutional knowledge; it also wastes taxpayer dollars that have been invested in training these public servants. Clearly, state agencies need to increase their staffing budgets in order to hold on to valuable employees, for without experienced staff, inspection and enforcement programs cannot be effective.

RECOMMENDATION: *To avoid conflict-of-interest issues, oil and gas inspectors and enforcement staff should not be allowed to receive gifts from oil and gas companies or employees.*

RECOMMENDATION: *Laws should prohibit past employees of oil and gas agencies from representing or assisting private companies with matters relating to the agency. Ex-agency staff should also be restricted from disclosing the state's confidential information to their private sector employers.*

RECOMMENDATION: *Enforcement staff wages and benefits should be increased to make public employment more competitive.*

Data tracking and transparency

In 2011, the Texas Sunset Commission criticized the RRC for its poor tracking of serious violations and repeated violations by the same operator, writing that without this type of information, "the Commission cannot determine or ensure effective and consistent enforcement across the state." The same poor tracking and record-keeping was found in all states examined in this report.

Not only are resources needed for better tracking of violations, there is also a need to improve data collection and reporting of inspections, penalties, enforcement actions and citizen complaints to enhance transparency and public accountability.

RECOMMENDATION: *Agencies need to document, track, and publish annual or quarterly statistics on inspections, violations, penalties, different types of enforcement actions, and complaints.*

RECOMMENDATION: *All data on inspections, violations, penalties, enforcement actions and complaints should be made publicly available through searchable, downloadable, online databases. Only then can the public analyze aggregate data, look up specific cases, and determine resolution of violations or complaints.*

Bias toward oil and gas permitting, not enforcement

During oil and gas booms, state agencies typically come under pressure from the oil and gas industry (as well as some elected officials) to expedite permits for drilling and other oil and gas development processes. By reducing the time spent on reviewing permits, agencies are less likely to consider site-specific permit conditions, which could ultimately impede enforcement actions.

For example, in Pennsylvania the total review time for a drilling permit can be as short as 35 minutes. Such a cursory review leaves little time to consider and include necessary permit provisions or technical requirements to protect public health and the environment. In Pennsylvania, citizens have conducted research and file reviews that have exposed deficiencies in permits. But citizens do not have the resources to review all permits, nor should they be doing the work that agencies are charged to do.

RECOMMENDATION: *Agencies should focus on a thorough review of permits and specific conditions related to the permit, including provisions that can be enforced or that are more likely to result in regulatory violations, rather than focusing primarily on expediting permit approvals.*

RECOMMENDATION: *Agencies should require permitting staff to communicate with inspections staff and/or consult agency databases on inspections, violations, and enforcement actions to ensure that a company's history of compliance is given full consideration during the permitting process.*

Burden of proof

When violations of oil and gas rules involve pollution, state agencies or citizens often have to expend financial resources to conduct sampling and monitoring to show that industry impacted air, water, or health. In the absence of baseline information, these cases can be notoriously difficult to prove, and the industry is able to draw on a cadre of its own scientists to dispute data generated by agencies, independent labs, or citizen monitoring.

Furthermore, a high burden of proof is often placed on state agencies seeking to use some of their enforcement tools. For example, some enforcement actions may only be taken if there is an emergency situation or it can be shown that the violation is causing imminent danger to health and safety. This heavy burden of proof also falls on citizens who have experienced health impacts, or damage/contamination of their property – most citizens do not have the resources to scientifically prove health impacts or contamination of well water. Until there is a shift in the burden of proof requiring industry to prove that they have not caused harm, or at least a decrease in that burden, state agencies will not be able to fully use the enforcement tools available to them, citizens will be left with little recourse, and the bad industry actors will continue to get away with practices that harm human health and the environment.

RECOMMENDATION: *Changes should be made to regulations to reduce the burden of proof that must be met before agencies can take enforcement action against operators that violate oil and gas rules.*

RECOMMENDATION: *Companies should be required to conduct pre-and post-drilling water (quality and quantity), air and soil monitoring. This baseline data should be submitted to oil*

and gas and other relevant agencies (e.g., environment departments), and be made publicly available so that it can be reviewed and utilized by citizens.

THE PATH FORWARD

This report shows that states across the nation are betraying one of the basic agreements between government and the governed: to enforce the law. That betrayal feeds into the growing lack of confidence that government should be about equal treatment and not about financial or political clout.

This betrayal of the public interest also severely weakens state claims that they can protect the public from the impacts of the shale boom. A rule – even an improved rule – on the books means little if an oil or gas company knows that it can be ignored with little or no consequence.

To address the problem we call upon states to take the following steps::

Acknowledge that public health is at risk because state enforcement of existing oil and gas rules is broken:

- More than half of all wells go uninspected year: hundreds of thousands of wells.
- Those companies that are found in violation are rarely penalized: ambiguous policies and rules leave the consequence for violations unclear to the public, companies and inspectors. Consequences appear to vary violation by violation.
- Penalties are so weak that it is cheaper for violators to pay the penalty than comply with the law.

Fix state enforcement by making common sense policy and regulatory changes:

- Writing into rule the minimum number of inspections/inspectors per number of wells, and providing adequate money and equipment to perform the inspections.
- Establishing clear rules so inspectors, companies, and the public know when operators are in violation, and the consequences.
- Formalize the public's role in enforcement, including sharing information with the public and allowing citizen suits. The public lives with gas development in their communities – they often know of violations before anyone else, including inspectors.

Until state enforcement is fixed, refuse new permits to drill:

- Oil and gas regulations are the law of the land. Oil and gas extraction is permitted on a well-by-well basis, conditioned upon compliance with the law. Until states can demonstrate in good faith that they are upholding the, they cannot maintain the public trust if they continue to permit new drilling.

INTRODUCTION

As technologies unlock previously inaccessible oil and gas reserves, drilling booms have emerged across the country. In response, some states have revisited their regulations governing oil and gas development.

Adequate regulations are essential to responsible oil and gas development and to minimizing impacts to public health and the environment.

However, regulations alone do not prevent irresponsible development. Regulatory enforcement is necessary too.

Unfortunately, in recent years the ability of state oil and gas agencies to enforce existing rules has declined. "Agency enforcement staff levels have not kept pace with the rapid expansion of oil and gas development."[1] That was written in 2005, when the Western Organization of Resource Councils released a report on oil and gas inspection and enforcement programs in five western states.

In 2009, the online investigative news service *ProPublica* compared the rapid expansion of drilling in 22 states with oil and gas agency staffing levels and found a declining capacity to enforce environmental protections. Regulators were overwhelmed as they tried "to keep tabs on the nation's nearly one million active oil and gas wells, a number that's likely to climb as the feverish growth in natural gas exploration continues."[2]

The crisis in enforcement, however, spreads well beyond inadequate monitoring and inspections at oil and gas facilities. Perhaps more significant is that when violations are found, state agencies do not use the tools available to them to enforce the laws.

As core research for this report, Earthworks held discussions with former state oil and gas agency decision-makers, a local government oil and gas inspector, a board member of a national multi-stakeholder oil and gas organization, a former management-level employee of a multinational oil and gas company, an oil and gas attorney, members of conservation organizations, environmental attorneys, and representatives of academic institutions.

Additional research, primarily using state agency databases, was conducted by Earthworks to provide the data and information for this report.

The report begins with an examination of oil and gas enforcement in six states: Texas, New Mexico, Colorado, Ohio, New York, and Pennsylvania. These states represent a range of development scenarios. While all have some historic oil and gas development, shale gas development is booming in Pennsylvania and Texas; Colorado recently experienced a tight gas drilling boom and is on the verge of major shale oil and liquids development; Ohio is in

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[1] Utesch, P. Cited in: Feb. 2, 2005. "Report finds need to strengthen state and federal oil and gas programs," Press Release. http://www.worc.org/userfiles/file/Law-&-Order-release.pdf

[2] Lustgarten, A. Dec. 30, 2009. "State oil and gas regulators are spread too think to do their jobs," *ProPublica.* http://www.propublica.org/article/state-oil-and-gas-regulators-are-spread-too-thin-to-do-their-jobs-1230

the beginning stages of shale development; New York may be poised to begin horizontal drilling for shale gas; and New Mexico has seen a decline in drilling over the past decade, but exploration for shale gas and oil is beginning to occur.

The second section of the report, "Factors that Impede Enforcement," expands on some of the ideas generated during the meetings in Denver and Pittsburgh.

Drawing from input gathered at our two meetings, the report provides recommendations for achieving improvements in enforcement of state oil and gas regulations.

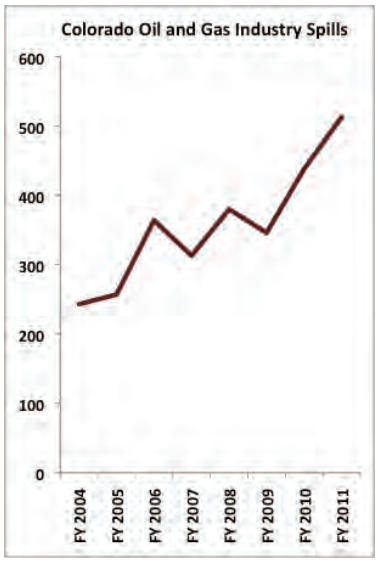
1 Current State of Oil and Gas Enforcement

This section explores the current state of oil and gas enforcement by examining oil-and-gas-related inspections, violations, enforcement actions (penalties and others), and citizen complaints.

If oil and gas enforcement programs were working, one would expect to see a high proportion of companies in regulatory compliance. There would also be a low incidence of pollution and environmental damage, and safe working conditions for oil and gas industry employees.

Most state agencies do not maintain publicly (or easily) accessible databases or consistent statistics on the impacts from oil and gas development. Publicly available data indicate enforcement efforts are too weak to motivate companies to comply with rules. For example, in 2009 Texas oil and gas inspectors found more than 18,000 water protection violations, yet took enforcement action on less than 1 percent of those violations.[3] Also, as shown in the following charts, data from Colorado and Ohio reveal a high incidence of problems and an increasing trend of negative impacts on the public and the environment.

Chart 1. Spills in Colorado (2005-2011)



The number of oil- and gas-related spills in Colorado has increased in the past seven years.[4] In fiscal year (FY) 2011, 133 of the 513 reported spills (26%) contaminated either ground or surface water.[5]

There is no real incentive for operators to replace faulty equipment or train employees to prevent spills, as the Colorado Oil and Gas Conservation Commission (COGCC) rarely penalizes companies for spills, even when they cause environmental damage. Also, enforcement actions are not taken in a timely manner. For example, in 2011 the COGCC imposed fines for a mere five spills, all of which had happened in previous years.[6]

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[3] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. pp. 33, 34. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

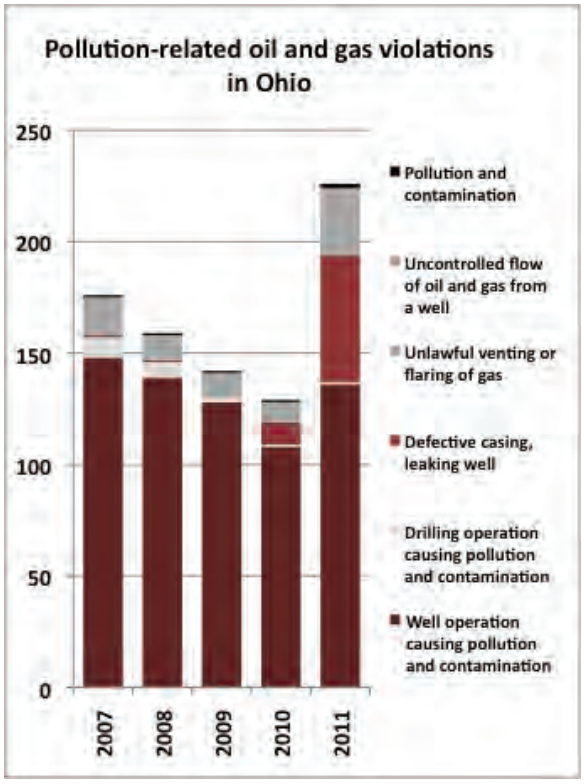
[4] All years represent fiscal years, i.e., from July 1 to June 30. 2011 data: 2005–2010 data: Colorado Oil and Gas Conservation Commission (**hereafter referred to as COGCC)** Annual Reports to Water Quality Control Commission. http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/AnnualReports.htm
2011 data from COGCC database. http://www.cogcc.co.us, select Database, then Inspection/Incident, then Spill/Release.

[5] Fiscal years were used because that is how COGCC reports spills to the Water Quality Control Commission. For fiscal year 2011, spill records were downloaded from the COGIS spills database, and the number of spills affecting ground and surface water were counted.

[6] Finley, B. Sept. 13, 2011. "Drilling spills rise in Colorado, but fines rare," *Denver Post*. http://www.denverpost.com/popular/ci_18881512?source=pop_neighbors_colorado See Earthworks' Colorado Enforcement page for more information on individual spills. http://enforcement-co.earthworksaction.org

In 2010 and 2011, Noble Energy had more spills than any other operator in Colorado (126 spills – 81 affected ground water, 6 surface water).[7] Yet, in August 2011, Noble Energy received an Outstanding Operator Award for environmental protection from the COGCC.[8] Congratulating the worst spill offender for its efforts at preventing pollution sends the message to both the public and other operators that spills don't matter and there are no real consequences for breaking the rules.

Chart 2. Ohio pollution-related violations.



Ohio is only beginning to experience oil and gas shale drilling. As of August 2012, just 131 horizontal oil and gas wells had been drilled in the Marcellus and Utica shale formations in Ohio.[9]

Even though a shale gas and oil drilling boom has not yet occurred in Ohio environmental impacts are on the rise. As seen here, in 2011 oil and gas pollution-related violations were at their highest level in years.[10]

It must be noted that this chart does not include all oil- and gas-related spills, because Ohio operators are not required to report spills to the Division of Oil and Gas Resources Management (DOGRM). Reporting spills is required in most other oil-and-gas-producing states.[11]

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[7] COGCC Incident Database. http://cogcc.state.co.us/cogis/IncidentSearch.asp, select Spill/Release. Search Operator: Noble. Other companies with large number of spills in 2010 and 2011 included Kerr-McGee (124), Encana (114).
8 Finley, B. Sept. 13, 2011. "Drilling spills rise in Colorado, but fines rare," *Denver Post.* http://www.denverpost.com/popular/ci_18881512?source=pop_neighbors_colorado

[9] Ohio Division of Oil and Gas Resources Management (**hereafter referred to as DOGRM**) web site: Oil and natural gas well and shale development resources. "Recent Marcellus and Utica Shale – Ohio Activity" (for week of 8/12/2012) http://www.ohiodnr.com/oil/shale/tabid/23174/Default.aspx Data accessed August 28, 2012.

[10] Data on pollution violations from Ohio DOGRM database. For detailed numbers and information on how Earthworks came up with these numbers, visit Earthworks' "Ohio Oil & Gas Enforcement – Violations" web page: http://www.earthworksaction.org/issues/detail/ohio_oil_gas_enforcement_violations

[11] States like Colorado, Texas and Pennsylvania require oil and gas operators to report spills of crude oil, condensate or other produced liquids (typically for spills greater than 5 barrels) to state agencies that regulate oil and gas. Ohio does not have such a reporting requirement, even though the 2011 review by STRONGER Inc. recommended that Ohio implement such a requirement. (Source: State Review of Oil and Natural Gas Environmental Regulations (STRONGER), Inc. Jan. 2011. Ohio Hydraulic Fracturing State Review. pp. 12, 13. http://www.dnr.state.oh.us/Portals/11/oil/pdf/stronger_review11.pdf

1.1. INSPECTIONS

INSPECTIONS DATA

Data on inspections vary from state to state. In some cases, the only publicly available data are published in annual summaries included in agency publications. In most cases it is not simple or even possible to search online agency databases to obtain inspection statistics.

- **Colorado:** the COGCC's Oil and Gas Information System (COGIS) database contains information on inspections. The system allows users to download actual inspection reports. Searches, however, appear to be limited to 1,000 records, which makes it difficult to tabulate statistics on inspections going back more than a year.[12]
- **Pennsylvania**: Pennsylvania's Department of Environmental Protection (DEP) recently created its Oil and Gas Compliance Report system, which is an online, searchable database.[13] The new Oil and Gas Compliance Report system allows users to generate their own searches on inspections by company, date, county, municipality, and generate statistics on number of inspections per time period. Data go back to 1982. The site does not allow users to view or download actual inspection reports.
- **Ohio:** Ohio's Division of Oil and Gas Resources Management (DOGRM) provides detailed inspection information to the public through its Risk Based Data Management System (RBDMS). The system includes data going back to 1980, and once the system is installed on a personal computer the data can be updated weekly so that even members of the public can access recent data. The system, however, is very large and data analysis is not straightforward. For example, an Earthworks' search of RBDMS inspections led to different results than what were provided to Earthworks by DOGRM.[14]
- **New Mexico:** New Mexico Oil Conservation Division's E-permitting database on "Well Information" allows users to see the date of last inspection for a site, but there is no way to extract inspection information from the database.[15]
- **Texas/New York:** The Texas Railroad Commission (RRC) and New York's Department of Environmental Conservation (DEC) do not have any publicly accessible databases containing oil and gas inspection information.

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[12] The system says that 5,000 reports can be accessed, but when attempts were made as recently as on 08/28/12 to access 5,000 records an error message was received. It was possible to access 1,000 records. (Source: COGCC web site: "Colorado Oil and Gas Information System." http://cogcc.state.co.us/cogis/IncidentSearch.asp)

[13] Legere, L. Jan. 28, 2012. "New databases improve access to state drilling records," *Pottsville Republican Herald.* http://republicanherald.com/news/new-databases-improve-access-to-state-gas-drilling-records-1.1263776

[14] For more information, please visit Earthworks' "Ohio Oil & Gas Enforcement – Inspections" web page http://www.earthworksaction.org/issues/detail/ohio_oil_gas_enforcement_inspections

[15] New Mexico Oil Conservation Division (**hereafter referred to as OCD**) web site: E-Permitting System. "Well Information", "Well Search." Under "General Well Information, Event Dates" the date of last inspection is noted. There are no details provided, nor is there a link to an actual inspection report. https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting//Report/WellInformation.aspx

STATE COMPARISON OF INSPECTIONS

As seen in Figure 1, the number of inspections carried out by oil and gas agency staff varies from state to state. Data used in the map can be found in Table 1.

Figure 1. Oil and gas inspectors in CO, NM, TX, OH, NY and PA (2010).

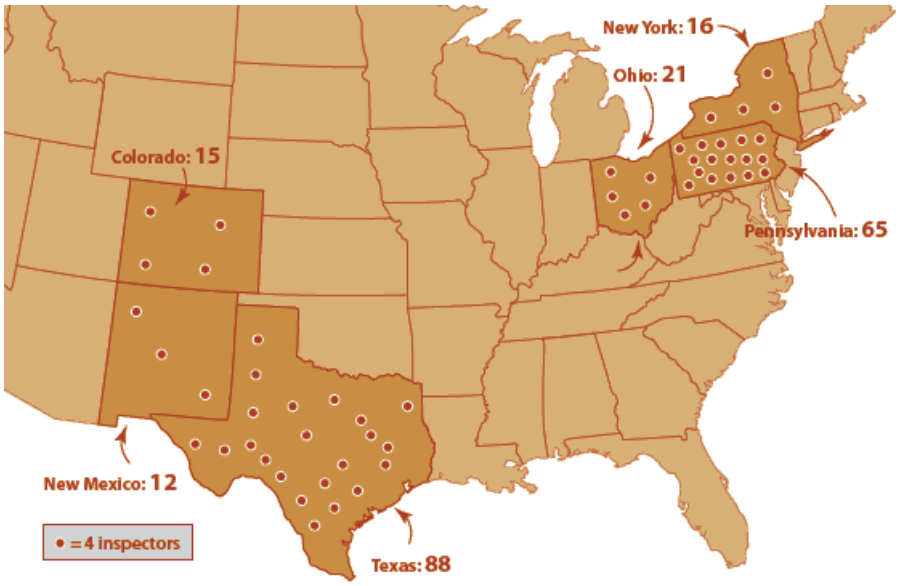

Table 1 shows that in 2010, inspectors in Colorado, Texas, and New Mexico conducted, on average, more than 1,000 inspections per year. Inspectors in New York, Pennsylvania and Ohio conducted far fewer inspections than their western counterparts.[16] Data sources for this table can be found in Appendix 1.

Table 1. State-by-state comparison of inspection staff and activity (2010).

State	Inspectors	Inspections	Inspections per inspector
Colorado	15	16,228	1,082
New Mexico	12	20,780	1,732
New York	16	2,460	154
Ohio	21	10,472	499
Pennsylvania	65	15,368	236
Texas	88	121,123	1,376

It is reasonable to assume that an inspector who conducted fewer than 500 inspections did so in a much more thorough manner than an inspector who conducted double or triple that number. However, this may not be entirely accurate as those carrying out fewer

[16] Also, a similar table with 2011 data is available in Appendix 1, Table A1-2. The 2011 were not included here because there was no information for New York. Although the numbers have changed slightly, the trends in 2011 were the same as 2010.

inspections may have had to inspect more drilling, cementing, stimulation, and plugging operations, which are likely to take more time than an inspection of a producing well site. Or some inspections may have taken longer because the inspections occurred in remote areas, or were conducted by less experienced staff (as described in Section 2.2, some agencies are having a difficult time retaining experienced inspectors).

Still, the difference between having to conduct several hundred versus more than 1,000 inspections is quite dramatic, and shows that inspectors in states like Colorado, Texas and New Mexico have much greater inspection burdens than their counterparts in New York, Pennsylvania and Ohio.

INSPECTION TRIAGE

Due to the overwhelming number of new drilling sites, combined with the number of existing oil and gas facilities (actively producing wells, inactive wells, tank batteries, compressors, impoundments, brine injection wells), both federal and state oil and gas agencies have been forced to triage inspections.

In 2009, the Bureau of Land Management (BLM) was inspecting active wells on federal lands just once every 2 to 10 years, and inspections for environmental compliance were only occurring every 4 to 59 years.[17] In 2010, recognizing that there was no way to monitor all oil and gas sites given their resources, BLM implemented a risk-based inspection and enforcement strategy, which prioritized inspections based on a set of "risk factors".[18]

Evidence of inspection triage can be found at the state level as well. For example, in 2008 the district supervisor for New Mexico Oil Conservation Division's (OCD) Aztec office said his staff tried to inspect each of the district's 24,000 active wells once every five years.[19] That year, the entire state of New Mexico employed 18 inspectors.[20] In 2011 there were six fewer inspectors in the state,[21] so it almost certain that wells inspected by the Aztec office of OCD are still only inspected once every five years, at most.

Few states have detailed statistics on the number of oil and gas facilities that require regulatory oversight. For example, while Texas, New Mexico and New York provide accessible data or statistics on inactive wells (i.e., wells that have been temporarily shut-in or plugged)[22] data are less accessible in Colorado, and Pennsylvania.[23]

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[17] Western Organization of Resource Councils. 2009. *Law and Order in the Oil and Gas Fields – a review of inspection and enforcement programs in five western states.* 2009 Update. http://www.worc.org/userfiles/file/Oil%20Gas%20Coalbed%20Methane/LAO-2009.pdf

[18] U.S. Bureau of Land Management. "Fiscal Year 2011 Oil and Gas Inspection and Enforcement Strategy Matrices." http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2011/IM_2011-023.html

[19] Haywood, P. March 1, 2008. "Inspectors struggle to monitor vast area," *Santa Fe New Mexican*. http://www.santafenewmexican.com/Local%20News/Inspectors-struggle-to-monitor-vast-area

[20] Haywood, P. March 2, 2008. "Drilling's hidden Costs," *Santa Fe New Mexican.* http://www.santafenewmexican.com/Local%20News/Drilling-s-hidden-costs

[21] In 2011 there were 12 OCD inspectors in New Mexico. (Source: Personal communication between Lisa Sumi, Earthworks and New Mexico OCD Enforcement and Compliance Manager, Daniel Sanchez, OCD attorney, Sonny Swazo, and New Mexico Environment Department (**hereafter NMED**) & Energy, Minerals & Natural Resources Department (**hereafter EMNRD**) Communications officer, Jim Winchester. March 5, 2012)

[22] Texas Railroad Commission (**hereafter RRC**). Well distribution reports contain statistics on inactive wells. http://www.rrc.state.tx.us/data/wells/welldistribution/welldistributionarchive.php New Mexico OCD. Inactive well list. https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/stats/IPermitting.aspx?report=InactiveWells New York Department

Texas is one state that provides statistics (although not detailed information) on the number of oil and gas facilities in the state. In 2011, there were close to 411,000 wells and related oil and gas facilities Texas. The RRC conducted just 115,000 inspections that year, meaning 72% of oil and gas facilities in Texas failed to be inspected in 2011.[24] (See Appendix 7 for data)

Given the lack of data on all oil and gas facilities, Table 2 provides estimates of the number of active wells that were **not** inspected in 2010.[25] To come up with estimates, it was assumed that every inspection reported by an agency was done at a different active well site. Consequently, if anything, our estimates of "active wells not inspected" are low, because at least some of the inspections would have been for facilities other than active wells, and some wells may have been inspected more than once.

Data sources for the table can be found in Appendix 1.

Table 2. Estimated number of active wells that were not inspected in 2010.

	Number of inspections	Number of wells inspected	Number of active wells	Active wells NOT inspected	% of active wells NOT inspected	Active wells per inspector
CO	16,228	16,228 (est)	43,354	27,126	63	2,890
NM	20,780	20,780 (est)	53,063	32,283	61	4,422
NY	2,460	2,460 (est)	10,195	7,855	76	637
OH	10,472	5,644 (actual)	64,378	58,734	91	3,066
PA	15,368	8,565 (actual)	91,167	82,602	91	1,403
TX	121,123	121,123 (est)	260,104	138,981	53	2,956

As seen in the table, the number of active wells per inspector varies from 637 in New York to more than 4,000 in New Mexico. With such an overwhelming ratio of wells to inspectors

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of Environmental Conservation (**hereafter DEC**). Oil and Gas Searchable Database. One can search by: Well status = inactive. http://www.dec.ny.gov/cfmx/extapps/GasOil/search/wells/index.cfm

[23] The COGCC database allows users to search for wells, and when listed there is information on the status of the well (e.g., active, temporarily abandoned, shut-in, etc.). There is no way, however, to search only the wells with a particular status. Similarly, Pennsylvania DEP databases (e.g., Well Inventory by Operator) do not allow users to search by well status, but status information does appear when other data are searched.

[24] Oil and gas facility data and inspection statistics from: Texas RRC. August 2012. *Legislative Appropriations Request for Fiscal Years 2014-2015*. 3.A. Strategy Request, page 25 of 51. http://www.rrc.state.tx.us/about/divisions/2014-15LAR.pdf

[25] Active wells. There is no universal definition of an active well. Generally, active wells refer to wells that are operating, as opposed to wells that have been permanently plugged or temporarily shut-in or abandoned. Those wells that are inactive due to temporary shut-in should still be monitored, but for the purposes of this paper we did not include inactive wells because the statistics were not found for Colorado.
Estimates of wells inspected. Ohio and Pennsylvania are the only states for which data could be found on the number of oil and gas wells inspected. Because these data were lacking for other states, it was assumed that each inspection was done for a different well. In most states, some wells are visited more than once a year (e.g., if violations are found and follow-up inspections are required), so it is highly possible that fewer active well sites were visited in CO, NM and NY than what is reflected in Table 2. In Texas, it is possible that more active well sites were visited than what is reflected in the table because an inspector may visit several wells during one lease inspection. Until Texas and other states publish more information on inspections the number of wells inspected will remain highly uncertain.

it is not surprising that in all states but New York, tens of thousands of active wells were not inspected in 2010. (New York only had 10,195 active wells in 2010.)

According to Pennsylvania DEP data, in 2010 the agency inspected 8,565 wells,[26] meaning that more than 82,000 active wells were not inspected at all. At that rate of inspection, it would take ten and a half years to inspect all existing active wells in Pennsylvania. In Ohio, 91% of the 59,000 active wells had no agency oversight in 2010. Texas had the largest number of wells that were not checked by an inspector in 2010 (more than 138,000). This number represents 53% of active wells in the state.[27]

Clearly, inspection triage is going to continue until more funds become available to state agencies. In most states, there hasn't been political will to do so. In 2009, *Propublica* was told by the Texas Railroad Commission that the agency had requested funding for more staff from the state legislature at least three times in the last five years and been turned down every time.[28]

INSPECTION POLICIES AND GUIDELINES

Given that oil and gas agency staff cannot possibly keep up with necessary inspections, how have the agencies coped with their oversight responsibilities? As seen below, some of the states have policies outlining the frequency, number, and prioritization of inspections.

Table 3. Texas RRC Field Operations Job Priorities (2010 policy).

First Priority	Second Priority	Third Priority	Fourth Priority
• Emergency Incidents that pose immediate/imminent threat to public health/safety* • Blowouts • Major spills that impact or pose imminent threat to environ. sensitive areas • Accidents/Injuries/Deaths resulting from possible violation of RRC Rules • Active Pollution/Safety Complaints*	• Well Plugging • Surface Casing • Reportable Spills • Hydrogen Sulfide-related Inspections • General Complaints • Mechanical-Integrity Testing • Commercial Disposal Operations: UIC wells, landfarms and pits. • Lease Inspections (sensitive areas) • Hydrocarbon Storage Operations • Pit Permits/Landfarming/Minor Permits	• General Lease Inspections (Non-sensitive areas) • General UIC inspections • Plant Inspections	• Enforcement Action: Well Sealing for other sections • Oil Theft • Production Testing • Audits

[26] Pennsylvania Department of Environmental Protection (**hereafter DEP**). Compliance Report system. Data accessed March 20, 2012. http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance Search: 01/01/2010 to 12/31/2010. Inspections with violations only: No. Download data into Excel. Then filtered by Permit #, selecting "unique records" to find how many wells were inspected.

[27] As of Dec. 31, 2010 there were 282,896 active wells. Texas RRC. Dec. 30, 2010. Well Counts by Type and Status. http://www.rrc.state.tx.us/data/wells/welldistribution/welldistribution122910.pdf

[28] Lustgarten, A. Dec. 30, 2009. "State oil and gas regulators are spread too think to do their jobs," *ProPublica.* http://www.propublica.org/article/state-oil-and-gas-regulators-are-spread-too-thin-to-do-their-jobs-1230

Texas: In 2012, the RRC set a performance goal of 113,400 oil and gas facility inspections.[29] The rationale for this inspection goal is not clear, and it does not necessarily reflect the number of inspections that need to be done to ensure adequate compliance with regulations.[30]

In 2001, RRC developed a *Job Priority Schedule,* which was updated in 2010. The 2010 *Field Operations: Job Priorities* policy states that, "Until staffing levels improve we will continue to use this guideline to select the types of field jobs we perform. This may significantly reduce some of the fieldwork we currently do such as 'general lease inspections' in non-sensitive areas."[31]

Table 3 lists the four categories of priorities found in the RRC field operations priorities policy. The activities with asterisks (*) represent time-sensitive activities, which due to the unpredictability of their frequency/timing are seen by RRC as a "major hindrance in our ability to effectively plan 'proactive' type field projects."[32]

Ohio: Ohio has an inspector priority matrix that assesses risk and defines the work priorities for inspectors,[33] but efforts to obtain a copy of this matrix were unsuccessful.

The DOGRM web site says that employees inspect drilling, restoration, and plugging of all oil and gas wells in the state,[34] but there is no detail regarding how often these inspections occur. We heard in one of our interviews that Ohio routinely has someone on site during well construction, and according to a STRONGER Inc. report, "an inspector must be on site to witness plugging unless this presence is waived by the chief."[35]

Table 4. Activities requiring notification of Ohio oil and gas inspectors.

Activity	Notification requirement
Cementing of conductor and surface casing (1509.17(C))	Notify inspector upon notification of person to perform cementing
Drilling, reopening, converting, stimulation or plugback (1509.06(J))	Notify inspector 24 hours prior to any/all of these activities
Plugging wells (1509.13 (C))	Notify inspector 24 hours prior to plug job unless requirement waived by inspector

While the Ohio rules require that inspectors be notified of certain activities such as cementing, drilling and plugging (Table 4), nothing was found in the rules that requires

[29] RRC of Texas. Feb. 27, 2012. Operating Budget for the Fiscal Year 2012. Section III.A. p. 15. http://www.rrc.state.tx.us/about/divisions/opBudget.pdf

[30] At the end of 2011 there were more than 260,000 producing oil and gas wells. See Appendix 7. There's no data on the number of other oil and gas facilities (e.g., compressors, gas plants, etc.) that are also require RRC oversight.

[31] Ross, Charles C. Deputy Director, Field Operations, RRC of Texas. Feb. 1, 2010. "Field Operations: Job Priorities." Obtained from Texas RRC Open Records Coordinator, Debra Ravel, via email. Sept.29, 2011.

[32] ibid.

[33] State Review of Oil and Natural Gas Environmental Regulations (STRONGER), Inc. Jan. 2011. *Ohio Hydraulic Fracturing State Review*. p. 6. http://www.dnr.state.oh.us/Portals/11/oil/pdf/stronger_review11.pdf

[34] Ohio DOGRM web site: "Oil and Gas." http://www.ohiodnr.com/tabid/10371/default.aspx

[35] See footnote 33, p. 12.

inspectors to be present at any of these activities.[36]

Pennsylvania: In 1987, the Pennsylvania DEP published its "Inspection Policy for Oil and Gas Well Activities." While not a requirement, the policy sets forth the DEP's "intended" frequency of inspections, and the circumstances under which a well operator can expect an inspection by the Department.[37] This policy was adopted into the Pennsylvania Code on July 28, 1989.[38]

In addition to the routine inspections shown in Table 5,[39] the policy outlines inspection frequencies for non-routine events, such as verifying that violations have been corrected.

Table 5. Suggested inspection frequencies in Pennsylvania, North Dakota, and New York.

	Pennsylvania At least:	North Dakota	New York
During well permitting/siting	1		1
During drilling	1	1/wk (vertical); 2/wk (horizontal)	1
During casing	1		
During cementing	1		
During completing	1		
During altering	1		
During stimulation	1		
Post-drilling	1 (within 3 months)		1
Producing wells	1 per year	Every 2 months	
Prior to well getting inactive status	1		
During plugging	1		1
After plugging, site restoration	1 (within 3 months)		
Before bond released	1		

As seen in Table 5, DEP's inspection policy is more stringent than those found for other states (North Dakota[40] and New York), although as indicated below, New York has stated that it will need to increase the number of oil and gas inspections when and if horizontal shale gas and oil wells are permitted in the state.

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[36] Ohio Revised Code. Chapter 1509: Division of Oil and Gas Resources Management. http://codes.ohio.gov/orc/1509

[37] Pennsylvania DEP, Bureau of Oil and Gas Management. June 25, 2005. *Compliance Monitoring of Oil and Gas Wells and Related Facilities and Activities*. Document number 550-3000-001. http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-48286/550-3000-001.pdf

[38] Pennsylvania Code. Title 25 §78.901-906. "Inspection Policy Regarding Oil and Gas Wells." http://www.pacode.com/secure/data/025/chapter78/subchapXtoc.html

[39] Pennsylvania: ibid.
North Dakota: Western Organization of Resource Councils. 2005. *Law and Order in the Gas Fields.* p. 7. http://www.worc.org/userfiles/file/Law-&-Order-report.pdf
New York: Division of Mineral Resources. *2009 Oil, Gas and Mineral Resources Annual Report*. p. 20. http://www.dec.ny.gov/pubs/36033.html

[40] Not one of the states analyzed in the report, but data included for comparison purposes.

Pennsylvania DEP, however, is not even close to meeting its suggested inspection frequencies. For example, there were 2,843 new wells drilled in Pennsylvania in 2010.[41] Under the Inspection Policy there should have been close to 20,000 inspections of those wells. Also, each of the 70,000 wells that produced oil or gas in 2010 should have received an inspection.[42] If DEP had been following its adopted policy, it would have performed more than 90,000 inspections. However, DEP carried out just 15,368 inspections, (see Table 2) or 19 percent of the inspections suggested in the policy.

New York: The frequency of inspections in Table 5 comes from the New York Department of Environmental Conservation's (DEC) *2009 Oil, Gas, and Mineral Resources Annual Report*.[43] The frequency of inspections, at least for some types of oil and gas wells, may increase in New York if horizontal drilling of shale gas wells is permitted. In DEC's revised draft environmental impact statement related to Marcellus shale development, the agency proposed to "limit [drilling] permit issuance to match the Department resources that are made available to review and approve permit applications, and to adequately inspect well pads and enforce permit conditions and regulations." In July 2012, a DEC spokesperson put a number on what it means to adequately inspect wells: "the state's draft plan would require at least 13 inspections during each well drilling and completion."[44] This is a vast improvement over the agency's current inspection protocol, and is more stringent than any of the other state oil and gas inspection requirements in this report.

Colorado: The state does not have a written inspection policy or checklist. Regional supervisors work with field inspectors to develop goals for number of wells, number of surface casings, and other inspections to accomplish in a year.[45]

INCREASE ENVIRONMENTAL MONITORING DURING AND IN ADDITION TO INSPECTIONS

While inspectors are trained to observe infractions of oil and gas rules, some violations are not easily detected during a typical oil and gas inspection. For example, leaking pits or air emissions that pose health and safety concerns may be occurring even if they cannot be seen or smelled.

In the case of pits, some states have regulations that require the use of secondary liners and leak detection systems, which can help reduce the potential for wastes to contaminate air, soil, and groundwater. Cementing rules and pressure tests can help minimize the chances for natural gas (methane) to migrate from compromised well casings into groundwater. In both of these situations, a requirement for groundwater monitoring and reporting may be the best way to catch leaks at an early stage.

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[41] Pennsylvania DEP, Bureau of Oil and Gas Management. Jan. 25, 2011. *2010 Year End Report*. p. 6. http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/2010/2010_Year_End_Reports.pdf

[42] This number is based on active wells that produced oil or gas. See Pennsylvania "Well Data from DEP Oil and Gas Production Database" table to find out how these numbers were generated. http://www.earthworksaction.org/images/uploads/Table_pennsylvania_active_well_data_footnotes.gif

[43] New York Division of Mineral Resources. *2009 Oil, Gas and Mineral Resources Annual Report*. p. 20. http://www.dec.ny.gov/pubs/36033.html

[44] Nearing, B. July 17, 2012. "State well inspections 'inadequate'," *TImes Union.* http://www.timesunion.com/local/article/State-well-inspections-inadequate-3714717.php#ixzz20yzn41Mu

[45] Pers. Comm. between Lisa Sumi, Earthworks and Margaret Ash, Field Inspections Manager, COGCC. Sept. 26, 2011.

In the case of air pollutants, tools exist that can be used by inspectors to find leaks. Instantaneous or "real-time" monitoring devices are available to detect air emissions of methane, volatile organic compounds, and other air pollutants. For example, infrared equipment such as Forward Looking Infrared (FLIR) cameras "allows enforcement officers to 'see' emissions that are otherwise not visible to the human-eye."[46]

Unfortunately, these devices are not used routinely during inspections by oil and gas agency personnel. They are, however, used by other agencies, typically environmental protection-focused agencies that are tasked with overseeing air quality. In some states, these environmental agencies may occasionally visit oil and gas well sites and facilities (e.g., in response to complaints), but they do not visit sites nearly as frequently as oil and gas inspectors. For example, in the Barnett Shale region of Texas the Commission on Environmental Quality (TCEQ) office has four FLIR cameras to take into the field to look for leaks, as well as access to mobile monitoring units and the ability to conduct grab samples of air.[47] This equipment is used when the office responds to air-related complaints (including those from oil and gas facilities).

The air quality bureau of the Pennsylvania DEP has also used FLIR or similar equipment to conduct several short-term air quality screening studies related to oil and gas development. The air quality bureau, however, does not perform routine inspections of oil and gas sites.

INSPECTIONS DATA: RECOMMENDATIONS

RECOMMENDATION: *Inspection capacity needs to be increased in all states. This can be accomplished by increasing agency budgets, staff numbers, and employee remuneration (to retain experienced staff).*

RECOMMENDATION: *Agencies should establish required minimum inspector-to-well ratios, and annual-inspections-per-well requirements for each stage of well development (including inactive wells, which fail over time). Also, follow-up inspections should be conducted as frequently as is necessary to ensure that violations have been corrected in a timely and complete manner.*

RECOMMENDATION: *To ensure consistency of inspections across a state, agencies should develop binding inspection protocols on how to carry out inspections, and how to document and respond to violations (i.e., what is the required enforcement action for different types of violations).*

RECOMMENDATION: *To ensure that actual operating conditions are observed, the bulk of inspections should not be announced or planned in advance with the operator.*

RECOMMENDATION: *State agencies should invest in equipment to help inspectors detect emissions from oil and gas facilities as a matter of everyday practice, not as an exceptional procedure.*

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[46] U.S. Environmental Protection Agency. Region 6. "Real-time Enforcement." http://www.epa.gov/region6/6en/a/oil_and_gas.htm

[47] Sheedy, K. Nov. 17, 2011. "Oil and gas operations and air monitoring in Texas," *Marcellus Summit 2011*. http://www.iogcc.state.ok.us/Websites/iogcc/images/2011MarcellusPresentations/Sheedy.pdf

RECOMMENDATION: *Companies should be required to transparently conduct comprehensive and ongoing environmental monitoring of air, water, and soil in order to detect concentrations of emissions that can damage ecosystems or cause acute or chronic health problems for workers and residents.*

RECOMMENDATION: *Statistics on inspections and individual inspections files should be recorded in an electronic format that is easy to use and available to the public.*

1.2. VIOLATIONS

When operators break oil and gas rules they may be issued violations by oil and gas regulators. However, the number of violations does not reflect the actual level of non-compliance that occurs in oil and gas fields because there is a large amount of discretion as to what is recorded as a violation.

Table 6 shows data collected on oil and gas violations in the six states for 2010. See Appendix 1 for more information.

Table 6. Violation data by state (2010).

State	Violations	Inspections	Violations found per inspection	Notes
Colorado	No data	16,228		319 Notices of alleged violations
New Mexico	No data	20,780		418 Letters of violation
New York	No data	2,460	No data	No data
Ohio	1,094	10,472	0.10	Violations
Pennsylvania	2,704	16,199	0.17	Violations
Texas	71,646	121,123	0.59	Violations

As seen from the table, no violations data were found for New York.[48] For other states, data related to violations are reported in different ways. For example, New Mexico keeps statistics on letters of violation sent to operators, but each letter may contain multiple violations, while Colorado only reports data on Notices of Alleged Violations (NOAV), which does not reflect the total number of violations found. This issue is discussion in more detail later in State-by-State Violation Trends, below.

Texas records more violations per inspection than any other state. It's unclear, however, if Texas oil and gas operators have a greater problem with compliance, or if Texas oil and gas inspectors simply do a better job of recording violations.

One concerned gaspatch resident was told by an inspector that if an operator fixes a problem "while we're there, then there is no violation." The participant, however, was clear that this was not the behavior of all inspectors in Pennsylvania.

Similarly, when a violation is found by a Colorado inspector, it does not necessarily result in an official record of the violation or an official notice issued to an operator. Inspections are rated as satisfactory or unsatisfactory. A search of 1,000 inspections that took place

[48] In response to an email request for information on inspections, violations, and complaints Earthworks received this reply: "The Division of Mineral Resources does not currently have a database for the information requested below. We are preparing to have one in operation at the time high-volume hydraulic fracturing activities are approved to go forward in the state. We do have paper records located in the field offices where the proposed wells were drilled. The record [sic] are filed by county, operator and by well name. You can review the paper records at our . . . offices."(Source: Email from New York Division of Mineral Resources <dmnog@gw.dec.state.ny.us> to Lisa Sumi. Sept 31, 2011.)

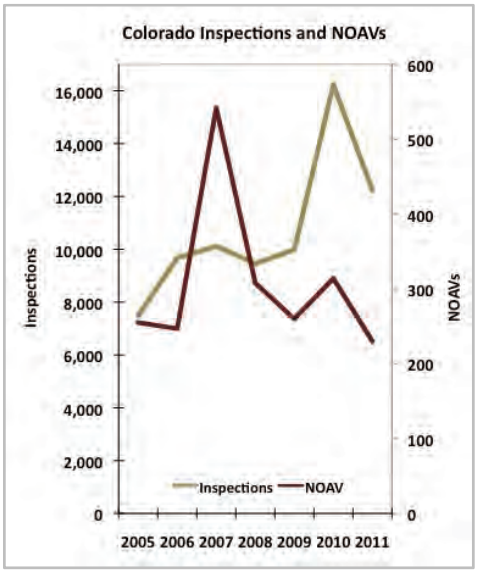
between August 3 and Sept. 23, 2011, showed 145 "unsatisfactory" inspections, yet only 77 of those inspections noted violations.[49] If rules are not broken, then it's not clear what makes an inspection "unsatisfactory." If rules were violated, then states should keep some record of the violation.

STATE-BY-STATE VIOLATION TRENDS

Colorado: No strong trend

Colorado does not publish aggregate statistics on violations found during inspections, making it impossible to determine if the number of violations is increasing or decreasing. The only statistics related to violations that are publicly available from the COGCC are for "Notices of Alleged Violations" (NOAV), which do not represent the actual number of violations because in Colorado the discovery of a violation does not necessarily lead to an NOAV.[50]

Chart 3. NOAV and inspections in Colorado (2005-2011).



There is no strong trend in NOAV being issued in Colorado. There was a dramatic increase in NOAV in 2007 (549), but in most other years, approximately 250 to 300 NOAV were issued to oil and gas operators in Colorado.[51]

Unlike in Pennsylvania and Ohio, NOAV and inspections in Colorado do not seem to be linked. The increased inspections in 2005-2006 and 2009-2010 did not result in significant increases in NOAV.

New Mexico: Decreasing violations reported

OCD maintains an internal database that tracks notifications sent to operators regarding violations, enforcement actions taken, and compliance data, but this database is not accessible by the public. Nor does the agency publish statistics on violations found during inspections. Upon request, the OCD did provide Earthworks with statistics on the number of Letters of Violation (LOV) sent to operators in 2009, 2010, and 2011,[52] as well as

[49] Colorado Oil and Gas Information System (COGIS). Inspection Inquiry. Select Inspection, search for 1000 records (the maximum). Search conducted Sept. 27, 2011. http://cogcc.state.co.us/cogis/IncidentSearch.asp

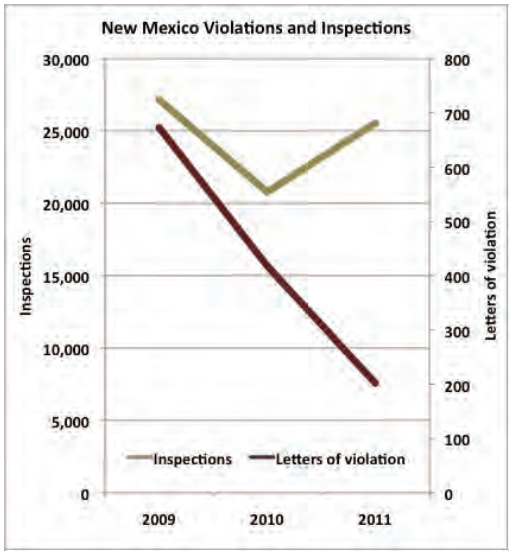
[50] See discussion later in the report, in the section on "Enforcement Actions: rules inconsistently applied."

[51] 2007–2010 data: COGCC staff report. Jan. 13, 2011. http://cogcc.state.co.us/Staff_Reports/2011/2011_01_SR.pdf
2005-2007 data: COGCC staff report. Jan. 8, 2007. http://cogcc.state.co.us/Staff_Reports/2007/January2007SR2.pdf

[52] Information request to Jim Winchester, NMED and EMNRD from Lisa Sumi, Earthworks. Feb. 24, 2012.

"Compliance Summaries" from the database for 2010 and 2011 that indicated follow-up actions taken.[53]

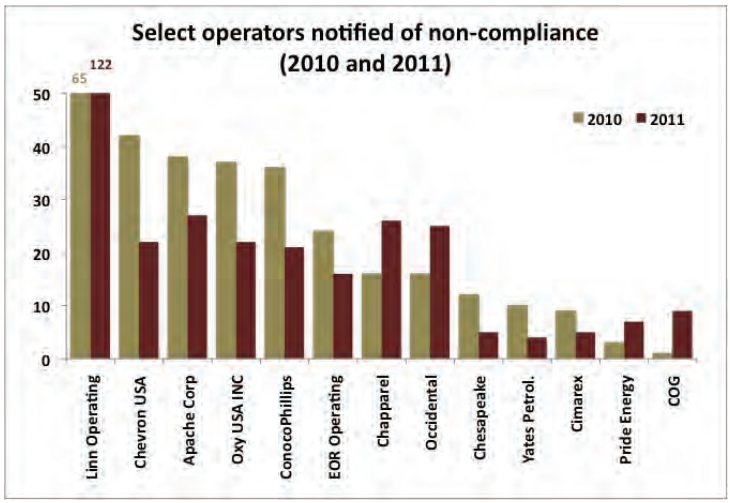
Chart 4. Letters of Violation in New Mexico.



As seen in the chart, there has been a sharp decrease in the number of LOV sent to operators over the past few years. Less than one-third of the total 2009 LOVs were issued in 2011.

The annual LOV statistics provided by OCD do not reflect the total number of violations per year, as each letter may contain multiple violations.[54] Also, operators receive other types of notifications regarding rule violations (e.g., phone calls or more general non-compliance letters) that are not included in the LOV statistics.[55]

Chart 5. Non-compliance letters received by some New Mexico operators.



OCD data also show that the same operators receive high numbers of non-compliance letters from one year to the next, and numerous violations remain unresolved for years.[56]

Linn Operating, Chapparel, Occidental, Pride Energy and COG all had more incidents of non-compliance in 2011 than 2010, and other companies continued to have high numbers of violations in 2011 (e.g., Apache, Oxy USA, ConocoPhillips).

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[53] Email from Jim Winchester, NMED and EMNRD Communications officer, to Lisa Sumi, Earthworks. March 5, 2012.

[54] Personal communication between Lisa Sumi, Earthworks and New Mexico OCD Enforcement and Compliance Manager, Daniel Sanchez, OCD attorney, Sonny Swazo, and NMED and EMNRD Communications officer, Jim Winchester. March 5, 2012.

[55] When OCD inspectors find what they deem to be serious violations, they typically send Letters of Violation (LOV) to the operators. These are the violations that are most likely to be followed up by OCD. If they find less serious violations, they may not issue an official Letters of Violation, but may still send a letter informing the operator that that it is out of compliance.

[56] It was not possible, due to time constraints, to summarize data for all operators, so the chart contains a selection of operators receiving enforcement letters (LOV, FVI or LET in the compliance summaries) in 2010 and 2011.

How quickly operators resolve violations is another important factor to consider when evaluating the effectiveness of an enforcement program. The Compliance Summaries provided to Earthworks by OCD included information on "Date compliance achieved."[57] As of February 16, 2012 compliance had been achieved in 311 (39%) of the 797 incidents that resulted in letters of non-compliance in 2010, and compliance had been achieved in 170 of the 453 cases in 2011 (38% compliance).

With respect to the more serious violations, OCD data showed slightly higher rates of compliance. In 2010, 414 LOV were sent to operators, and as of February 16, 2012 compliance had been achieved for 220 (53%) of the cases.[58] In 2011, 203 LOV were sent, and compliance had been achieved for 101 (50%) of the cases. When only half of the serious problems are resolved within a year or two, there is clearly a significant problem with compliance.

New York: Violations data not available

The New York Division of Mineral Resources (DMR) does not publish data on violations in its annual report,[59] and New York does not yet keep violations data in a publicly accessible electronic database.[60]

Ohio: When inspectors go looking, they find violations

The Ohio DOGRM does not publish statistics on oil and gas violations on its web site, nor are any published in the Ohio Department of Natural Resources' *Oil and Gas Summaries*.

Violations data are accessible to the public through the RBDMS database. As indicated in Table 7 below, Earthworks' analysis of data from the RBDMS "Failed Inspections Table" showed 1,667 distinct rule violations in 2011.[61] The RBDMS data show that the total number of violations recorded during DOGRM inspections of oil and gas wells was higher in 2011 than in any of the three previous years. Between 2010 and 2011 alone, there was a jump of more than 570 violations.

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[57] According to OCD the information on whether or not compliance has been achieved may not be entirely accurate because inspectors may not have entered the data into the system, operators may have corrected problems but not notified OCD, or inspectors may not have carried out a follow-up inspection to ensure that violations had been corrected. It may not be entirely accurate, but it is the best information available at this time.

[58] The number of wells in compliance was determined by counting the number of LOV that had a date in the column "Dt Comp." Achv'd."

[59] New York Division of Mineral Resources annual reports include very basic statistics on inspections. Reports available at: http://www.dec.ny.gov/pubs/36033.html

[60] In response to an email request for information on inspections, violations, and complaints Earthworks received this reply: "The Division of Mineral Resources does not currently have a database for the information requested below. We are preparing to have one in operation at the time high-volume hydraulic fracturing activities are approved to go forward in the state. We do have paper records located in the field offices where the proposed wells were drilled. The record [sic] are filed by county, operator and by well name. You can review the paper records at our . . . offices."(Source: Email from New York Division of Mineral Resources <dmnog@gw.dec.state.ny.us> to Lisa Sumi. Sept 31, 2011.)

[61] Ohio Division of Mineral Resources Management. Risk Base Data Management System (RBDMS) Database. http://www.ohiodnr.com/mineral/production/tabid/15389/Default.aspx RBDMS data updated and accessed March 7, 2012. Downloaded "tblInspFail". Filtered by DT_MOD (1/1/2011 to 12/31/2011). Filtered TYP_INSP to remove inspections not related to oil and gas production wells (removed administrative inspections (AM), brine hauler (BH), enhanced recovery (ER), solution mining projects (SM), storage wells (SO) and saltwater injection wells (SW)). Column OAC (violations of Ohio Administrative Code) had 1,667 entries.

Table 7. Violations related to oil and gas wells in Ohio, 2008-2011.

	2008	2009	2010	2011
RBDMS Number of violations related to oil and gas wells	1,275	1,252	1,094	1,667
DOGRM Statistics on oil and gas violations	722	634	615	692

Table 7 also includes data on violations provided to Earthworks by DOGRM.[62] The increase in violations from 2010 to 2011 is seen in the DOGRM data, but the violation totals differ. It's not clear how DOGRM derived its total of 692 violations for 2011.[63] Earthworks' analysis of RBDMS data shows that violations were found during 819 inspections of oil and gas facilities. As seen in Table 8,[64] violations were found during inspections at 676 oil and gas "Production Wells" (PW). This is closer to the 692 violations number provided by DOGRM. When inspections of drilled/deepened/reopened wells, production wells, plugged wells, and urban deepened wells were added together, there were 692 inspections that found violations– the same number provided by DOGRM. If this is how DOGRM derived its statistic, it clearly leaves out many other types of oil and gas well inspections (such as those at urban oil and gas wells), and does not include all violations.

Table 8. Violations found by type of inspections in Ohio (2011).

RBDMS Inspection Code	RBDMS Inspection Code Description	Number of oil and gas well inspections finding violations
AD	Annular Disposal	16
CT	Completion Testing	0
DD	Drill / Deepen / Reopen	6
FR	Final Restoration	37
ND	Not Drilled	0
NF	Field Inspected, Well Not Found	0
NW	Non Well	0
OR	Orphan	3
PB	Plug / Plug Back	6
PL	Preliminary Restoration	33
PW	Production Wells	676
SC	Surface Facility Construction	4
UD	Urban Drill / Deepen / Reopen	4
UL	Urban Preliminary Restoration	0
UP	Urban Production Wells	34
	TOTAL	**819**

[62] See footnote 60.

[63] For a more in-depth analysis of this question, visit Earthworks' "Ohio Oil & Gas Enforcement – Violations" web page: http://www.earthworksaction.org/issues/detail/ohio_oil_gas_enforcement_violations

[64] See Appendix 5 for more details on how we obtained these numbers.

When DOGRM reports statistics on violations related to oil and gas activities, the agency should make it clear how those statistics are derived. Based on our examination of the data, we believe that statistics on oil and gas violations should include, at minimum, violations found during production, annular disposal, completion testing, surface facility construction, drilling/deepening/reopening of wells, orphan wells, plugging operations, and site restoration at urban and non-urban well sites, as well as at orphan wells.

Chart 6. Ohio Inspections and Violations (2001 – 2011).

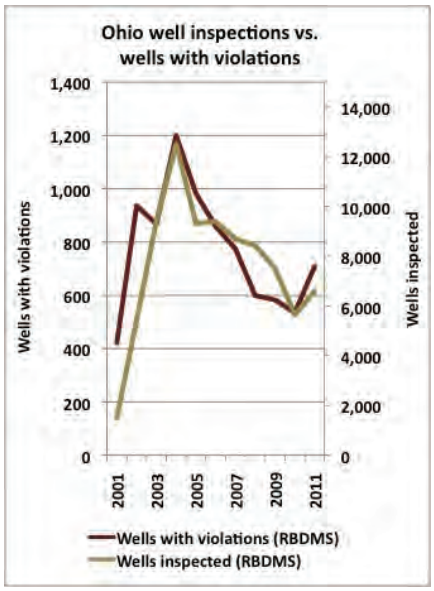


Chart 6 uses oil and gas inspection and violation data extracted from the RBDMS database.[65] We included inspection and violation data for all of the types of facilities mentioned in the preceding paragraph.

As seen from the chart, there is a fairly strong relationship between the number of wells that are inspected and the number of wells that DOGRM finds to have violations.

In other words, when Ohio inspectors go looking, they find violations.

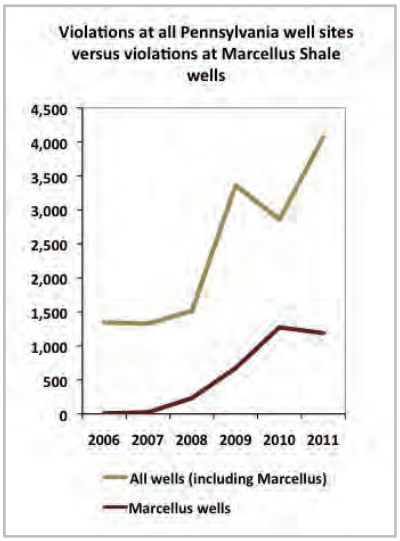
Pennsylvania: Increasing violations

In January 2012, the DEP released an online "Oil and Gas Compliance Report" system. This system allows users to search for, and download information on, oil and gas violations, enforcement actions, and inspections in Pennsylvania.[66]

[65] Data for the chart can be found in Tables A5-2 and A5-5, Appendix 5.

[66] Prior to the new online data system, the Pennsylvania DEP published fairly detailed "Inspections, Enforcement and Violations" spreadsheets. The spreadsheets are no longer available on the web site. Oil and Gas Compliance Report system is at: http://www.portal.state.pa.us/portal/server.pt/community/oil_and_gas_compliance_report/20299

Chart 7. Violations in Pennsylvania (2008-2011).



As seen in Chart 7, since 2008 there has generally been an increase in the number of violations found at oil and gas wells in Pennsylvania. In 2011, there were 4,069 violations found during inspections. Generally, there has also been an increase in the contribution of Marcellus shale wells to the total number of violations. In 2010, 1,273 (45%) of the total number of violations (2,861) were found at Marcellus Shale well sites. In 2011, however, violations at non-Marcellus wells showed a dramatic increase, while violations at Marcellus wells dropped slightly to 1,189.

Data for Charts 7 and 8 can be found in Appendix 6.

Chart 8. Pennsylvania inspections and violations.

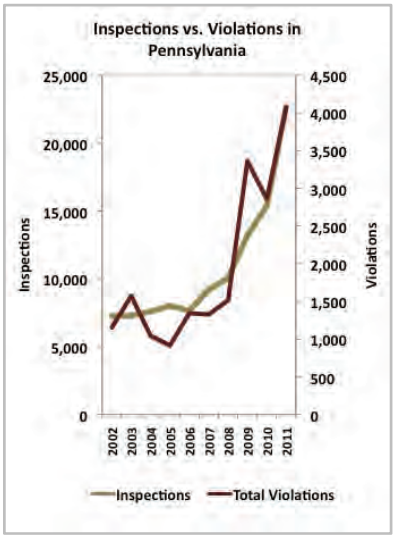


Chart 8 compares the number of inspections to the number of violations found at oil and gas well sites from 2000 to 2011. There is a fairly strong relationship between inspections and violations in Pennsylvania.

In some years, such as 2000 and 2009, inspectors found considerably more violations than other years, but otherwise, it appears that when DEP inspectors carry out more inspections, more violations are found.

It also appears that many of the top violators in Pennsylvania are not improving their records. Table 9 shows the top 12 Pennsylvania oil and gas operators with the most violations in 2011, as well as the number of violations that they had in 2009 and 2010.[67] For each operator, the highest number of violations per month is highlighted in red.

[67] Violations data: Pennsylvania DEP. Oil and Gas Compliance Report system. Search by operator, Inspections find violations, 2009, 2010 and 2011. http://www.portal.state.pa.us/portal/server.pt/community/oil_and_gas_compliance_report/20299
Data on number of active wells: DEP Office of Oil and Gas Management. Wells Inventory by Operator. Removed wells permitted after Dec. 31, 2011. Filterer results for Well Status: "active."
http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/Operator_Well_Inventory_By_Operator

Table 9. Trends in violations for the top offenders in Pennsylvania.

	Active wells	Violations per year		
Operator	**2011**	**2009**	**2010**	**2011**
Catalyst Energy Inc.	1,633	41	27	**187**
Chesapeake Appalachia LLC	1,378	123	157	**161**
Cabot Oil & Gas Corp	315	82	115	**174**
N. Amer. Oil & Gas Drilling Co. Inc.	1,001	26	0	**128**
Chief Oil & Gas LLC	181	33	**178**	95
Range Resources Appalachia LLC	5,068	12	54	**95**
Farrington & Hepler Gas & Oil Inc.	70	4	20	**88**
XTO Energy Inc	4,747	23	68	**81**
Eagle Resources Corp	61	7	0	**70**
Ultra Resources Inc.	222	25	59	**70**
Anadarko E&P Co. LP	480	8	**83**	70
Allegheny Natural Resources Inc.	33	4	8	**55**

These data suggest that the practices of many operators are getting worse, not better, with time. All but two companies (Chief and Anadarko) had more violations in 2011 than in previous years, and many operators have had consistently large numbers of violations for three years running (e.g., Chesapeake, Cabot, Chief, Range, XTO, Ultra).

It should be noted that the operators with the most violations are not necessarily those with the largest number of wells. There are 23 operators in Pennsylvania with more than 1,000 active wells,[68] yet only five of them appear in Table 9.

Texas: Downward trend in violations

While some general statistics on violations are now published on the RRC website,[69] the RRC does not have a publicly accessible database that allows citizens or operators to examine the tens of thousands of violations and Notices of Violation (NOV) sent to operators every year.

Currently, the only publicly accessible RRC database that includes information on violations is the "severance" database.[70] This database includes all wells that have been required to

[68] Pennsylvania DEP. Office of Oil and Gas Management. "Operators having more than 100 active wells." http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/Operators_With_GT100_Active_Wells Data accessed April 18, 2012.

[69] Rider 17 of the 2012-2013 GAA required the RRC to publish information about violations on its web site: "the agency shall publish information about enforcement data on its website, including inspection and enforcement activity, violations and the amount of final enforcement penalties assessed to the operator. (General Appropriations Act for the 2012-13 Biennium. 82nd Texas Legislature Regular Session. Sept. 12, 2011.p. VI-60. http://www.lbb.state.tx.us/Bill_82/GAA.pdf) The statistics are available on the RRC web site at: http://www.rrc.state.tx.us/compliance/enforcement/index.php

[70] RRC of Texas. Online System. Oil and Gas Data Queries. Severance Query. http://webapps2.rrc.state.tx.us/EWA/ewaMain.do;jsessionid=5pLSTGQTBywCmhGBmWNtw8ltvLBT76X5tCCLTpK73py5hynHNnQj!1808539119

stop producing oil and gas because of rule violations, but it does not contain all violations because not all wells with violations are ordered to stop producing – for example, in 2010, approximately 7,000 severances/seals were issued, while the RRC recorded more than 70,000 violations.[71]

In 2010 inspectors conducted more inspections but found fewer violations than they did in 2006. The number of violations found by oil and gas inspectors in Texas decreased from approximately 90,000 in 2006 to just over 71,000 in 2010.[72] A decrease of approximately 20,000 violations between 2006 and 2010 is a significant drop. Over that same time period, the number of inspections increased by approximately 3,500 per year (from 118,000 in 2006 to 121,667 in 2010).

There are several possible reasons for the drop in violations in 2010: 1) by conducting more inspections there has been a more visible presence of Texas RRC personnel in the field, causing operators to work more carefully; 2) each inspectors conducted more inspections in 2010, so inspections were not as thorough as in 2006; or 3) inspectors did not issue violations for minor offenses (were instructed to treat violations differently in 2010). Former Railroad Commission District Director, Mark Henkhaus, recently wrote that, "I know that a Commission field technician is able to detect 'technical violations' on almost any lease or well site. . . many less-serious violations are dealt with in the Commission's district office by district staff in person, on the telephone. . ."[73]

ARE CURRENT EFFORTS REDUCING VIOLATIONS AND INCREASING COMPLIANCE?

Despite the drop in violations between 2006 and 2010, the fact that there were 70,000 violations in 2010 makes it clear that a very serious problem with compliance exists in Texas.

In its 2011 review of the RRC, the Texas Sunset Advisory Commission ("Sunset Commission") required the agency to provide data on the top ten most frequently violated oil and gas rules in the state. RRC provided data for 2009 (summarized in Table 10.[74])

The Sunset Commission remarked on the excessive number of violations of Statewide Rule 3, which requires proper identification at well sites. The Commission suggested that some operators will not follow some rules "unless found in violation by an inspector."[75]

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[71] See Appendix 7, Tables A7-4 and A7-5.

[72] See Appendix 7, Tables A7-1 and A7-4.

[73] Letter from Mark Henkhaus, EXCO Resources to Ramon Fernandez, RRC of Texas. March 12, 2012. Re: Comments on Proposed 16 TAC 3.107 Statewide Rule 107: Penalty Guideline for Oil and Gas Violations. p. 2. http://www.rrc.state.tx.us/rules/Comments-EXCO-Resources-3-107-March2012.PDF

[74] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 35. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[75] ". . .inspectors reported nearly 24,000 sign violations, more than any other single type of violation. While signs may not seem important on an individual basis, safety and public information reasons exist for these requirements. The numbers suggest some operators do not install required signs unless found in violation by an inspector." (Source: Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 34. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf)

Table 10. Ten Railroad Commission of Texas rules most frequently violated in 2009.

Statewide Rule No.	Rule	Total Violations
3	**Identification of properties, wells, and tanks**	23,969
8	**Water protection**	18,035
14B2	**Plugging extension**	17,124
91	**Clean up of soil contaminated by crude oil spill**	5,371
13	**Casing, cementing, drilling and completion requirements**	2,808
46	**Fluid injection into productive reservoir**	2,396
14	**Plugging**	1,514
9	**Disposal wells**	1,174
36	**Oil, gas, or geothermal resource operation in hydrogen sulfide areas**	1,048
22	**Protection of birds**	1,044

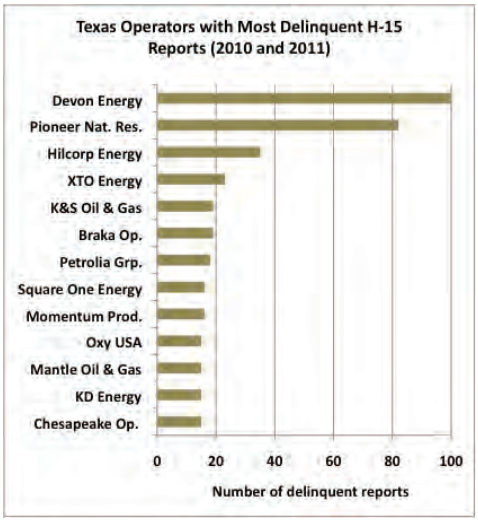
Even when companies are issued violations, however, it may not necessarily lead to increased compliance. As detailed below, two indicators that behavior may not be seriously affected when companies are issued a violation are that: 1) companies violate the same rules on many well sites (one violation does not alter their behavior); and 2) companies repeatedly violate the same rule (i.e., have recurring violations). Both trends indicate that some companies have little regard for the rules.

Companies violate the same rule on many well sites

In Texas, operators with inactive wells are required to conduct an H-15 (e.g., mechanical integrity) test "to establish that an inactive well over 25 years old does not pose a potential threat of harm to natural resources, including surface and subsurface water, oil and gas."[76]

[76] The actual test is generally either a static well fluid level test (FL) or a mechanical integrity test (MIT). (Source: RRC of Texas web site: "H-15 Program - Testing of Older Inactive Wells Over 25 Years Old Frequently Asked Questions (FAQs)." http://www.rrc.state.tx.us/about/faqs/h15faqs.php) According to the severance database, failure to file the H-15 test report is a violation of Statewide Rule 14(B)(2).For an example, see http://preview.tinyurl.com/ckbt5dx).

Chart 9. Texas operators with most violations of Rule 14(B)(2).

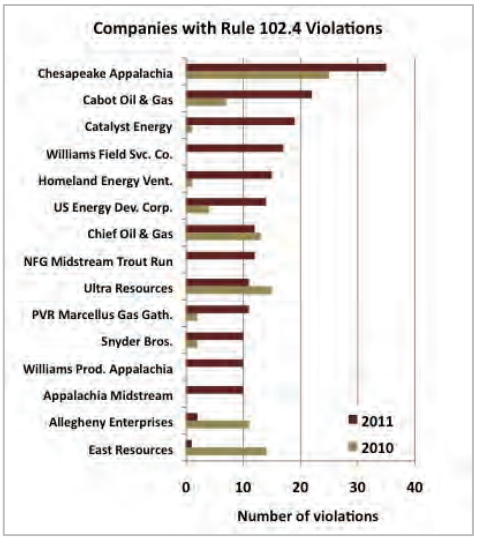


This chart shows companies with 15 or more delinquent H-15 reports over a two-year period (2010 and 2011).[77]

During this time period there were 1,713 delinquent H-15 reports for natural gas leases.

Devon Energy and Pioneer Natural Resources were the worst offenders, with 100 and 82 delinquent reports/violations, respectively.

Chart 10. Pennsylvania operators with the most Rule 102.4 violations.



This chart shows operators in Pennsylvania that most frequently violated DEP Rule 102.478 (which governs erosion and sediment control requirements) in 2010 and 2011.[79]

Chesapeake had the worst record, with 25 violations of rule 102.4 in 2010, and 35 violations of the rule in 2011.

In addition to Chesapeake, there were several other companies that appear to have a problem complying with Rule 102.4. Cabot, Chief and Ultra Resources all had numerous violations of this rule in 2010 and again in 2011.

Texas is not the only state where there are operators that have multiple violations of the same rule. Using data downloaded from the Pennsylvania DEP Compliance Reporting system, it was possible to sort the data to determine which companies frequently violated a particular rule in that state (Chart 10).

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[77] RRC of Texas Online System. Severance Query. Search Criteria – Well Type: Gas, Severance/Seal Cert. Ltr. Reason: Delinquent H-15. Severance/Seal Letter Date: 01/01/2010 to 12/31/2011. Current records. Data accessed Feb. 29, 2012. http://webapps2.rrc.state.tx.us/EWA/severanceQueryAction.do

[78] Pennsylvania Code. Title 25. Chapter 102. §102.4. Erosion and sediment control requirements. http://www.pacode.com/secure/data/025/chapter102/s102.4.html

[79] Using data downloaded from the Pennsylvania DEP Compliance Reporting system, it was possible to sort the data by "Violation Code" to determine which companies frequently violated a particular rule. See Appendix 6 for data.

Companies repeatedly violate the same rules on the same sites

Many states do a poor job of tracking companies with recurring or repeated violations. For example, according to the Sunset Commission, Texas RRC field staff record all violations, but "the Commission does not specifically track repeat violations unless the violation is one of the 4 percent brought forward to enforcement. As a result, the Commission cannot be certain that operators are not committing repeated violations."[80]

Other states make it impossible for the public to track repeat violators because they have no accessible data on violations (e.g., New York and New Mexico), or the data are only available in individual inspection files rather than in databases that allow information to be sorted and analyzed (e.g., Colorado).

Pennsylvania: The Pennsylvania DEP eFACTS database allows users to search for companies that have recurring violations. Data from eFACTS suggest that 21 companies have had recurring violations over the past five years.[81] Those with more than one recurring violation are included in Table 11.

Table 11. Operators with more than one recurring violation in the eFACTS database.

Operator	Inspections showing "Recurring Violations" and "Violations and Recurring Violations"
Synd Enterprises Inc.	4
CNX Gas Co LLC	2
Energy Corp of Amer.	2
Range Resources Appalachia LLC	2
Seneca Resources Corp.	2
XTO Energy Inc.	2
No operator data provided	2

The eFACTS database, unfortunately, does not appear to be an entirely reliable source of information.[82] Data fro the DEP Compliance Report system could be analyzed to look for repeated violations of a particular rule by a particular operator at a particular well site, but for the public that task would be quite complex and time-consuming.

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[80] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 34. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[81] Pennsylvania DEP. eFACTS web site: Inspection Search. All fields blank except: Inspection Results: "Recurring Violations," and Program: "Oil and Gas" Add to second search: Inspection Results: "Violations and Recurring Violations", and Program: "Oil and Gas." Data accessed Feb. 28, 2012. Table 11 includes data for 2007 through 2011. No operator name found for Inspection ID: 2013884 or 1972214. Data accessed Feb. 28, 2012. http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria_inspection.aspx

[82] For example, a search of eFACTs "inspections" turned up just one inspection for U.S. Energy Development Corp. since 1995 (Client ID 46132). (DEP eFACTS web site: Inspection Search. Program: Oil and Gas, Client ID: 46132. http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria_inspection.aspx) Yet DEP's Compliance Report system indicates that in 2009, 2010 and 2011 alone, the company had 131, 26 and 30 inspections finding violations, respectively. (Pennsylvania DEP. Oil and Gas Compliance Report system. Searched: U.S. Energy Development Corp. Inspections with Violations Only: Yes. Searched for years 2009, 2010 and 2011.

Texas: The RRC severance database allows users to search by "reissuance of a severance." As of the end of September 2011 there were 474 severances that were listed as being reissued.

When specific well records were examined, evidence was found that companies repeatedly violated the same rules at the same facility. For example, in 1995, 1997, 1999, 2002, 2004, and 2006 Chesapeake Operating, Inc. was sent certified letters for failing to file H-15 forms for the Detijerina, H.C. lease as required by law.[83] Similarly, Devon Energy Production Company, L.P. was issued certified letters because of delinquent H-15 filings on its Fagan H.F. lease in 1994, 1995, 1996, 1999, 2001, 2002, 2003, 2004, and 2009.[84]

VIOLATIONS DATA: RECOMMENDATIONS

RECOMMENDATION: *Agencies should issue notices of violation whenever rules are broken. If combined with adequate penalties, these could greatly deter potential violators.*

RECOMMENDATION: *Agencies should monitor and analyze violations data to better understand where to focus their enforcement efforts. For example, they could track the rules most commonly violated and strengthen actions toward and fines for operators who violate these rules.*

RECOMMENDATION: *Agencies should document violations in a consistent manner with clear definitions, and publish statistics and details of violations in a publicly accessible, online, searchable format.*

RECOMMENDATION: *Agencies should track operators that repeatedly violate rules and/or refuse to resolve problems in a timely manner. Operators that demonstrate a pattern of non-compliance should be singled out for strong enforcement action. For example, company track records could be publicized, there could be automatic fines for recurring violations, pending permit applications for repeat violators could be put on hold until all facilities are brought into compliance, or existing operations that are out of compliance could be shut down until all operations are in compliance.*

RECOMMENDATION: *When serious violations occur, such as well blowouts, significant chemical spills, waste dumping, or illegal venting), the associated facilities should generally be shut down until the environmental and property impacts are fully remediated.*

[83] RRC of Texas. Severance Query. Oil Lease No./Gas Well ID No: = 054104. Click on lease number on next two screens. View results at: http://tinyurl.com/64l8dgn

[84] ibid. Oil Lease No./Gas Well ID No: = 01193. View results at: http://tinyurl.com/3lajh5s

1.3. ENFORCEMENT ACTIONS AND PENALTIES

> *"I would like to see an oil and gas manual. They used to have one—if you didn't follow it, you were fined. I'd like to get back to that. . ."*
>
> -EXCO President Wendy Straatmann.[85]

> *If operators are rarely brought in for enforcement action, a pattern of non-compliance can develop leading to escalating violations, which can eventually result in costly State-managed well plugging or remediation, large environmental impacts, or public safety hazards.*
>
> -Texas Sunset Advisory Commission.[86]

When violations occur, a range of enforcement actions can be taken, from verbal warnings to written notices to legal action. State regulators may have the ability to assess administrative penalties, civil penalties/fines, criminal penalties, issue administrative orders, suspend certain activities, revoke permits, put new permits on hold, stop production at an operation, require bond forfeiture, issue cease and desist orders, or negotiate agreements with companies that may include orders to correct violations by a specific date and payment of penalties.

This section focuses on the use of penalties as a means to encourage compliance with oil and gas regulations. As described by the Sunset Commission of Texas, " an effective enforcement process should balance monitoring, compliance, and penalties. Monitoring is expensive and inspectors cannot reasonably oversee the significant amount of oil and gas activity. . . The efficient and fair use of penalties plays a key role in deterring and punishing violators, and thus increases compliance."[87]

MAXIMUM PENALTIES ARE OUTDATED

Table 12 provides information on maximum penalties that can be assessed for various oil and gas violations in the six states examined for this report. References for this table can be found in Appendix 1.

As seen in Table 12, civil penalties for failing to adhere to oil and gas rules are relatively low. In most states, the penalty provisions in oil and gas statutes have not been updated for many decades. As a result, the penalties—which should be high enough to serve as a deterrent to damaging protect public health, safety, and the environment—have not kept up with increased revenues per well, changes in technologies, or level of impact, or inflation.

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[85] Leonard, K. Nov. 17, 2008. "Gas firms pull rigs, complain state obstructs Marcellus drilling," *Pittsburgh Tribune-Review*. http://www.pittsburghlive.com/x/pittsburghtrib/business/s_598785.html#ixzz1YQhljTf5

[86] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 35. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[87] ibid. p. 33.

For example, in New Mexico the maximum fine—which has not changed since the inception of the 1935 *Oil and Gas Act*—is $1,000 per day.[88] If the penalty amount is adjusted for inflation, the maximum penalty would be close to $17,000 per day in 2012 dollars.[89] Not only is New Mexico's current maximum penalty extremely low, but also the requirements for assessing this penalty are extremely high: penalties can only be sought by the OCD if an operator knowingly and willfully commits the violation.[90]

What is perhaps even more notable is that Colorado, which updated its penalty schedule as recently as 2008,[91] also has an extremely low maximum daily fine of $500 - $1,000. This amount can be levied for each day that a violation continues; for example, if a violation continues to occur for 20 days, the COGCC could assess a fine of $20,000.

Table 12. Civil penalties for violations of oil and gas regulations state.

State	Maximum penalty	When maximum penalty is applied
Texas	Max $1000 - $10,000 for each day violation continues	Amount depends on rule that is violated. Largest penalty only applies if the provision, rule, or order pertains to safety or the prevention or control of pollution
Ohio	Max $2,500 – $20,000 per each continuing day of violation	Amount depends on which section of Code is violated. Largest penalty primarily applies to rules to prevent pollution from extraction, storage and injection of brine, oil, natural gas or other fluids.
New Mexico	Max $1,000 for each day violation continues	Applies to anyone who knowingly and willfully violates the Oil and Gas Act
New York	Max $8,000 per violation plus $1,000 - $2,000 for each day violation continues	Applies to violation of Article 23 or any regulation, order or permit condition.
Colorado	$500 - $1,000/day that violation continues	Maximum total fine for violations that do not have adverse effects on public health/welfare/resources is $10,000 regardless of # of days of continued violation. For violations that affect public health/welfare/resources the total may exceed $10,000.
Pennsylvania	$25,000 per violation plus $1,000 for each day violation continues (conventional wells) and $75,000 per violation plus $5,000 for each day (unconventional well)	Applies to violations of Title 58 Oil and Gas.

[88] New Mexico Legislative Finance Committee. Feb. 17, 2011. F*iscal Impact Report for HB 176, Oil & Gas Act Enforcement*. p. 6. http://www.nmlegis.gov/sessions/11%20regular/firs/HB0176.pdf

[89] U.S. Bureau of Labor Statistics. "CPI Inflation Calculator." http://www.bls.gov/data/inflation_calculator.htm

[90] New Mexico Statutes. 1978. Article 2. Oil Conservation Commission; Division; Regulation of Wells. Section 70-2-31. Violations of the Oil and Gas Act; penalties. http://law.justia.com/codes/new-mexico/2011/chapter70/article2/section70-2-31/

[91] COGCC. 2008 Rulemaking. "COGCC Amended Rules Redline." Accessed March 2, 2012. http://cogcc.state.co.us/rr_docs_new/FinalRulesTBLNew2.cfm

The Ohio Revised Code, most recently revised in June 2012, establishes a maximum penalty of $20,000 per day for certain violations.[92] Prior to these revisions the maximum amount was $20,000 per violation, no matter how many days an operator remained in violation.

In Texas, the maximum penalty for violation of oil and gas pollution prevention rules was set in 1983.[93] Twenty-nine years later, it is still $10,000 per day.[94] If the penalty amount is adjusted for inflation, the maximum penalty would amount to $22,800/day in 2012 dollars.[95]

In Pennsylvania, penalties for unconventional wells were increased to $75,000 plus $5000 per day in 2012, but penalties for conventional wells have not changed since 1984 when the Pennsylvania *Oil and Gas Act* was enacted. If the $25,000 maximum fine for conventional wells were adjusted for inflation, the penalty amount in 2012 would be approximately $54,500, plus more than $2,000 for each day of continued violation.[96]

RECENT EFFORTS TO INCREASE PENALTY AMOUNTS

While in many states the penalty amounts have not changed for decades, some state agencies have recognized the need to increase the amount of fines to better reflect the level of damage that can be caused by modern-day oil and gas operations. In early 2012, at the urging of the DEP, Pennsylvania amended its oil and gas act to increase maximum civil penalties for unconventional gas wells to $75,000 for each day of violation.[97]

Legislators in other states have not been as responsive. For example, in 2011, a bill was proposed that would have amended the New Mexico *Oil and Gas Act* to require larger penalties, but the bill failed to pass.[98] Also in 2011, Texas Senate Bill 1293 proposed to increase the maximum civil penalty for oil and gas violations from $10,000 to $25,000. This bill did not pass.[99]

In these times of budgetary deficits, with legislatures scrambling to find revenue sources, the fact that proposals to increase penalties for violations have not been successful in several states is disappointing, and suggests a strong influence of the oil and gas industry on legislators.

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[92] Ohio Revised Code. Title 15. Chapter 509: Division of Oil and Gas Resources Management. 1509.33 Civil Penalties. Section (C). States that "Whoever violates division (D) of section 1509.22 [Storage or disposal of brine, crude oil, natural gas, or other fluids] or division (A)(1) of section 1509.222 [Registration certificate and identification number for transportation of brine] of the Revised Code shall pay a civil penalty of not less than two thousand five hundred dollars nor more than twenty thousand dollars for each violation." http://codes.ohio.gov/orc/1509.33

[93] RRC of Texas web site: "Surface Waste Management Manual." http://www.rrc.state.tx.us/forms/publications/SurfaceWasteManagementManual/chapter1.php and "History of Railroad Commission" (Sept. 1, 1983) http://www.rrc.state.tx.us/about/history/chronological/chronhistory04.php

[94] Texas Natural Resources Code. Section 81.0531. "Administrative Penalty." http://www.statutes.legis.state.tx.us/Docs/NR/htm/NR.81.htm#81.0531

[95] U.S. Bureau of Labor Statistics. "CPI Inflation Calculator." http://www.bls.gov/data/inflation_calculator.htm

[96] U.S. Bureau of Labor Statistics. "CPI Inflation Calculator." http://www.bls.gov/data/inflation_calculator.htm

[97] Feb. 14, 2012. "Pennsylvania passes comprehensive amendments to Oil and Gas Laws." Morgan Lewis. http://www.morganlewis.com/index.cfm/publicationID/cfd3c31d-64a3-4e9e-9e49-ee9506deac03/fuseaction/publication.detail

[98] New Mexico Legislature. 2011 Regular Session. HB 176. "Oil and Gas Enforcement." http://www.nmlegis.gov/lcs/_session.aspx?chamber=H&legtype=B&legno=%20176&year=11

[99] Texas Legislature Online. Bill: SB 1293, Session 82(R). http://www.legis.state.tx.us/BillLookup/History.aspx?LegSess=82R&Bill=SB1293

THE HOW, WHEN, AND WHO OF ASSESSING CIVIL PENALTIES

When oil and gas rules are violated, most states have the ability to assess "civil" monetary penalties (i.e., fines). Prior to 1980, civil penalties for oil and gas violations were often assessed by district courts in suits brought by a state's Attorney General at the request of and on behalf of the regulating agency.[100]

Agencies in New Mexico and Ohio still must go through this resource and time intensive process. Not surprisingly, then, the amount of penalties collected for oil and gas violations in New Mexico and Ohio is low compared to other states in this report (see Table 13).

Most other state oil and gas agencies have the authority to assess penalties without having to go through the courts. In Texas, Colorado, and New York regulating agencies have the ability to assess penalties after the operators have had the opportunity for a hearing.[101]

In Pennsylvania, it is not the DEP but rather the Environmental Hearing Board that has the ability to assess civil penalties after a hearing.[102] In 2011, Pennsylvania Governor Corbett's Marcellus Shale Advisory Commission recommended that in order to be consistent with other environmental statutes, "DEP should be able to assess civil penalties, rather than the Environmental Hearing Board."[103] While perhaps not as resource intensive as going through the Attorney General's office to bring a civil penalty suit in court, going through the Environmental Hearing Board is more cumbersome than allowing the DEP itself to assess penalties. Nevertheless, this has not stopped Pennsylvania from assessing the highest penalties of all six states in this report.

The burden of proof for assessing civil penalties varies from state to state. Of the states examined in this report, the most stringent burden exists in New Mexico, where OCD must prove that a violator acted "knowingly and willfully" in order to assess civil penalties.[104] New Mexico can be contrasted with Pennsylvania, where civil penalties "may be assessed whether or not the violation was willful."[105] In other states such as Texas and Ohio, the higher level of proof is required only for criminal penalties, which is consistent with typical criminal codes.

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[100] Texas Comptroller of Public Accounts. 1991. Breaking the Mold – New ways to govern Texas. Volume 2. NR-7. "Economic Benefit From Violating Environmental Laws Should Be Eliminated." http://www.window.state.tx.us/tpr/btm/btmnr/nr07.html

[101] "Any such penalty shall be imposed by order of the commission, after a hearing in accordance with section 34-60-108, or by an administrative order by consent entered into by the commission and an operator." (Sources: Colorado Revised Statutes. Title 34. Article 60. Section 34-60-121. http://www.michie.com/colorado/lpext.dll/cocode/1/56c58/57b00/57b02/57b04/57cc1?f=templates&fn=document-frame.htm&2.0 AND and New York Code. Environmental Conservation. Title 71. Article 13. Section 71-1307. "Sanctions." http://codes.lp.findlaw.com/nycode/ENV/71/13/71-1307)

[102] Pennsylvania Consolidated Statute. Title 58- Oil and Gas; Chapter 32, Subchapter E. § 3256. Civil penalties. http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/00.032..HTM

[103] Marcellus Shale Advisory Commission. July 22, 2011. Final Report. p. 105. http://files.dep.state.pa.us/PublicParticipation/MarcellusShaleAdvisoryCommission/MarcellusShaleAdvisoryPortalFiles/MSAC_Final_Report.pdf

[104] A legislative effort in 2011 attempted to remove this burden of proof, but it failed. (Source: New Mexico Legislative Finance Committee. Fiscal Impact Report for HB 176 "Oil and Gas Enforcement." http://www.nmlegis.gov/Sessions/11%20Regular/firs/HB0176.pdf)

[105] Pennsylvania Consolidated Statute. Title 58- Oil and Gas; Chapter 32, Subchapter E. § 3256. Civil penalties. http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/00.032..HTM

TRENDS IN PENALTIES AND ENFORCEMENT ACTIONS

Table 13 includes data on penalties collected in either 2009, and, when it was possible to find data, 2010 and 2011. (See Appendix 1 for data sources.) The total dollar amount in penalties collected for violations of state oil and gas rules is low. Of the six states examined in this report, three collected more than a million dollars worth of penalties per year in 2009, 2010 or 2011 (Pennsylvania, Texas, and Colorado), Ohio collected less than $200,000 in all three years, and New York, and New Mexico collected less than $50,000.

To put these penalty totals in context, the estimated total value of the gas extracted from one average Marcellus shale gas well is $2.9 million.[106] The six states examined harbor almost 350,000 active wells.

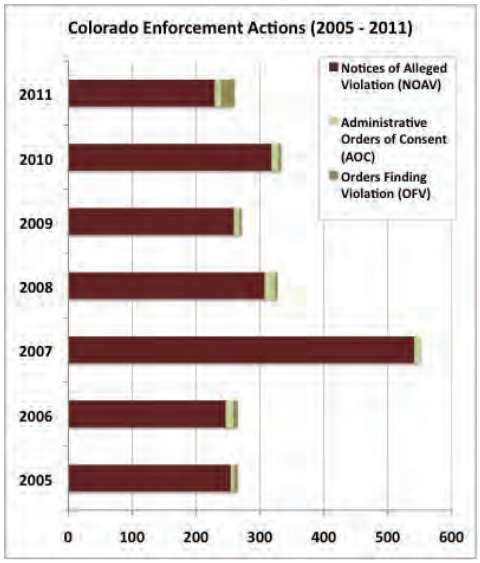
Table 13. Civil penalties collected (2009 to 2011).

	Pennsylvania	Texas	Colorado	Ohio	New York	New Mexico
2009	$1.6 million	$ 2.0 million	$162,000	$17,500	$40,000	No data
2010	$4.0 million	No data	$1.2 million	$194,000	No data	$14,000
2011	$1.3 million	No data	$3.0 million	$73,935 (FY)	No data	No data

Colorado

COGCC's enforcement actions include Notices of Alleged Violation, Administrative Orders of Consent (AOC) and Orders Finding Violation (OFV).

Chart 11. Enforcement actions in Colorado.



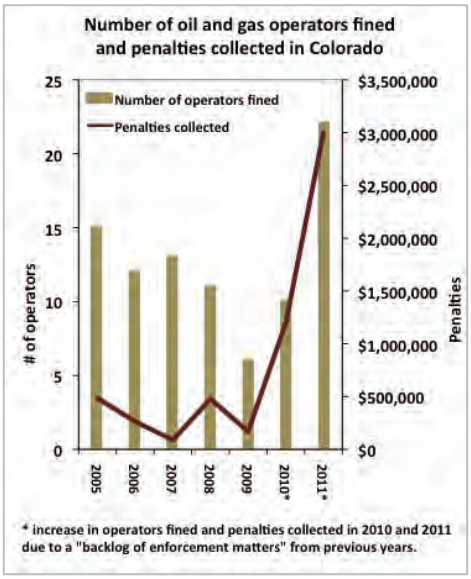
As seen in Chart 11, the number of enforcement actions (NOAV, AOC and OFV) taken by the COGCC in 2011 was lower than other years.[107] The number of NOAV hit a seven-year low that year.

NOAV are not issued for every violation, and Colorado does not publish statistics on the number of violations found per year, so it is not possible to see if violations also declined in 2011.

[106] Based on data from: U.S. Energy Information Administration. June, 2012 wellhead price: $2.54 per 1,000 cubic feet. http://www.eia.gov/dnav/ng/hist/n9190us3M.htm AND U.S. Geological Survey. June, 2012 mean "estimated ultimate recovery" of an Interior Marcellus well: 1.158 billion cubic feet http://pubs.usgs.gov/of/2012/1118/OF12-1118.pdf

[107] NOAV, AOC and OFV data from COGCC Staff Reports. January 23, 2012 (for 2007 – 2011 data) and Dec. 9, 2008 (for 2005, 2006, 2007 data). http://cogcc.state.co.us/Staff_Reports/StaffReports.html (Note: Where there were discrepancies in data, the more recent report was used.) Data can be found in Appendix 2.

Chart 12. Operators and penalties assessed in Colorado.



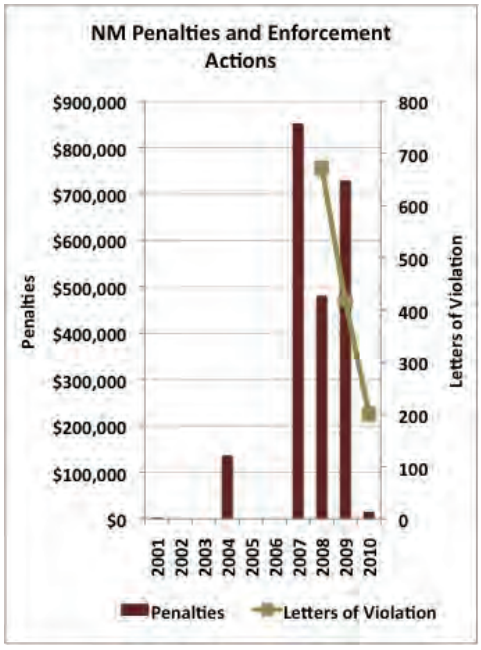
The COGCC provides statistics on the number of operators receiving penalties and the amount of penalties collected.

As seen in this table, the total penalties assessed per year stayed within a fairly narrow range until 2010, when the COGCC collected three times the typical amount. This change occurred because in 2010, "the COGCC pursued a backlog of enforcement matters, most of which involved incidents that had occurred in previous years."[108] Therefore, one cannot assume that the higher total amount of penalties assessed in 2010 is going to continue in future years.

Very few operators in Colorado receive penalties for violating rules: 314 NOAV were issued in 2010, but only ten operators received penalties. In 2011, 230 NOAV were issued and 22 operators were fined.

New Mexico

Chart 13. Penalties collected in New Mexico.



OCD does not publish data on penalties. The following chart includes information gathered from newspaper and legislative finance committee reports. Data on enforcement actions (LOV) come from OCD.

As seen in the chart, there was a period in the late 2000s when New Mexico collected considerable penalties. In 2009, however, an oil and gas company won a court case that effectively stopped the government from collecting penalties for rule violations.

The $14,000 collected in 2010 was largely through penalties for violating the terms of agreed compliance orders, not specifically for rule violations.[109] The number of enforcement actions in New Mexico also dramatically declined in 2010. This is not surprising, given the cost and time required for OCD to pursue further enforcement actions against operators that violate oil and gas rules.

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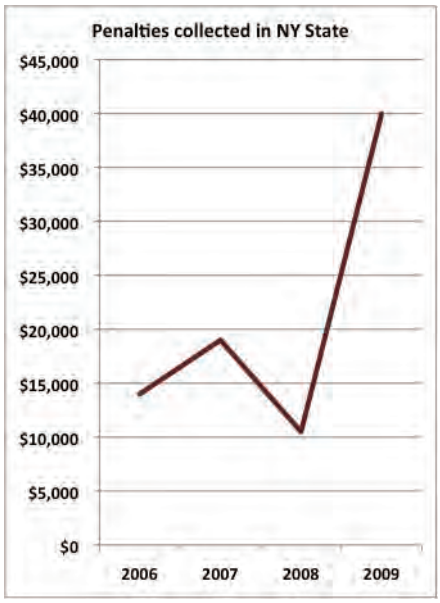
[108] COGCC. Report to Water Quality Control Commission and Water Quality Control Division of the CO Department of Public Health and the Environment. 2010, p. 9. http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/AnnualReports.htm

[109] New Mexico Legislative Finance Committee. Feb. 17, 2011. *Fiscal Impact Report for HB 176 Oil and Gas Enforcement.* http://www.nmlegis.gov/Sessions/11%20Regular/firs/HB0176.pdf

New York

Chart 14. Penalties collected in New York.



The New York DEC's Division of Mineral Resources annual reports contain some information about penalties and sporadic information on enforcement actions taken against oil and gas operators.

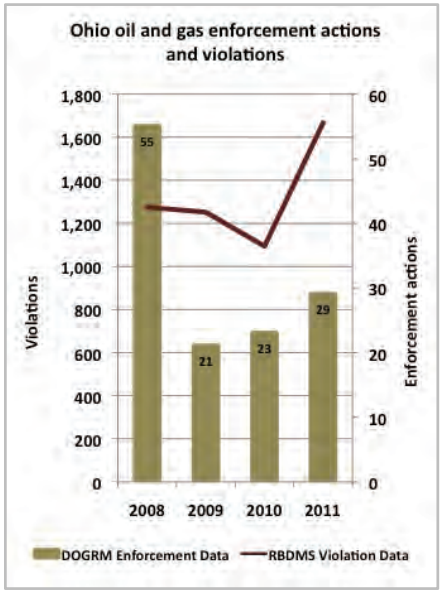
The reports show that in 2006 only 12 enforcement cases resulted in penalties, and in 2007 the number dropped to 10 penalties. (See Appendix 4)

As seen in Chart 14, penalties for rule violations are rarely issued in New York, and typically, the amount collected annually has been less than $20,000. In 2009 there was a sharp increase in penalties collected, but it still only amounted to $40,000.

Ohio

No statistics or information on enforcement actions and penalties were found on the DOGRM web site or in its publications, but the division did respond to a request for this information.[110]

Chart 15. Recent enforcement actions and violations in Ohio.



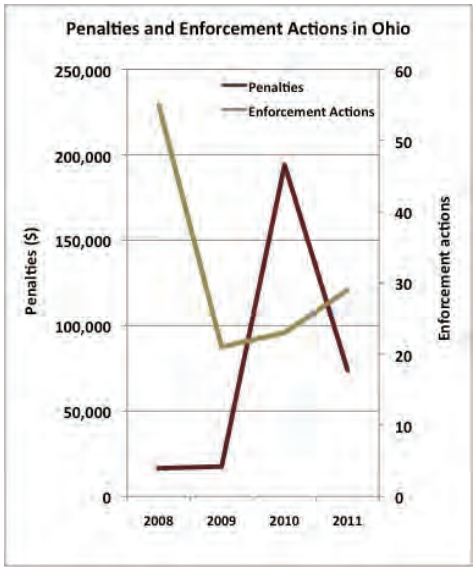
As seen in this chart, Ohio does not take many enforcement actions against oil and gas violators, and the number has been declining in the past few years.

According to the RBDMS database, more violations were found in Ohio in 2011 than 2008. Meanwhile, enforcement actions in Ohio decreased from 55 actions in 2008 and to 29 actions in 2011.

In 2008, one enforcement action was taken for every 23 violations, whereas in 2011 one enforcement action was taken for every 57 violations. (See Appendix 5 for data and references)

[110] Email request for data made Sept. 16, 2011, data received Oct. 4, 2011 from Beth Wilson, Public Information officer with Ohio DOGRM.

Chart 16. Enforcement actions and penalties in Ohio.



Although fewer enforcement actions have been taken, there has been an increase in the amount of penalties assessed for violations since 2008.

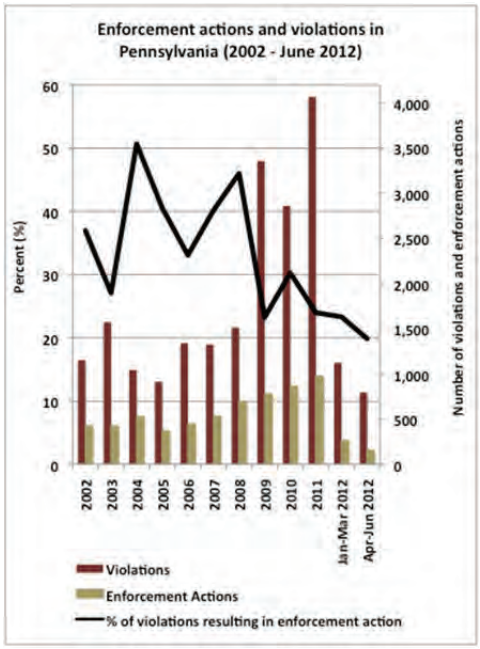
The amount of penalties collected jumped from $16,500 in 2008 to $194,000 in 2010. Penalties dropped to $73,935 in the 2011 Fiscal Year.

(See Appendix 5 for data and references)

Pennsylvania

According to DEP, "environmental inspectors have had greater authority since April [2012] to penalize operators ... and enforce violations."[111] Yet enforcement actions have not increased relative to violations.

Chart 17. Recent trends in enforcement in Pennsylvania.



As seen in Chart 17, the total number of enforcement actions in Pennsylvania more than doubled from 426 in 2002 to 976 in 2011. But there was an even greater increase in violations over the same time period: violations more than tripled from approximately 1,156 in 2002 to more than 4,065 in 2011.

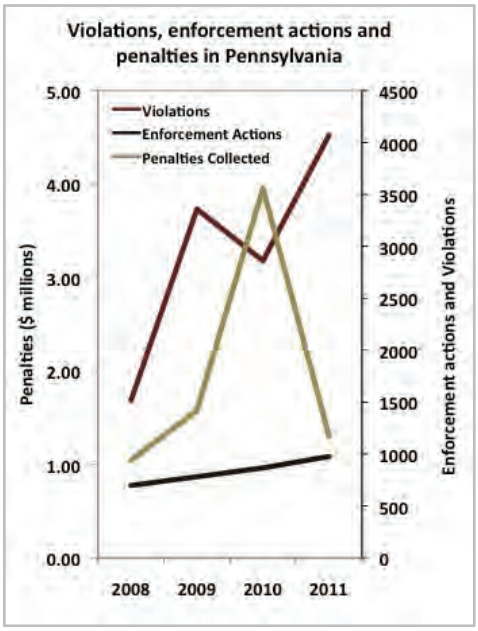
In April, May and June of 2012 (the period in which inspectors have had "greater authority" to enforce violations) an average of 20% of violations resulted in enforcement actions. This is down from 2011, when enforcement action was taken on 24% of violations, and nowhere near 2004, when DEP took action for more than half of all violations.

(See Appendix 6 for data and references)

[111] Zrinski, T. July 7, 2012. "Marcellus gas: No bust, just glut," *Beaver County Times.* http://www.timesonline.com/news/local_news/marcellus-gas-no-bust-just-glut/article_ddd0676d-7fcb-5672-be5a-f271caec242a.html

DEP does not provide annual statistics on oil- and gas-related penalties assessed and collected by the agency, and the penalty data that are available in DEP's Compliance Report system are repetitive,[112] possibly incomplete,[113] and "can be confusing to interpret."[114]

Chart 18. Violations, enforcement actions and penalties in Pennsylvania.



The annual penalties in Chart 18 were derived by removing redundant penalties from the data.[115]

As seen in Chart 18, although violations remained high in 2011 the dollar amount of assessed penalties plummeted.

Similarly, the number of enforcement actions taken in 2011 was higher than in previous years while total amount of penalties declined.

Data used in Charts 17 and 18 can be found in Appendix 6.

[112] When a Consent Assessment of Civil Penalty (CACP) or a Consent Order and Agreement (COA) is negotiated between an operator and DEP, the negotiated penalty amount may be listed multiple times in spreadsheets downloaded from the DEP Compliance Report system. The penalty shows up beside each individual violation. This erroneously suggests that a certain penalty, e.g., $5,000, was paid per violation, when in reality a lump sum of $5,000 was paid for all violations in the CACP.

[113] For example, a May 17, 2011 DEP News Release announced that Chesapeake Energy was fined "$1,088,000 for violations related to natural gas drilling activities," but the Compliance Report system shows just $189,500 in penalties assessed to Chesapeake in 2011. (Sources: Pennsylvania DEP. May 17, 2011. "DEP fines Chesapeake Energy more than $1 million," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=17405&typeid=1
PA DEP Compliance Report Search: Chesapeake, Jan.1, 2011 to Dec. 31, 2011. Note: there are four penalties of $188,000 listed, each for a different violation, but there was just one Consent Order Agreement negotiated for a total of $188,000.)

[114] Kelso, M. May 9, 2012. "Pennsylvania Marcellus Fines Data," Fractracker.
http://www.fractracker.org/2012/05/pennsylvania-marcellus-fines-data/

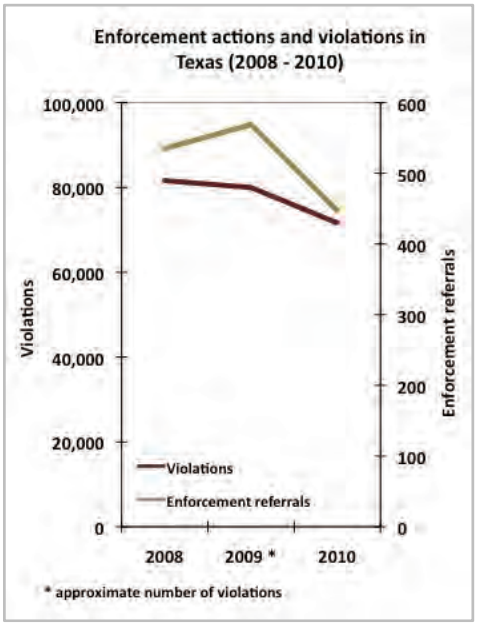
[115] All violations per year were downloaded from the Compliance Report system. Enforcement actions includeWhere penalty data existed, data were only counted once for each distinct CACP, COA or NOV.

Texas

Prior to 2012, there was no straightforward way to find statistics related to oil and gas enforcement actions in Texas. As a result of Rider 17 of the 2012-2013 General Appropriations Act, the RRC now has to publish enforcement data on its web site.[116]

In its 2011 review, the Sunset Commission found that, "the Commission takes relatively few enforcement actions, resulting in a lack of deterrence for future noncompliance. While there is no standard for how many violations should result in a monetary sanction, action should be frequent enough to deter future violations."[117]

Chart 19. Enforcement referrals and violations in Texas.



As seen in the Chart 19, the number of violations referred to enforcement staff for possible action declined in 2010 compared to 2008 and 2009. (See Appendix 7 for data and references)

In 2010 there were 71,646 violations and 447 enforcement referrals in Texas. This one enforcement action per 160 violations. That same year, in Pennsylvania approximately one in every 3.6 violations led to an enforcement action in 2010.[118]

In 2012, the RRC set goals of documenting 250 enforcement referrals and 81,000 rule violations.[119] A goal of just 250 enforcement actions per 81,000 violations (which is one enforcement action per 324 violations) is not a rate that is likely to motivate oil and gas companies to comply with the Texas rules.

The Texas Legislative Budget Service (LBS) publishes Non-Tax Collected Revenue Surveys for the various state agencies, including information on "fees, fines, penalties and other collected revenues" from RRC oil and gas violations (Table 14).[120]

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[116] Including enforcement activity, violations, the amount of final enforcement penalties assessed to the operator, and a quarterly report that includes a section on enforcement trends. (Source: 82nd Texas Legislature. Regular Session, 2011. *General Appropriations Act for the 2012-13 Biennium.* Sept. 12, 2011.p. VI-60. http://www.lbb.state.tx.us/Bill_82/GAA.pdf)

[117] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas.* p. 33. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[118] See Appendix 6 for Pennsylvania data.

[119] RRC of Texas. 2012 Operating Budget. Data from Table III.A. Strategy Level Detail. Page 15 of 29. http://www.rrc.state.tx.us/about/divisions/opBudget.pdf

[120] Data for 2005 – 2010: Legislative Budget Board of Texas. Revenue Survey – NCR. Found under "Other Publications and Resources." http://www.lbb.state.tx.us/ Data for 2011: RRC of Texas. 2012 Operating Budget. Table IV.D. Estimated Revenue Collections Supporting Schedule. Pages 1 and 3 of 10. http://www.rrc.state.tx.us/about/divisions/opBudget.pdf

Table 14. Texas fees, fines, penalties, and other revenues from oil and gas violations ($mill).

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Appropriated	$2.6	$2.8	$5.3	$4.5	$2.8	$3.8
Non-appropriated	$0.14	$0.14	$0.09	$1.1	$1.6	$1.6
Total	$2.7	$2.9	$5.4	$5.6	$4.4	$5.4

Penalties are just a portion of the revenue collected by RRC for oil and gas violations. For example, the Texas State Auditor reports that, "in fiscal year 2006, the Commission assessed $1.4 million in penalties and received $2.7 million in oil and gas violation revenue."[121] RRC collected more than $2 million in penalties in 2009,[122] compared to the $5.5 million in revenues collected for oil and gas violations shown in Table 14.

Penalties not only provide a source of revenue to the Railroad Commission, they can also help to motivate operators to comply with RRC rules. According to the Sunset Commission, "An effective enforcement process should balance monitoring, compliance, and penalties… The efficient and fair use of penalties plays a key role in deterring and punishing violators, and thus increases compliance."[123]

The 2011 Sunset review also noted that "Part of the reason for the large number of violations is that the [RRC's] enforcement process is not structured to deter repeat violations."[124] In 2012, the RRC amended its rules to provide guidance (not requirements) to enforcement staff on enhancing penalties for repeat violators.[125] The enhancements, although a step in the right direction, appear to be far too small to provide much of a deterrent effect. For example, if an operator has a record of five or more violations in the previous seven years, the potential enhancement amount is $5,000. A $5,000 fine for operators who have a habit of non-compliance sends a weak deterrence message.

PENALTIES: DO THEY INCREASE COMPLIANCE?

It is reasonable to think that fines or penalties would be an effective enforcement tool, or at least help prevent continued bad behavior or intentional violations. However, several participants at our meetings voiced that the concern that fines do not deter companies from violating rules, but instead are viewed as the cost of doing business. These concerns are especially relevant in light of the low penalty amounts that can be levied in response to oil and gas rule violations in most states.

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[121] State Auditor's Office (Texas). August 2007. *An Audit Report on Inspections and Enforcement Activities in the Field Operations Section of the Railroad Commission*. p. i. http://www.sao.state.tx.us/Reports/report.cfm/report/07-046

[122] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 8. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[123] ibid. p. 33.

[124] ibid.

[125] RRC of Texas. Rule 3.107: Penalty Guidelines for Oil and Gas Violations. Adopted August 7, 2012. http://www.sos.state.tx.us/texreg/archive/August242012/adopted/16.ECONOMIC%20REGULATION.html#221

As explained earlier in this section, many states' fines are too low to be of any consequence. Many states have not increased their penalties for decades, greatly reducing any intended deterrent effect that penalties may have had when originally outlined in statute. Another reason that fines or penalties may not lead to increased compliance is that fines are not being issued frequently enough, as seen in Colorado where fewer than 10 operators receive fines in a typical year even though many operators violate the rules.

To effectively deter future violations, an agency needs to ensure that its regulated community is aware of its enforcement actions. This means assessing fines frequently enough to send the message to operators that if they commit a violation, a penalty may be assessed, even if the operator comes into compliance.[126]

Texas Sunset Advisory Commission

In 2005, the Ohio Division of Minerals Resources Management (now DOGRM) stated that, "the DMRM seeks to resolve most issues without the use of penalties, finding that it improves compliance."[127] Given that the total amount of penalties collected in 2010 was $194,000 (see Table 13), it appears that this is still the agency's modus operandi.

The Sunset Commission of Texas, however, holds the view that, "even modest fines for less serious, but frequent violations can substantially affect compliance, especially once word spreads that coming into compliance will no longer suffice to avoid a penalty."[128]

Some companies have said that fines do affect their behavior. In 2010, Chief Oil and Gas "was moved to change after it saw [Pennsylvania] DEP figures showing it had more violations than almost any Marcellus Shale driller in the state and more fines."[129] Chief reduced its violations from 14.8 violations per month in 2010 to approximately 8 per month in 2011.[130] While this is an improvement, Chief remains one of the worst violators in the state (after Chesapeake Energy and Cabot Oil and Gas).

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[126] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 35. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

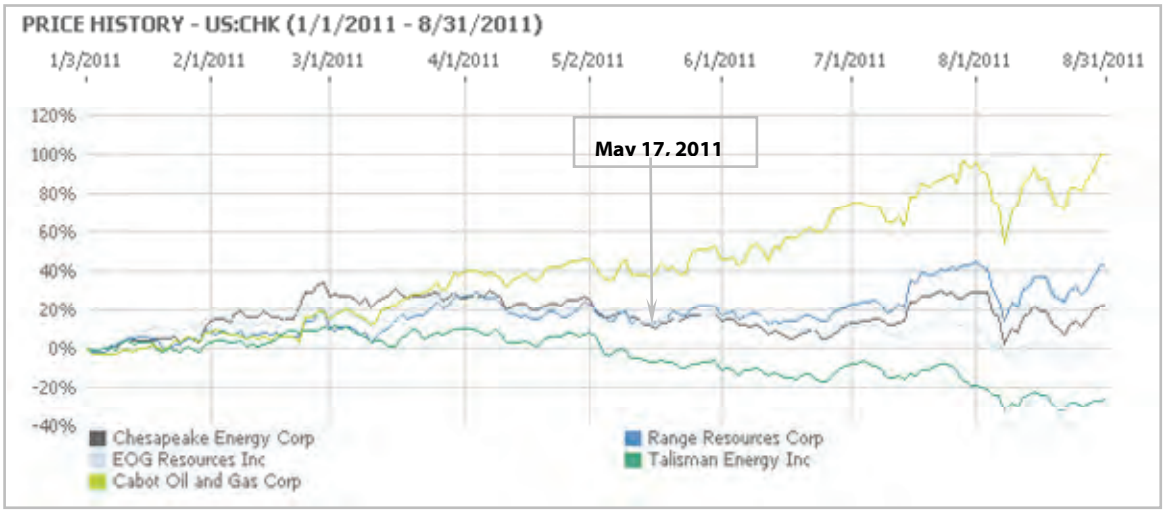
[127] State Review of Oil and Natural Gas Environmental Regulations (STRONGER), Inc. June 2005. *Ohio Follow-up and Supplemental Review*. p.15. http://www.dnr.state.oh.us/Portals/11/oil/pdf/stronger_review05.pdf

[128] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 34. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[129] Hamill, S. April 17, 2011. "What fines reveal about drilling in state," *Pittsburgh Post Gazette.* http://www.post-gazette.com/pg/11107/1139961-503-0.stm#ixzz1TuUNK3Mu

[130] See Table 9, and divide annual totals by 12 to get average violations per month.

Chart 20. Stock prices following Chesapeake's record-breaking fine.



Range Resources has said that, "There have been cases where an operator got a significant fine, or a repeat offender got another fine, and all of our stock prices took a hit."[131] But on May 17, 2011, after the largest oil and gas penalty in Pennsylvania history was levied against Chesapeake Energy (more than $1 million for a well blowout and spill), the negative impact on the company's stock prices did not appear to be significant.

As seen in Chart 20, stock prices for EOG Resources and Talisman Energy did experience a downward trend after Chesapeake's fine was levied, but their stock prices were already starting to go down.[132] Meanwhile, Chesapeake, Cabot, and Range Resources stock prices remained fairly even or experienced an increase in value in the months following the Chesapeake fine.

ENFORCEMENT ACTIONS: RULES INCONSISTENTLY APPLIED

Where some violations are minor and can be remedied on the spot, some discretion with respect to whether or not to actually issue violations is understandable.[133] However, clear guidance should exist regarding when enforcement actions need to be taken for violations. Such guidance either does not exist or is not being followed in the majority of states in this report.

Colorado: The COGCC does not appear to consistently take enforcement actions against violators. When violations are found, the first official enforcement measure is to issue a Notice of Alleged Violation. The use of NOAV is inconsistent, and appears to be somewhat arbitrary.

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[131] Hamill, S. April 17, 2011. "What fines reveal about drilling in state," *Pittsburgh Post Gazette.* http://www.post-gazette.com/pg/11107/1139961-503-0.stm#ixzz1TuUNK3Mu

[132] MSN Money. Chesapeake Energy Corp (CHK). http://investing.money.msn.com/investments/stock-price?Symbol=CHK&ocid=qbeb Accessed September, 2011.

[133] For example, if inspectors find open lids on tanks, these can be closed immediately. In many states operators are issued verbal warnings, and if companies correct problems these are not recorded as "violations," even though technically a rule was broken.

As mentioned in Section 1.2, a search of 1,000 inspections between August 3 and Sept. 23, 2011 revealed 145 "unsatisfactory" inspections, yet only 77 of those inspections noted violations. Of the 77 inspections showing violations, only 11 NOAV were issued to operators.[134] In some cases, the violations were minor, such as not having the proper signs on tanks. In other cases, however, NOAV failed to be issued when there were spills or contamination events,[135] or when the inspection report indicated that the operator had already been informed of the violation twice before.[136] There were also cases where a similar type of violation (such as an open wellbore that needed to be plugged) resulted in an NOAV for one operator, but not for another.[137]

New Mexico: In New Mexico, OCD issues Letters of Violation (LOV) for what it deems are more significant or serious violations.[138] For less serious violations, noncompliance letters (LET) or Field Visit Inspection Letters (FVI) may be sent.

OCD inspectors have a large amount of discretion in determining when violations become serious enough to warrant enforcement action. According to OCD, "each inspector has his own criteria" for determining when LOV are issued to operators.[139] As a result, operators may receive different treatment simply because their site was inspected by inspector X instead of inspector Y.

Also, there are regional differences in the use of LOV as an enforcement tool. Very few LOV are issued out of the Aztec field office – a district that has more than 22,000 active oil and gas wells.[140] According to OCD, the Aztec District has a "different type of working relationship with operators," than other OCD districts. There are fewer operators, and so Aztec inspectors convey non-compliance through emails, phone calls or letters that are not official LOV.[141]

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[134] Colorado Oil and Gas Information System (COGIS). Inspection Inquiry. Select Inspection, search for 1000 records (the maximum). Search conducted Sept. 27, 2011. http://cogcc.state.co.us/cogis/IncidentSearch.asp

[135] For example, "large area of oily soil from well leak at stuffing box," "upon arrival at well, it was discovered that a supply line (for injection) had broke. The water was coming out of the ground 3 feet from the well and traveling down grade," "oil saturated soil around well head," some pooling oil," "tank bottoms from Christianson Tank Batter were dumped," "open-cased wellbore was observed and hydrocarbon odor was noted," "partially buried crude tank appears to be leaking," "oil in berms, oily soil in 50% of tank pad, oily soil at end of load lines," "install secondary containment for chemical tank," "chemical tank without containment," "location has not been reclaimed." (Citations taken from various COGCC field inspection reports. Visit Earthworks' Colorado Enforcement – Violations web page (see Box 2) for links to COGCC inspection reports. http://www.earthworksaction.org/issues/detail/colorado_oil_gas_enforcement_violations

[136] COGIS field inspection report. Sept. 19, 2011. API Number: 05-017-06894. Wiepking-Fullerton Energy LLC. Skarphol 32-10 #2 well. http://cogcc.state.co.us/cogis/FieldInspectionDetail.asp?doc_num=200321648 AND COGIS field inspection report. Sept. 19, 2011. API Number: 05-017-06725. Wiepking-Fullerton Energy LLC. WECO-UPRC William #33H-11#5 well. http://cogcc.state.co.us/cogis/FieldInspectionDetail.asp?doc_num=200321647

[137] COGIS field inspection report. Aug. 26, 2011. API Number: 05-103-40191. Equity Oil Co. McLaughlin #68 http://cogcc.state.co.us/cogis/FieldInspectionDetail.asp?doc_num=200319598 (no NOAV issued) AND COGIS field inspection report. Aug. 26, 2011. API Number: 05-103-01357. D & D Resources, Inc. Emerald-C #E-97 http://cogcc.state.co.us/cogis/FieldInspectionDetail.asp?doc_num=200319966 (NOAV issued)

[138] Personal communication between Lisa Sumi, Earthworks and New Mexico OCD Enforcement and Compliance Manager, Daniel Sanchez, OCD attorney, Sonny Swazo, and NMED and EMNRD Communications officer, Jim Winchester. March 26, 2012.

[139] ibid. April 11, 2012.

[140] OCD Well Search. https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/Wells.aspx

[141] Personal communication between Lisa Sumi and Gwen Lachelt, Earthworks and New Mexico OCD Enforcement and Compliance Manager, Daniel Sanchez, OCD attorney, Sonny Swazo, and NMED and EMNRD Communications officer, Jim Winchester. April 11, 2012.

Table 15. Inconsistent OCD enforcement (2011).

Violation	LOV	FVI	LET
No well sign	17	2	14
Well sign incorrect	4	0	8
Failed pressure tests (MIT, BHP)	8	11	7

OCD data illustrate this variation in enforcement actions in New Mexico. As seen in the table above, in 2011 the very same rule violations resulted in an LOV, LET or an FVI.[142] Enforcement actions were inconsistently applied for minor violations as well as more serious violations such as failed pressure tests. For example, only half of the operators that did not have signs on their wells received an LOV, while half received FVI or LET. Similarly, the more serious violation of a "failed pressure test" resulted in just 8 LOV, while 18 received FVI or LET.[143] (See Appendix 3 for a detailed list of wells from Table 15)

A discretionary or inconsistent approach to enforcement of rule violations is, at best, confusing to the public, and can lead to perceptions of lax enforcement.

Pennsylvania: The Pennsylvania DEP developed an enforcement policy in 2002 that includes basic principles, such as:[144]

- An appropriate enforcement action is to be taken for each identified violation;
- No violation is to be ignored; and
- All companies are to be treated fairly and equally by the Department.

Despite the policy to treat all violators fairly and equally, there appears to be a great deal of discretion used in the application of enforcement actions.

[142] The table includes all wells in the OCD Compliance Summaries where these particular problems were identified in the inspection comments. Not all wells in the compliance summary had comments. Earthworks' table "Different New Mexico OCD enforcement actions for the same time of violation" provides a more detailed table that includes operators and well numbers: http://www.earthworksaction.org/images/uploads/New_Mexico_inconsistent_sanctions_table.gif

[143] These examples include violations of OCD Rule 19.15.26.11, and Failed Mechanical Integrity Tests (MIT) or Bradenhead Pressure Tests (BHT), pressure on annulus, pressure on production casing, pressure drop, injection over pressure limit.

[144] Pennsylvania DEP. Revised 2005. *Enforcement Actions by DEP's Oil and Gas Management Program*. Document 550-4000-001. p. 1. http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-48291/01%20550-4000-001.pdf

Table 16. Inconsistent enforcement actions in Pennsylvania.

Operator	201TAG violations	210UNPLUG violations	Other violations[145]	Enforcement Actions	Penalty
Clarion	16	13	401CSL, 601.101 and 78.96	None	0
Alpha	10	2	201INADPLUG, 203TAG, 78.124, 78.86 and 78.96	• 9 NOV for 201TAG violations • 2 NOV for 210UNPLUG violations • 3 NOV - one for 78.124, 78.86 and 78.96 violations	0
Baker	1	1		• NOV and CACP for 201TAG • NOV and CACP for 210UNPLUG	$2,000
Oil and Gas Mngmt	1	1		• NOV and CACP for 201TAG • NOV and CACP for 210UNPLUG	$2,250

A review of 2010 data shows inconsistent application of enforcement actions and penalties for companies that violate the same rules in Pennsylvania. As seen in Table 16, Clarion Oil and Gas and Alpha Well Inc. both repeatedly violated the same rules,[146] yet Alpha was issued NOV for the violations and Clarion was not. This is despite the fact that Clarion violated the two rules much more often than Alpha (Clarion had 29 violations, Alpha 12).

Baker Gas Inc. and Oil and Gas Management Inc. also violated the 201TAG and 210UNPLUG rules in 2010, yet both companies were issued NOV and were penalized for their actions. What is even more interesting is that these companies violated each rule just once (in contrast to the numerous violations incurred by Clarion and Alpha).

It is possible that the different treatment resulted from regional discrepancies in how enforcement actions are applied: Baker Gas' violations occurred in Armstrong County, Oil and Gas Management Inc.'s violations took place in Indiana County, while Clarion's and Alpha Well Inc.'s violations occurred in Clarion County.

There are also cases in Pennsylvania in which the punishment fails to address the severity of the violation(s). For example, between 2007 and 2009, DEP inspectors found more than 300 violations at U.S. Energy Development Corp. well sites.[147] Yet the company received a penalty of just $29,750 in 2009. In 2010, U.S. Energy Development Corp had 44 violations

[145] 401CSL - Discharge of pollutional material to waters of Commonwealth; 601.101 - O&G Act 223-General (Used only when a specific O&G Act code cannot be used); 78.96 - Failure to mark plugged well; 201INADPLUG - Leaking plug or failure to stop vertical flow of fluids; 203TAG - Failure to submit annual production report; 78.124 - Failure to submit plugging certificate 30 days after well plugged; 78.86 - Failure to report defective, insufficient, or improperly cemented casing w/in 24 hrs or submit plan to correct w/in 30 days

[146] The 2010 Pennsylvania DEP Inspections/Violations spreadsheet provided the following description for 201TAG: "Failure to install, in a permanent manner, the permit number on a completed well," and the following description for 210PLUG: "Failure to plug a well upon abandonment." (No longer accessible on DEP web site)

[147] Pennsylvania DEP. July 10, 2009. "DEP Orders U.S. Energy to Cease Drilling Operations throughout Pennsylvania," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2273&typeid=1

and resolved just 29 of them.[148] While this is a better record than 2009, it is clear that the company did not learn to correct violations in a timely manner. When such a record of noncompliance receives small or no fines, the possibility that enforcement serves as a deterrence factor for bad behavior declines dramatically.

Texas: According to the Texas Sunset Commission, the RRC relies on the discretion of each district office to determine which violations should be forwarded for enforcement action.[149] In 2009, Texas oil and gas inspectors found more than 80,000 violations of state rules, yet field staff forwarded less than four percent of these violations to the agency's central office for enforcement action. In contrast, the Texas Commission on Environmental Quality (TCEQ) forwarded about 20 percent of its more than 11,000 violations for enforcement action. TCEQ has formalized processes for ranking violations to ensure that serious or repeat offenses of lower-level violations are referred for enforcement action.[150]

REMOVING THE ECONOMIC BENEFIT OF NON-COMPLIANCE

Violators can gain an economic advantage over companies who comply with the rules. For example, by refusing or delaying compliance, companies can avoid costs related to: installing and operating safety or pollution control equipment; hiring qualified employees to maintain facilities and ensure that permit conditions and rules are being met; and failing to install, operate and maintain monitoring equipment.

"Including the calculation of economic benefit in the penalty calculation is critical to achieving deterrence"[151] and removing the economic advantage created by non-compliance.

Colorado, New York and Pennsylvania have provisions that allow oil and gas enforcement staff to assess additional penalties known as a "benefit component"[152] or "savings to the violator."[153] It is unclear, however, how often this additional penalty is applied, and how the calculations of the cost savings to operators who fail to comply with the rules are made.

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[148] Pennsylvania DEP web site: Oil and Gas Inspections – Violations- Enforcements page. 2011 Year to Date Resolved Violations (to Aug. 31, 2011). Accessed Sept. 26, 2011. http://www.dep.state.pa.us/dep/deputate/minres/oilgas/OGInspectionsViolations/OGInspviol.htm

[149] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. pp. 33, 34. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[150] ibid. p. 35.

[151] U.S. EPA. 1999. "Guidance on Calculating the Economic Benefit of Noncompliance by Federal Agencies." http://www.epa.gov/oecaerth/resources/policies/federalfacilities/enforcement/cleanup/econben20.pdf

[152] COGCC Rule 523 d. says: "The fine may be increased (if base fine is less than $1000) or decreased by application of the aggravating and mitigating factors set forth below. . .(8) The violation resulted in economic benefit to the violator, including the economic benefit associated with noncompliance with the applicable rule, in which case the amount of such benefit may be taken into consideration." https://cogcc.state.co.us/RR_Docs_new/rules/500Series.pdf
New York: "If a penalty is to achieve deterrence, both the violator and the general public must be convinced that the penalty places the violator in a worse position than those who have voluntarily complied in a timely fashion. For this reason, it is DEC policy that, at a minimum, penalties should remove any economic benefit that results from a failure to comply with the law." New York DEC. 1990. DEE-1: Civil Penalty Policy. http://www.dec.ny.gov/regulations/25227.html

[153] "A penalty assessment may include an amount equal to the savings or economic benefit realized by the violator as a result of the violation, had it not been penalized." Pennsylvania DEP. 2002. Civil Penalty Assessments in the Oil and Gas Management Program. p. 7. http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-48287/550-4180-001.pdf

Some older examples were found of the COGCC applying additional fines to penalize operators who derived economic benefit from their violations, but nothing more recent than 2004.[154] And the penalties for economic benefit do not appear to reflect the actual economic benefits that operators derive from non-compliance as no calculations are provided by COGCC.[155]

No information was found to suggest that Texas RRC, Ohio DOGRM or New Mexico OCD have the ability to assess an additional "economic benefit" penalty.

The U.S. Environmental Protection Agency has a policy that any civil penalty should at least recapture the economic benefit the violator has obtained through its unlawful actions. (See box for more information) EPA enforcement staff typically use the BEN (short for benefit) computer model to perform the economic benefit calculations.[156]

Only New York DEC includes in its policy that enforcement staff may use EPA's BEN to calculate the economic benefit.[157] The New York policy also states that "The Division of Environmental Enforcement, working with Program Divisions, should develop guidance for the use of models and formula which provide a rational basis to calculate economic benefit of non-compliance."[158] This is a recommendation that should be applied by oil and gas enforcement agencies in all states.

How a Firm Obtains an Economic Benefit From Delaying and/or Avoiding Compliance Costs:

"An organization's compliance with environmental regulations usually entails a commitment of financial resources, both initially (in the form of a capital investment or one-time expenditure) and over time (in the form of continuing, annually recurring costs). These expenditures should result in better protection of public health or environmental quality, but they are unlikely to yield any direct economic benefit (i.e., net gain) to the organization…If these financial resources are not used for compliance, then they presumably are invested in projects with an expected financial return to the organization. This concept of alternative investment—that is, the amount the violator would normally expect to make by investing in something other than pollution control—is the basis for calculating the economic benefit of noncompliance."

U.S. Environmental Protection Agency

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[154] Searched within COGCC 1V orders for "economic benefit." The most recent examples was from 2004. Order 1V-271. http://cogcc.state.co.us/orders/orders/1v/271.html More recently, the only time "economic benefit" was mentioned was when penalties were decreased because the "cost of correcting the violation reduced or eliminated any economic benefit to the violator." E.g., See Order 1V-388. http://cogcc.state.co.us/orders/orders/1v/388.html

[155] COGCC's approach appears to be to double the penalty – not establish the actual economic benefit of non-compliance. For example: "Rule 523. specifies a base fine of One Thousand dollars ($1,000) for a violation of Rule 326. . .A monetary penalty of Two Thousand dollars ($2,000) should be assessed against BIC, in accordance with Rule 523.a. and Rule 523.d., for violation of Rule 326.b. Aggravating factors in determining the fine recommendation are the violation was intentional, and the violation resulted in economic benefit to the violator." COGCC Order IV-225. http://cogcc.state.co.us/orders/orders/1v/225.html

[156] U.S. EPA. 2005. *Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases*. Notice in the Federal Register. p. 50326. http://www.gpo.gov/fdsys/pkg/FR-2005-08-26/pdf/05-17033.pdf

[157] New York DEC. 1990. DEE-1: Civil Penalty Policy. Section IVc. http://www.dec.ny.gov/regulations/25227.html

[158] No such guidance was found in DEC's enforcement policies. http://www.dec.ny.gov/regulations/2379.html

PENALTIES AND ENFORCEMENT ACTIONS RECOMMENDATIONS

RECOMMENDATION: *Agencies should develop policies for that set out the appropriate enforcement action for different types of violations, and require all inspectors to consistently adhere to these policies. Policies should include escalating penalties/enforcement for operators who repeatedly violate rules and multiple offenses of the same type, and possibly mandatory enforcement actions for certain types of significant violations.*

RECOMMENDATION: *Agencies should codify their penalty schedules to reduce the discretion used in assessing the amount of a fi*

RECOMMENDATION: *Outdated penalties must be increased so that they are sufficient to deter future violations. Increased. Penalty amounts should include the following considerations: the actual impact of the type of violation in question (e.g., permanent damage to drinking water supplies or wildlife habitat), the true subsequent cost to the public with regard to remediation and continued oversight, the economic value that would have been realized by the operator had the violation gone undetected*

RECOMMENDATION: *Agencies should publicize significant penalties to highlight bad actors, as a means of deterring other companies from violating the rules.*

RECOMMENDATION: *Agencies need to do a better job of documenting penalties and enforcement actions. All information should be documented in a consistent manner with clear definitions, and should be made publicly available via an online database.*

1.4. OTHER ENFORCEMENT OPTIONS

In addition to penalties and other enforcement actions, some states have more powerful means to encourage oil and gas operators to comply with requirements and rules. In some states, agencies can order companies to "cease and desist" particular activities, suspend or revoke permits, require operators to shut-in wells that are in violation of rules, or deny permits to operators who are out of compliance.

Most state agencies do not specifically track how often these enforcement mechanisms are used. Consequently, there are no reliable statistics to look at trends for most of the following enforcement tools.

CEASE AND DESIST ORDERS

Colorado and Pennsylvania both have the ability to issue Cease and Desist orders. These orders usually apply to specific wells that are in violation, rather than extending to all of an operator's producing wells. In a few instances, however, Pennsylvania has used Cease and Desist orders to temporarily suspend all drilling or well completion activities of a particular company in the state (See the example of the U.S. Energy Development Corporation below).

Colorado: The COGCC has the ability to issue Cease and Desist orders in two situations: (1) whenever an operator fails to take required corrective action required by a final Administrative Order by Consent or an Order Finding Violation, or (2) whenever the Commission has evidence that a violation of any provision of the Act, any rule, permit, or order of the Commission has occurred under circumstances deemed to constitute an emergency situation.[159] Also, in a few instances, the COGCC has ordered wells to be shut-in without issuing a Cease and Desist order.[160]

We found records for at least nine Cease and Desist orders since 1996.[161] The most recent was issued in April 2012 when an operator drilled through potentially toxic landfill waste.[162] In most of the orders, operators have been required to stop operating wells due to the frequency of violations, failure to pay a fine, or environmental contamination. Curiously, a recent Cease and Desist order issued to Nonsuch Natural Gas Inc., does not include any language regarding "shutting in the well" or ceasing operations or production.[163]

Pennsylvania: The state's *Oil and Gas Act* provides that ". . . the department shall have the authority to issue such orders as are necessary to aid in the enforcement" of the act,

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[159] Rule 522. D. Cease and Desist Orders. http://cogcc.state.co.us/RR_Docs_new/Rules/Completed%20Rules.pdf

[160] COGCC Order No. 1 V-2. Jan. 21, 1975. http://cogcc.state.co.us/orders/orders/1V/2.html

[161] The COGCC "Orders" database lists nine orders in the "Cause 1c" section. Accessed July 16, 2012. http://cogcc.state.co.us/Orders/orders.cfm?cause_num=1C It's likely there are more, because some "Cease and Desist" Orders are mentioned in other hearing files. E.g., In order 1C-3 (http://cogcc.state.co.us/orders/orders/1C/3.html) it says that a Cease and Desist Order was issued to Gopher drilling in 1998 " and Order 1V-332 (http://cogcc.state.co.us/orders/orders/1v/332.html says that "Staff issued a cease and desist order [to Star Acquisition VIII, LLC] on April 12, 2007." But no actual Cease and Desist Orders were found for these cases.

[162] COGCC Order No. 1 C-9. April 12, 2012. http://cogcc.state.co.us/orders/orders/1c/9.html

[163] COGCC Order No. 1 C-7. Jan. 15, 2008. http://cogcc.state.co.us/orders/orders/1c/7.html

including the immediate cessation of drilling operations.[164] The DEP can also require operators to "cease all operations" and plug wells when operators have failed to make payments of fees or phased collateral (i.e., in lieu of bonds).[165]

Orders are to be used when a site condition creates an existing or imminent danger to health or safety; or is causing, or can be expected to cause, pollution or other environmental damage; or when the operator indicates a failure to comply with a previously cited violation."[166]

DEP's compliance database shows that in 2008, one company, U.S. Energy Development Corp, received a "Cessation Order" (CESOR). In 2009, two companies, U.S. Energy Development Corp[167] and Cabot Oil & Gas[168] were issued CESORs.

There were no CESORs found for 2010 or 2011; however, incidents requiring companies to cease certain operations were reported in DEP news releases and by other sources. For example, in May 2010, DEP announced that Rex Energy was required to halt all activities at two locations and undertake restoration work for violating erosion and sediment control requirements near a wetland.[169] In April 2011, DEP ordered Catalyst Energy to cease all drilling and hydraulic fracturing operations at 36 of its wells in Forest County after DEP confirmed that two private water supplies had been contaminated by natural gas migration.[170] Finally, in March 2011, DEP ordered Chesapeake Energy to cease work on a natural gas drilling well pad in Potter County for failing to control erosion and impacting one of Galeton Borough Water Authority's water sources. The order to cease work came after Chesapeake failed to respond to a DEP NOV for several violations of the Clean Streams Law and Oil and Gas Act.[171]

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[164] Pennsylvania Statutes and Consolidated Statutes Annotated. Title 58 - Oil and Gas; Chapter 32, Subchapter E. § 3253. Enforcement Orders. http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/00.032.051.000..HTM

[165] Pennsylvania Statutes and Consolidated Statutes Annotated. Title 58 - Oil and Gas; Chapter 32, Subchapter E. § 3225. Bonding. http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/58.HTM

[166] June 25, 2005. Enforcement Actions by DEP's Oil and Gas Management Program. Document No. 550-4000-001. p. 5. http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-48291/01%20550-4000-001.pdf

[167] In July 2009 a CESOR order was issued to U.S. Energy Development Corp (USDC) for persistent and repeated violations of environmental laws and regulations (302 violations). The order prohibited the company from conducting all earth disturbance, drilling and hydraulic fracturing operations in the state, but allowed USDC to continue producing at existing wells." The company was allowed to resume drilling the month after the Cease and Desist order was issued because they signed a consent order and agreement with DEP. (Sources: Pennsylvania DEP. July 10, 2009. "DEP Orders U.S. Energy to Cease Drilling Operations throughout Pennsylvania," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2273&typeid=1 AND Pennsylvania DEP. Aug. 12, 2009. "DEP reaches agreement with U.S. Energy." News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2322&typeid=1)

[168] The Cabot order required the cessation of hydraulic fracturing activities, after the company spilled thousands of gallons of fracking fluid that contaminated Stevens Creek. (Source: URS. Oct. 2009. *Engineering Study in response to Order dated Sept. 24, 2009*. Submitted to the Pennsylvania DEP. http://www.presconnects.com/assets/pdf/CB1446181016.PDF)

[169] Pennsylvania DEP. May 13, 2010. "DEP Fines Rex Energy Operating Corp. $45,000 for Environmental Violations in Clearfield County," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=11369&typeid=1

[170] Pennsylvania DEP. "DEP Orders Catalyst to stop operations at gas wells in Forest County Village," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=16894&typeid=1

[171] Pennsylvania DEP. March 23, 2011. "DEP shuts down Potter County gas well pre-construction site over violations impacting public water supply," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=16727&typeid=1

SUSPEND, MODIFY, OR REVOKE PERMITS

In several states, oil and gas agencies have the ability to suspend, modify, or revoke permits when operators are failing to comply with rules or requirements. Some examples were found, but largely, this enforcement tool appears to be underutilized.

Colorado: If operators fail to perform required corrective action/abatement or fail to comply with a cease and desist order, the COGCC may issue an order suspending, modifying, or revoking a permit or permits authorizing the operation.[172] No examples of this were found.

New Mexico: Under certain circumstances, the OCD has the ability to deny, cancel, or suspend a permit.[173] More details on this can be found in the following section related to stopping production.

New York: The DEC has the general authority to modify, deny, suspend, condition or revoke permits and to refuse to contract with persons or their investors who are found to be unsuitable. Suitability includes such factors as past compliance records, criminal and civil violations.[174] No examples of permit suspensions, modifications or revocations were found for oil and gas operations.

Ohio: In Ohio, the chief of the Division of Oil and Gas Resources Management has the ability to "issue an order to suspend drilling, operating, or plugging activities that are related to a material and substantial violation and suspend and revoke an unused permit after finding either of the following: (1) An operator has failed to comply with an order that is final and nonappealable, or (2) An operator is causing, engaging in, or maintaining a condition or activity presents an imminent danger to the health or safety of the public or that results in or is likely to result in immediate substantial damage to the natural resources of the state.[175] No examples were found of this power being used.

Pennsylvania: DEP has the power to suspend or revoke a well permit or registration for any well that is in continuing violation of [the *Oil and Gas] Act* 13, the *Clean Streams Law*, the *Solid Waste Management Act,* or other statutes administered by DEP. It may also suspend or revoke a permit if the likely result of a violation is an unsafe operation or environmental damage. The suspension, however, automatically terminates if DEP deems the violation is corrected and the well is brought into compliance.[176]

There have been cases in which DEP has suspended drilling activities. For example, as noted above, DEP issued an order against EOG "to suspend its natural gas well drilling activities in Pennsylvania after a June 3 blowout at one of the company's Clearfield County wells sent natural gas and at least 35,000 gallons of drilling wastewater into the sky and

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[172] COGCC Rule 525a. Permit-related Penalties. http://cogcc.state.co.us/RR_Docs_new/Rules/Completed%20Rules.pdf

[173] New Mexico Administrative Code. Title 19, Chapter 15, Part 5. Enforcement and Compliance. 19.15.5.10 Compliance Proceeding. http://www.emnrd.state.nm.us/ocd/documents/20098-5currentrules-new17and39.pdf

[174] New York DEC. 1993. *DEE-16: Record of Compliance Enforcement Policy*. http://www.dec.ny.gov/regulations/25244.html

[175] Ohio Revised Code. Title 14. Chapter 1509. Division of Oil and Gas Resources Management. Section 1509.04. Enforcement – injunction against violation. http://codes.ohio.gov/orc/1509.04

[176] Pennsylvania Consolidated Statutes Annotated. Title 58 - Oil and Gas; Chapter 32. Subchapter E. § 3253. Enforcement Orders. http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/58.HTM

over the ground for 16 hours. Then-DEP-Secretary John Hanger said that while the order banned all drilling and hydraulic fracturing operations for a specified period of time, the suspension would remain in effect until DEP completed a comprehensive investigation into the leak and the company implemented any needed changes."[177]

There are also cases in which DEP revoked or modified permits. In two of the cases, the revisions occurred because of citizen pressure. For example:

- In October 2009, DEP revoked three erosion and sedimentation permits for two operators due to technical deficiencies discovered after DEP approved the permits. The deficiencies were found because the three permits were appealed to the state Environmental Hearing Board by the Chesapeake Bay Foundation, prompting DEP officials to re-examine the permits to determine if they met regulatory requirements.[178]
- In December 2010, Lake Erie Energy Partners was issued drilling permits for two wells. Township residents contacted DEP after observing water supply notification shortcomings in the permit applications. In April 2011, DEP modified the permits (i.e., issued two corrected natural gas well-drilling permits) to the company after it provided complete information to remedy the original defects in the application.[179] In April 2011, DEP revoked four of Lake Erie Energy Partners' permits because the operator omitted required information in the original drilling permit application.[180]

Texas: In 2009, the RRC submitted a "Self Evaluation Report" to the Sunset Commission. In it, the RRC said that it can "revoke, modify, or suspend any permit upon a demonstration that the permittee violated the terms and conditions of the permit, failed to pay an assessed penalty, or used false or misleading information or fraud to obtain the permit."[181] A non-exhaustive review found examples where the RRC canceled an organization report (P-5) and permits,[182] and revoked a P-5 report and cancelled certificates of compliance.[183]

STOP PRODUCTION

According to the Texas RRC, "the most effective enforcement mechanisms available to the RRC (seals and severances) are directly tied to oil and gas production."[184] Texas is the only state examined for this report that has the broad power to shut down production in cases other than an emergency situations. New Mexico has more limited power to stop

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[177] Pennsylvania DEP. June 7, 2010. "DEP orders EOG Resources to halt all Natural Gas Drilling Activities in PA," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=11925&typeid=1

[178] Pennsylvania DEP. Oct. 28, 2009. "DEP Revokes Erosion and Sedimentation Control Permits for Two Gas Companies." News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2409&typeid=1

[179] Pennsylvania DEP. April 4, 2011. "DEP Issues Corrected Well Drilling Permits to Lake Erie Energy Partners." News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=16895&typeid=1

[180] ibid.

[181] RRC of Texas. Sept. 2009. *Self-Evaluation Report*. Submitted to Texas Sunset Advisory Commission. p. 102. http://www.rrc.state.tx.us/about/divisions/RRCSelfEvaluationReport2009.pdf

[182] RRC of Texas. Oil and Gas Docket No. 20-0241862. June 2005. "Commission Called Hearing to Give Central Basin Oil Inv. Co the Opportunity to Show Cause Why Its P-5 Organization Report and Other Permits Should Not Be Cancelled." *Final Order.* http://www.rrc.state.tx.us/meetings/ogpfd/documents/20-41862ord.pdf

[183] RRC of Texas.. Oil and Gas Docket No. 01-0244431**.** June 2006. "Commission Called Hearing to Show Cause Why the Organization Report (Commission Form P-5) Issued to Seelye, William L. Should Not Be Revoked in Accordance with Tex. Nat. Res. Code. Ann. Section 91.114(H). Final Order. http://www.rrc.state.tx.us/meetings/ogpfd/documents/1-44431mfe-ORD.pdf

[184] RRC of Texas. Sept. 2009. *Self-Evaluation Report*. Submitted to Texas Sunset Advisory Commission. p. 96. http://www.rrc.state.tx.us/about/divisions/RRCSelfEvaluationReport2009.pdf

production under certain circumstances.

New Mexico: The New Mexico *Oil and Gas Act* provides OCD with the power to stop production by ordering wells to be plugged and abandoned.[185] OCD threatened to use this power in a recent compliance proceeding when an operator failed to remediate multiple well sites.[186]

OCD rules also allow the division to shut in a well or wells if an operator has a certain number of inactive wells.[187] The OCD used these powers a few times in 2010 and 2011.[188]

Texas: The Texas Administrative Code states that, "The Commission may shut in and seal any well if it appears that the operator of a well has violated or is violating any statutes, rules, permits, or orders of the Commission. Prior to shutting in or sealing a well operators are sent a letter by the Commission that instructs them to correct the violation, and provides a date by which compliance must be achieved. If compliance does not occur, the Commission may then seal the well."[189]

A severance or seal is intended to prevent an operator from producing oil and gas and from transporting oil or gas from a well with a lease.[190]

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[185] The A*ct* states that "If any of the requirements of the *Oil and Gas Act* or the rules promulgated pursuant to that act have not been complied with, the oil conservation division, after notice and hearing, may order any well plugged and abandoned by the operator or surety or both in accordance with division rules." (Source: New Mexico Oil and Gas Act. NMSA 1978. Section 70-2-14.B http://law.justia.com/codes/new-mexico/2006/nmrc/jd_70-2-14-193b9.html)

[186] In this case, the operator was ordered to fully comply with the previous order to remediate 11 wells sites or else it would be required to plug and abandon "all of the wells it operates in New Mexico." New Mexico OCD. Jan. 25, 2011. Case No. 14393 (Re-opened). Order No. R-13197-A. Application of the New Mexico OCD for a Compliance Order Against Marks And Garner Prod. Ltd. Co, Eddy County. http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/santafeadmin/ho/91714/r-13197-a_1_ho.pdf

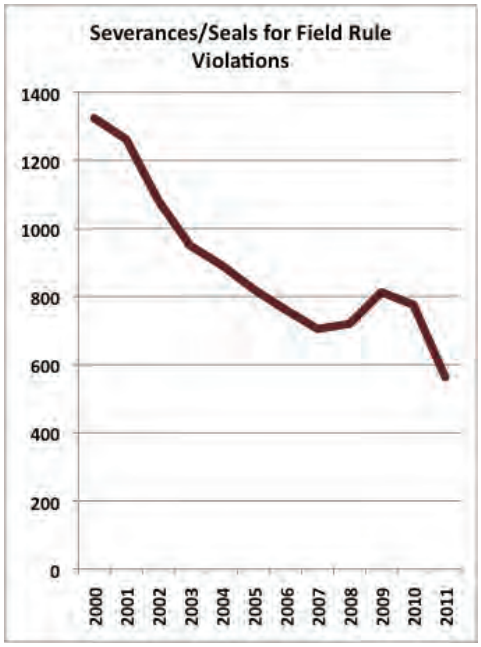
[187] New Mexico Administrative Code. Title 19, Chapter 15, Part 5. Enforcement and Compliance. 19.15.5.10 Compliance Proceeding. http://www.emnrd.state.nm.us/OCD/documents/SearchablePDFofOCDTitle19Chapter15created3-2-2012.pdf

[188] New Mexico OCD. Nov. 29, 2010. Order No. R-13448. http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/santafeadmin/ho/202038/r-13448_1_ho.pdf and Order No. R-13197-A. http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/santafeadmin/ho/90344/r-13144-a_1_ho.pdf and Order No. R-12913-G. http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/santafeadmin/ho/85929/r-12913-g_1_ho.pdf

[189] Texas Administrative Code. Title 16, Part 1, Chapter 3, Rule §3.73. Pipeline Connection; Cancellation of Certificate of Compliance; Severance. http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=73

[190] RRC of Texas. Sept. 2009. *Self-Evaluation Report*. Submitted to Texas Sunset Advisory Commission. p. 101. http://www.rrc.state.tx.us/about/divisions/RRCSelfEvaluationReport2009.pdf

Chart 21. Severances for field rule violations.



What types of wells get severed or sealed?

A 2012 investigation by EnergyWire found that the RRC is more likely to sever or seal wells for production violations, e.g., a late or erroneous production report or 'overproduction', than for health, environmental or safety violations. RRC told EnergyWire that the reason more wells are shut down for production than safety problems is that production severances are computer-generated and the agency can look at every well monthly.[191]

EnergyWire reported that in 2010 less than 10 percent of the total number of severed or sealed leases were shut down for "field rule violations" (problems found during inspections).[192]

Our analysis of RRC data shows that the number of severances and seals applied for field rule violations hit an 11-year low in 2011.[193] The data clearly show that this is an enforcement tool that has been more widely used in the past.

In the past five years, RRC has issued between 6,000 and 8,500 severances/seals per year.[194] The power of the severance or seal is that it is supposed to stop production of oil or gas at a well or lease, and consequently operators lose revenue until they can bring the wells back into compliance.

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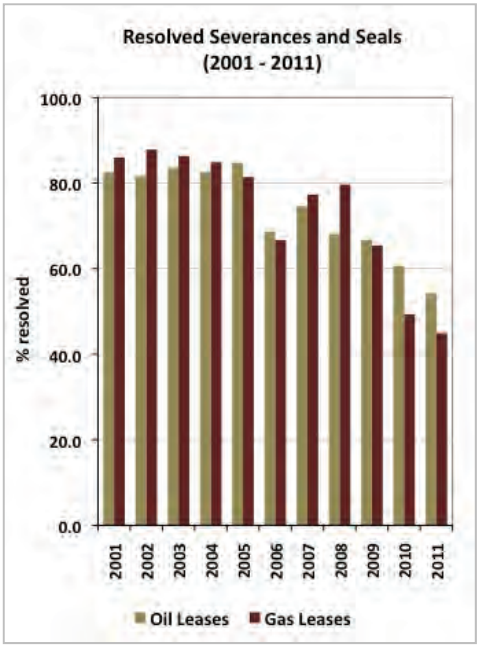
[191] Soraghan, M. April 4, 2012. "Enforcement: Texas inspectors use their strongest punishment against paper violations," *EnergyWire.* http://www.eenews.net/public/energywire/2012/04/04/1

[192] ibid.

[193] RRC of Texas Online System, Oil and Gas Data Query, Severance Query. Data accessed April 8, 2012. Search for Oil and Gas Wells, Severance/Seal Cert. Ltr. Reason: Field Rule Violation, Severance/Seal Letter Date for each year, Outstanding and Resolved, Current. http://webapps2.rrc.state.tx.us/EWA/severanceQueryAction.do (See Appendix 7 for more details).

[194] RRC of Texas Online System, Oil and Gas Data Query, Severance Query. Data accessed April 8, 2012. http://webapps2.rrc.state.tx.us/EWA/severanceQueryAction.do Searched for oil and gas severances/seals. Did not specify a district, field, operator, who the letter was issued by, or reason for the issuance. Searched for severance/seal letter date by year – e.g., 01/01/2011 to 12/31/2011. Did this for years 2000 through 2011. Searched Outstanding, then All (Outstanding and Resolved), then calculated Resolved. Searched only Current records. See data in Appendix 7.

Chart 22. Percentage of severances and seals that have been resolved.



Does severing/sealing a well encourage compliance?

The potential loss of revenue should be a motivation to quickly resolve compliance problems. But as seen in Chart 22, the percentage of resolved severances on oil leases and seals on gas leases is dropping. (See Appendix 7 for data).

The drop in resolved severances and seals suggests that operators are becoming less conscientious about coming into compliance once actual production has been cut off. It also suggests a need for follow-up inspections to ensure that the violations that result in severances/seals are corrected within a certain timeframe. If they are not corrected, the cases should be referred to RRC enforcement for further legal action.

Severing or sealing wells does not always stop production.
In 2002, there were 1,214 operators that continued producing and/or selling production after having been found in violation of RRC rules and ordered to cease operations.[195] No statistics on this problem were found for subsequent years. But some specific examples were found of wells that continued to produce for months after seals had been issued.[196]

There are a couple of reasons that production does not necessarily stop following the issuance of a severance or seal. First, these actions do not always involve an inspector going to the site and physically sealing the well to prevent production. In speaking with RRC compliance and field operations staff, we were told that because the agency is understaffed it could be a month or more before inspectors physically get to wells that have been severed—if they make it there at all. RRC was not able to provide a statistic on how many wells are physically sealed. Second, even when wells are physically sealed, operators sometimes break the seals and continue producing oil or gas or injecting oilfield wastes.

While the ability to stop production at wells found in violation is a powerful enforcement tool, the addition of more enforcement staff to ensure that wells are physically sealed to stop production, and more staff to monitor production at severed/sealed wells could increase the effectiveness of severances and seals in Texas.

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[195] March 2003. "RRC Bags Bad Operator – Begins Era of Strong Enforcement," News from Railroad Commission Chairman Michael L. Williams. http://www.rrc.state.tx.us/pressreleases/2003/030312.php

[196] Visit our web site for examples of wells that have not stopped producing oil or gas despite being severed. Earthworks' "Texas Enforcement – Enforcement Actions" web page.
http://www.earthworksaction.org/issues/detail/texas_oil_gas_enforcement_penalties

NO NEW PERMITS

Colorado[197] and Pennsylvania[198] have provisions that allow the "punishment" of bad behavior by withholding or denying new permits to operators. The COGCC has exercised this enforcement power a number of times since the early 1990s.[199] We could find no examples where Pennsylvania's DEP, which has the ability to deny permits if operators have wells out of compliance, had exercised this power.

OTHER ENFORCEMENT OPTIONS: RECOMMENDATIONS

Of the enforcement tools available, the ability to issue "cease and desist" or "cessation" orders to control problems at well sites and facilities is one valuable enforcement mechanism available in some states. In Colorado and Pennsylvania these types of orders are use sparingly, and primarily when there are significant environmental violations. The ability to order an operator to shut down or stop production (sever or seal) on wells that are out of compliance appears to be a powerful mechanism for achieving compliance in Texas. The ability to deny permits when companies are out of compliance is another useful tool that exists in Pennsylvania and Colorado, but examples of its use were only found for Colorado.

RECOMMENDATION: *Agencies should send a clear message that non-compliance will not be tolerated by making greater use of the range of enforcement tools at their disposal. All states must have the power to shut down production and the ability to suspend or modify existing permits and deny new permits until an operator's existing wells are in compliance.*

RECOMMENDATION: *To increase the deterrence value of these enforcement actions, agencies should track and publicize the use of cease and desist orders, shutting-in of wells, and placing holds on permits, and make data on these actions publicly available.*

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[197] COGCC. Rule 525b. (Permit-related Penalties) states that whenever there is evidence that "a knowing and willful pattern of violation exists," the COGCC or its Director may issue an order to prohibit the issuance of any new permits to that operator. http://cogcc.state.co.us/RR_Docs_New/Rules/500.htm

[198] Title 58 - Oil and Gas; Chapter 32. Subchapter E. § 3211 e(1) of the Pennsylvania Consolidated Statutes (http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/58.HTM) says that: DEP may deny a permit if it finds that the operator, or any parent or subsidiary corporation, is in continuing violation of Act 13, any other statutes administered by DEP, and any plan approvals, permits or orders issued by DEP "unless the violation is being corrected to the satisfaction of the department."

[199] COGCC. Orders: 1V – 75, 1V – 114, 1V-332, 1V – 364, 1V – 364, 1V-370. Available at: http://cogcc.state.co.us/Orders/orders.cfm?cause_num=1V

1.5. CITIZEN COMPLAINTS

Citizen complaints often draw attention to problematic operations that might otherwise go unmonitored for long periods of time. In Texas, the RRC has stated that, "Citizens are viewed as extra eyes to help the RRC identify problems."[200] Yet, not all agencies routinely collect complaint information. In addition, some impacted citizens are reluctant to report problems to state agencies that they feel are not committed to helping them.[201]

Citizens living in oil and gas development areas have the potential to aid agency enforcement staff because they live with the development on a daily basis, and they are often the first ones to notice a problem. Information gathered for this report suggests that citizen complaints have led to inspections that have found violations and resulted in stronger enforcement actions. For these "extra eyes" to be used more effectively, however, state oil and gas agencies must work cooperatively with citizens and dedicate sufficient resources to respond to their complaints in an effective and timely manner, and to maintain communication with citizens and communities regarding actions being taken and conditions on the ground.

Colorado: The COGCC online database enables users to view the 5,000 most recent complaints. A description of the complaint, information on the location and name of the facility in question, and COGCC's response to each complaint can be viewed through this database.[202]

Statistics on citizen complaints are more accessible in Colorado than in many other states, although in some respects the agency is becoming less transparent than it used to be.[203] For example, as seen in Table 17, in 2010 the COGCC stopped reporting the number of complaints that have been resolved.[204] In 2007, COGCC was required by legislation to submit a quarterly report to the General Assembly concerning the number of complaints received by the Commission.[205] The report included a list of all complaints, type of complaint, information on the complainant's identity, and the commission's response. Unfortunately, in 2010, subsection III was repealed,[206] and as a result the COGCC no longer publishes data on resolved complaints.

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[200] RRC of Texas. Sept. 2009. *Self Evaluation Report.* Submitted to the Sunset Advisory Commission. p. 102. http://www.sunset.state.tx.us/82ndreports/rct/ser.pdf

[201] We have been told that citizens in Pennsylvania have filed complaints with DEP (either by calling the complaint hotline or filing a complaint online) but never heard back from the agency, or the agency failed to respond to complaints in a timely manner (e.g., DEP inspected a spill complaint days after it occurred, and after rains had washed away the bulk of the material). Citizens also claim that DEP employees have refused to answer questions about their procedures. Many citizens, frustrated and unsure of their rights in these situations, hesitate to file new complaints with the state.

[202] COGCC web site: COGIS – Inspection/Incident Inquiry. Select Complaints. http://cogcc.state.co.us/cogis/IncidentSearch.asp

[203] From *COGCC Report to Water Quality Control Commission and Water Quality Control Division of the Colorado Department of Public Health and the Environment*. Data from reports for 2010, p. 4; 2009, p. 4; 2008, p. 3; 2007, p. 3; 2006, p. 3; 2005, p. 3. Reports available at: http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/AnnualReports.htm

[204] ibid.

[205] COGCC web site: "Quarterly Complaint Reports." http://cogcc.state.co.us/Library/ComplaintReports/QtrComplaintRpt.htm

[206] Colorado Revised Statutes. Title 34. Article 60. Section 34-60-104. Oil and gas conservation commission. http://www.lexisnexis.com/hottopics/colorado?source=COLO;CODE&tocpath=1OUNX9SKRIS2QOAK9,2DT0WOCRR8Q11DJG8,31NIKS5F9BSWWEQIK;1SXGPUSO2YQDTCL8A,2QRCL8Y8IKJCQEO00,38ALLG4AZAICDMJ8S;1SPBJWTOAAWBIC1PY,2SSCH63RMGC7S2QCL,3OLJPO2AGHKGKIKPR;103U42BXZ9STGLI6C,2N762IAL4O5ZDNT2B,3B371MED4M1Q51L19&shortheader=no

Additionally, the COGCC does not publish statistics on how many complaint investigations resulted in violations or enforcement actions.

Table 17. Complaints related to oil and gas operations in Colorado.

	2007	2008	2009	2010	2011
Total Complaints	348	296	200	164	249
Resolved Complaints	260	97	159	Not reported	Not reported
% Resolved	75	33	80	-	-

New Mexico: No aggregate data are available on complaints in New Mexico. It is possible to look up individual well files, which include a category on "complaints, incidents, and spills,"[207] but the data are not summarized in the OCD's statistics, nor is there a separate database that contains detailed information on complaints.[208]

New York: The Bureau of Oil and Gas Permitting and Management web site states that the Bureau investigates and resolves citizen complaints and non-routine incidents.[209] Currently, the Bureau does not track these complaints in a manner that is accessible to the public.[210]

Ohio: Ohio does not have a publicly accessible database of complaints, but an inquiry made to the DOGRM yielded the following information: in the years 2008, 2009, and 2010, DOGRM received 140, 176, and 146 complaints, respectively.[211]

Texas: In 2011, the Sunset Commission recommended that the RRC collect information on the number of complaints received and how the complaints were resolved, as well as other enforcement data.[212]

According to RRC, all citizen complaints are entered into a database that tracks and stores the complaint information,[213] yet no publicly accessible electronic database of complaints exists on the RRC web site. In fact, very little information on citizens' complaints concerning

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[207] For an example, see https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-039-20199

[208] New Mexico OCD web site: "Statistics." http://www.emnrd.state.nm.us/OCD/statistics.html

[209] New York Division of Mineral Resources, Bureau of Oil & Gas Permitting and Management web site: http://www.dec.ny.gov/about/801.html

[210] On Sept. 27, a request was made by Earthworks to New York Division of Mineral Resource's Bureau of Oil and Gas Permitting and Management for information regarding citizen complaints: *"Does the Bureau maintain a database on citizen complaints? Is this database accessible by the public? If it is not publicly accessible, can you provide any statistics on the number of citizen complaints related to oil and gas facilities in the years 2005 through 2011? Also, do you keep records on how the complaints were dealt with (were there inspections? did these inspections uncover any violations?"* The response from DMR was *"The Division of Mineral Resources does not currently have a database for the information requested below. We are preparing to have one in operation at the time high-volume hydraulic fracturing activities are approved to go forward in the state."* Email from DMNOG, Sept. 30, 2011.

[211] Email request for data made Sept. 16, 2011, data received Oct. 4, 2011, from Beth Wilson, Public Information officer with Ohio Division of Minerals Resources Management.

[212] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 38. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf

[213] RRC of Texas. Sept. 2009. *Self-Evaluation Report.* Submitted to Sunset Advisory Commission. p. 102. http://www.sunset.state.tx.us/82ndreports/rct/ser.pdf

oil and gas production is available on the RRC web site.[214]

Beginning in 2012, the Texas legislature required the RRC to publish "quarterly trends of enforcement data, including the number of complaints received and how the complaints were resolved..." on its web site.[215] Mere statistics on complaints received and resolved shed very little light on the nature and severity of the problems that citizens are encountering, and whether or not there are patterns of problems occurring (e.g., certain operators that are frequently mentioned, regional hotspots, etc.).

Table 18. Complaints related to oil and gas operations in Texas.

	2007	2008	2009	First three quarters FY 2012
Complaints pending from prior yrs	262	270	No data	No data
Complaints occurring in year	No data	No data	681	550
Avg. # days for resolution	79	72	No data	No data
Resolved	773	868	No data	312
Violations as a result of complaints	669 NOV	725 NOV	1,997	No data
Complaints resulting in disciplinary action	41 Admin penalties	45 Admin penalties	91 enf. actions	No data

Cumulative data from the first three quarterly reports are shown in Table 18. Data from 2007, 2008 and 2009 gathered from other sources are also included in the table.[216]
As seen in the table, citizen complaints help the RRC identify violations. In 2009, the RRC received 681 complaints related to oil and gas and found 1,997 violations based on these complaints. Enforcement action was taken for just 91, or 4 percent, of violations found during complaint inspections. In 2007 and 2008 penalties were assessed for approximately six percent of the violations found during complaint inspections.

The RRC has been criticized for a lack of consistent enforcement for violations identified because of complaints. In 2011, the Sunset Commission said that this lack of consistency "can contribute to a public perception that the Commission is not willing to take strong enforcement action."[217]

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[214] The site has a "Complaints Filing" section, where informal complaint statistics related to natural gas purchasing, selling, shipping, transportation or gathering are posted. But these statistics do not include complaints related to oil and gas production. (RRC web site: Complaints filing. http://www.rrc.state.tx.us/compliance/complaints/index.php) It is only when complaints result in RRC hearings that details can be found on the RRC web site. But most if not all of these hearings focus on complaints filed by one operator against another, not citizen complaints related to environment, health, or safety issues. (RRC Oil and Gas Proposals for Decisions and Orders. "Complaints Index." http://www.rrc.state.tx.us/meetings/ogpfd/ogpocomp/compindx.php)

[215] General Appropriations Act for the 2012-13 Biennium. 82nd Texas Legislature Regular Session, 2011. Sept. 12, 2011.p. VI-60. http://www.lbb.state.tx.us/Bill_82/GAA.pdf

[216] 2007/2008 data from: RRC of Texas. Sept. 2009. *Self-Evaluation Report.* Submitted to Sunset Advisory Commission p. 102. http://www.sunset.state.tx.us/82ndreports/rct/ser.pdf 2009 data from: Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 35. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf 2012 data from: RRC web site. "Enforcement Activities." Rider 17 2012 , 3rd Quarter Rpt. http://www.rrc.state.tx.us/compliance/enforcement/index.php

[217] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 35. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf.

Pennsylvania: In Pennsylvania, citizens clearly play an important role in alerting agencies to potential violations. Data from DEP's eFACTS database show that in the years 2007 through 2011 at least 2,891 inspections took place because of complaints.[218] This statistic is lower than the actual number of complaint-driven inspections, however, because not every complaint inspection is documented in eFACTS.[219]

Table 19. Pennsylvania inspections conducted in response to complaints (2007 - 2011).

	2007	2008	2009	2010	2011	Total
Number of complaint inspections	353	500	585	690	763	2,891
Result of complaint inspection						
De minimum violations noted			1		1	
Recurring violations		2		1		
Violations(s) and outstanding violations		1		1		
Outstanding violations – viols required		4			3	
Violations noted & immediately corrected	10	2	8	14	8	
Violations noted	113	93	170	119	152	
Complaint inspections with violations	**123**	**102**	**179**	**135**	**164**	**703**

As seen in Table 19, in more than 700 of the complaint-driven inspections, at least one violation was found (see Appendix 6 for more information).

While Pennsylvania keeps a database of inspections that occur as a result of complaints, it does not have a publicly accessible database on all oil-and-gas-related complaints, so it difficult to find any details such as date and location, the nature of the complaint, and whether or not complaints have been resolved.

CITIZEN COMPLAINTS: RECOMMENDATIONS

RECOMMENDATION: *Agencies should maintain publicly accessible complaint databases that include information on date and location of the complaint, any operators and/or oil and gas facilities mentioned in the complaint, if and when an inspection occurred as a result of the complaint, any violations found, any enforcement actions taken as a result, and when and how the complaint was fully resolved.*

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[218] Pennsylvania DEP. eFACTS database. Inspection Search: Inspection Type = Complaint Inspection; Program = Oil and Gas. Data downloaded into Excel. Separated data into years, filtered by code to find number of each type of complaint result. Data accessed April 18, 2012. http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria_inspection.aspx

[219] "There is no spreadsheet for the complaint and the complaint inspections available publically. On the inspections, some of the inspectors sometimes enter the complaint IDs sometimes they don't and other inspectors don't even enter them." Email from Roger Dietz, IT Generalist 1, Bureau of Oil and Gas Management, Pennsylvania DEP. Sept. 20, 2011.

RECOMMENDATION: *Agencies should publish (and follow) a policy that outlines how to respond to citizen complaints (e.g., required response time, follow-up procedures) to ensure fair treatment of all complaints, transparency, and communication with the public.*

2 FACTORS THAT IMPEDE ENFORCEMENT

Barriers exist within government, industry, and civil society that impede the enforcement of oil and gas regulations. Some of the key issues identified through our research are discussed in the following sections.

2.1. AGENCY BUDGETS

During the current economic recession, many aspects of state government have been subject to cutbacks, including environmental regulation. Political disagreements regarding the role of regulation have also grown more visible nationwide. For example, in 2008, funding for the New Mexico OCD was cut by $302,000. Some division staff and others, including then-Governor Bill Richardson, suggested the cuts were retaliation for the tougher environmental regulations proposed by the division.[220]

SOME STATE BUDGETS FOR OIL AND GAS AGENCIES HAVE INCREASED

It is not easy to find budgets specific to state oil and gas programs. No data were found for New York, Ohio, and New Mexico.

Pennsylvania data are based not on state or departmental budget reports (because DEP does not provide a line item for the Bureau of Oil and Gas Management), but rather on reports of the revenue generated by well permit fees. According to DEP, all revenue from the increase in the oil and gas permit fee instituted in 2009 is being used to increase oversight.[221] In 2008, the revenue from the fees was used to fund the addition of 68 new staff, including 37 inspectors.[222] The new fee generated $12.5 million in Fiscal Year (FY) 2010-11, and DEP anticipates collecting $15.4 million in fees for FY 2011-12.[223] Prior to the change the annual revenue from the drilling fee was $700,000.[224]

At the same time Pennsylvania's oil and gas program budget was increasing, the general DEP budget was severely reduced (by 36 percent between 2008 and 2011).[225] DEP's funding level is less than 60 percent of what it was a decade ago.[226] Cuts in other DEP

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[220] Haywood, P. March 1, 2008. "Inspectors struggle to monitor vast area," *Santa Fe New Mexican.* http://www.santafenewmexican.com/Local%20News/Inspectors-struggle-to-monitor-vast-area

[221] Pennsylvania DEP. Revised April 2011. "Marcellus Shale: Tough regulations, greater enforcement." Doc: 0130-FS-DEP4288. http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-84024/0130-FS-DEP4288.pdf

[222] "The 68 additional personnel will be funded entirely from money generated by new, higher permitting fees that were instituted in 2009—the first such increase since 1984. The new fees were put in place with bipartisan support from the General Assembly, industry and environmental organizations." Pennsylvania DEP. Jan. 28, 2008. "Governor Rendell: PA Taking aggressive action to protect public, environment as Marcellus Shale drilling operations expand," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=3115&typeid=1

[223] March 16, 2011. *Budget presentation by the Department of Conservation and Natural Resources to the House of Representatives Appropriation Committee.* p. 8. http://www.legis.state.pa.us/cfdocs/legis/tr/transcripts/2011_0034T.pdf

[224] Swift, R. January 29, 2010. "DEP hiring more gas drilling inspectors," *Times-Tribune.* http://thetimes-tribune.com/news/dep-hiring-more-gas-drilling-inspectors-1.579626#axzz1Y98LK400

[225] March 28, 2011. "Environmental groups, legislators call for end of DEP budget cuts," *PA Environment Digest.* http://www.paenvironmentdigest.com/newsletter/default.asp?NewsletterArticleID=18543&SubjectID=

[226] Philadelphia Inquirer. "PA DEP budget: halved in a decade." March 24, 2011. http://www.philly.com/philly/news/politics/PA-DEP-budget-has-dropped-.html

programs also result in less oversight of certain aspects of oil and gas development.[227]

Chart 23. Changes in oil and gas agency budgets in TX, CO and PA (2008 and 2011).

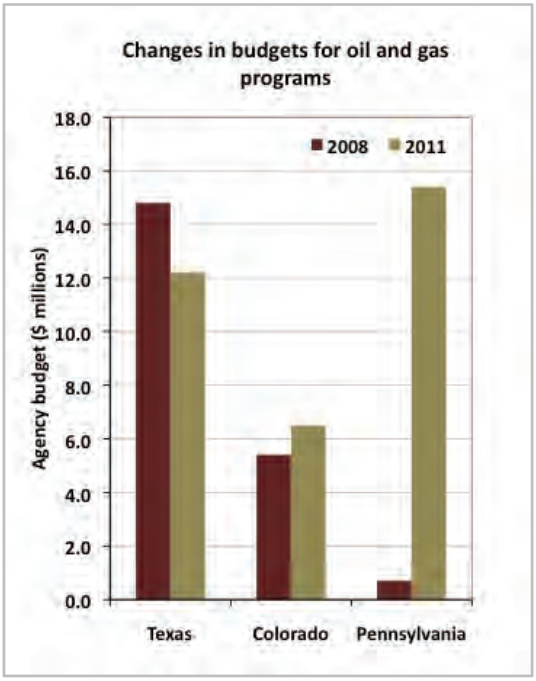

Chart 23 includes data on Texas RRC expenditures for its "Oil and Gas Monitoring and Inspections" program, the Colorado expenditures for all COGCC programs, and the revenue generated by Pennsylvania DEP's new permit fee (to go toward oil and gas oversight). Data and citations for the chart can be found in Appendix 1.

As seen here, between 2008 and 2011 Pennsylvania's revenue for oil and gas oversight grew much more significantly than did budgets for oil and gas oversight in Colorado and Texas. By 2011 the DEP's budget surpassed what was being spent by the Texas RRC on its oil and gas monitoring and inspections program.

In Texas, the amount spent on monitoring and inspections decreased from more than $14 million in 2008 to about $12 million in 2010, but $15.7 million has been budgeted by RRC for oil and gas monitoring program for the 2012 Fiscal Year.[228]

Ohio: In 2009, DOGRM spent approximately $2.9 million on oil and gas regulation.[229] In 2010, Senate Bill 165 was signed into law. Within the bill were a series of new and modified fees, which were projected to increase revenue by almost $3 million a year. In the bill's fiscal note, it was estimated that 33 new staff would be added to the oil and gas program "supported in large part by the new and increased fees proposed in the bill." This should have almost doubled the staff from 2009 levels, when there were 35 full-time equivalent employees.[230]

BUDGET INCREASES HAVE NOT RESULTED IN ADEQUATE STAFF

As mentioned above, in 2010 the Ohio Oil and Gas Law was updated with the intention of adding 33 new regulatory staff. There were 21 oil and gas inspectors in Ohio in 2010. By 2012, there were 27 inspectors.[231] The additional staff did little to relieve the enormous burden placed on each inspector in Ohio. With 64,500 active wells in 2011, each inspector had oversight responsibility for an average of 2,388 active wells. (See Appendix 5) It is next

[227] Cuts in other DEP departments affect oversight of oil and gas activities. For example, if oil and gas inspectors find a violation of wetlands laws, they need to refer the problem to staff in the appropriate section of the DEP; and if that section is understaffed, then the violation may not be investigated or result in an enforcement action.

[228] General Appropriations Act for the 2012-13 Biennium. 82nd Texas Legislature Regular Session, 2011. Sept. 12, 2011."Railroad Commission." Strategy C.1.1. Oil/gas monitor & inspections. p. VI-53. http://www.lbb.state.tx.us/Bill_82/GAA.pdf

[229] Ohio Legislative Service Commission. Feb. 10, 2010. Fiscal Note & Local Impact Statement for H.B. 426 of the 128th General Assembly. http://www.lsc.state.oh.us/fiscal/fiscalnotes/128ga/hb0426in.htm

[230] Ohio Legislative Service Commission. March 31, 2010. Fiscal Note & Local Impact Statement for Sub. S.B. 165 of the 128th G.A. http://www.lsc.state.oh.us/fiscal/fiscalnotes/128ga/sb0165en.htm

[231] Based on current listing of oil and gas field inspectors. Does not include supervisors, but does include back-up inspectors. (Accessed March 7, 2012). http://www.ohiodnr.com/mineral/inspectors/tabid/10355/Default.aspx Click on region for details.

to impossible for one inspector to visit, let alone carefully inspect more than two thousand active well sites a year.

In Pennsylvania, increased revenue has led to an increase in enforcement staff. According to the DEP, revenue from new fees was used to hire 37 inspectors in 2009,[232] and 45 new enforcement staff were added in 2010.[233] The increase in staff has led to a dramatic increase in the number of inspections (the number doubled between 2008 and 2011). Also, the number of inspections finding violations tripled over that time period. But the increase in oversight has not led to more enforcement actions. In 2008, close to half of all violations resulted in an enforcement action, while in 2011, this was true for only 24% of violations. (See Appendix 6 for data)

DEP has been able to increase fees in certain divisions thanks to the growth of natural gas drilling, however this has neither been able to meet the inspection needs for the five fold increase in Marcellus Shale gas wells in the past two years, nor has it been able to meet the overall monetary needs of the DEP as a whole.[234]

Clean Water Action

Like Pennsylvania, Colorado's oil and gas program budget increases have resulted in the addition of oil and gas enforcement staff. Table 20 shows the agency's expenditures and number of inspection staff approximately doubled between 2005 and 2010.[235]

Table 20. COGCC program expenditures and other information (2005-2010).

	2005	2006	2007	2008	2009	2010
COGCC Program Expenditures ($ mill)	$ 3.4	$ 7.6	$ 4.5	$ 5.4	$ 6.0	$ 6.4
COGCC FTE	38	49	55	56	69	69
COGCC inspectors	7	9	9	9	12	15
Active oil and gas wells	29,181	31,096	35,686	37,459	40,956	43,354
Drilling permits approved	4,323	5,848	6,375	8,029	5,159	5,996

While this increase might seem impressive, Colorado's inspection staff is much smaller than other states. In 2010 COGCC's 15 inspectors carried out a number of inspections similar to Pennsylvania DEP's 65 inspectors (16, 228 versus 15,368 inspections for Colorado and Pennsylvania, respectively). It is difficult to imagine that each COGCC inspector could visit

[232] Pennsylvania DEP. Jan. 28, 2010. "Governor Rendell: PA Taking aggressive action to protect public, environment as Marcellus Shale drilling operations expand," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=3115&typeid=1

[233] Shankman, S. Feb. 9, 2010. "New gas drilling rules, more staff for Pennsylvania's environmental agency," *Propublica*. http://www.propublica.org/article/new-gas-drilling-rules-more-staff-for-pennsylvanias-environmental-agency

[234] Clean Water Action. June 30, 2010. "DEP funding decline," http://www.cleanwateraction.org/publication/dep-funding-decline

[235] Citations for this table can be found in Appendix 2.

four times as many sites, over a much larger geographic region, and do as thorough a job as the much larger cadre of inspectors in Pennsylvania.

By some metrics, the increase in COGCC staff has not greatly improved things on the ground. As shown in Chart 1, the number of oil and gas-related spills in Colorado more than doubled from 257 in 2005 to 516 in 2011. More than 25 percent of spills in 2011 affected groundwater or surface water. Also, citizen complaints, which had declined the four years previous, jumped from 164 in 2010 to 249 in 2011. (See Appendix 2)

In Texas, expenditures on oil and gas monitoring and inspections decreased by more than $2 million between 2008 and 2011 (Table 21).[236] During the same time period, funds going toward energy resource development,[237] which includes processing drilling permits and other applications, increased by $800,000. The number of inspectors working during this period actually increased, from 83 in 2008 to 97 full-time inspectors in 2011,[238] but this level of staffing did not increase oversight as the number of inspections fell from a high of 128,000 in 2009 to 115,000 in 2011.

Table 21. Texas RRRC oil and gas program expenditures in millions of dollars (2008 & 2011).

	Oil and Gas Monitoring & Inspections	Energy Resource Development	Oil and Gas Remediation	Oil and Gas Well Plugging	GIS and Well Mapping	Public Info and Services	Total Oil and Gas Budget
2008	$14.8 (29.4%)	$6.0 (12.0%)	$7.5 (14.9%)	$18.9 (37.6%)	$0.6 (1.2%)	$2.4 (4.8%)	$50.2 (100%)
2011	$12.2 (28.7%)	$6,.8 (15.9%)	$5.1 (11.9%)	$15.8 (37.0%)	$0.7 (1.7%)	$2.1 (4.8%)	$42.6 (100%)

GENERATION AND DISTRIBUTION OF OIL AND GAS REVENUES AND FEES

In oil and gas producing states, companies usually pay a mix of severance taxes, mineral royalties, production taxes, and various fees. Some of this revenue helps to fund the agencies responsible for regulating the industry. In many states, however, large portions of revenue from oil and gas industry fees and taxes are diverted to fund unrelated state or local services and programs.[239]

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[236] Data from Table 22 from**:** RRC of Texas. 2010 Operating Budget. IIA. Summary of Budget by Strategy.. p. 1 of 3. http://www.lbb.state.tx.us/External_Links/OB/Railroad_2010.pdf and RRC of Texas. 2012 Operating Budget. IIA. Summary of Budget by Strategy. p. 1&2 of 3. http://www.rrc.state.tx.us/about/divisions/opBudget.pdf

[237] The key function of the Energy Resource Development program is to administer state statutes and RRC rules . . .to prevent waste and promote conservation of hydrocarbons and to protect the correlative rights . . . Major activities . . . include: issuing drilling permits, developing field rules, processing of organizational reports, reviewing applications for compliance with spacing and density rules, issuing certificates of compliance, assigning production allowables, and reviewing applications for certification for incentives. (Source: RRC of Texas. Sept. 2009. Self-Evaluation Report. Submitted to Texas Sunset Advisory Commission. p. 51. http://www.rrc.state.tx.us/about/divisions/RRCSelfEvaluationReport2009.pdf)

[238] 2008 data from: Oct. 14, 2008. RRC. Oil and Gas Division presentation. http://www.fortworthgov.org/uploadedFiles/Gas_Wells/RRC%20-%20Oil%20and%20Gas%20Division.pdf 2011 data from: Pers. Comm. between Bruce Baizel, Earthworks and Leslie Savage, RRC of Texas. April 10, 2012. An email from RRC clarified that "We. . .provided for an additional 21+ full time inspector positions in the past year. . ." and the RRC has "97 full-time inspectors" but lead techs, state pluggers, and cleanup coordinators "also spend a relatively large percentage of their time in the field." When the latter positions are added in, there are 153 employees who carry out some inspection duties.

[239] Public Sector Consultants. Feb. 13, 2012. (Revised) *An Overview of State Tax Revenue Models for Four Natural Resource Extractive Industries.* pp. 10, 11. http://bridgemi.com/wp-content/uploads/2012/02/Severance-Tax-Report-Revised-2-13-12.pdf

There are differing opinions on how to fund oil and gas agencies and their enforcement programs, as well as how revenue generated from oil and gas activities should be disbursed. While this section does not delve into the oil and gas revenue allocation issue, it does provide some ideas for generating funds to support strong oil and gas enforcement programs.

There are several examples of a "pay-as-you-go" approach to funding oil and gas enforcement.

- In 2009, the Pennsylvania DEP Bureau of Oil and Gas Management increased its well permit fees for the first time since the state's *Oil and Gas Act* was enacted in 1984. According to the STRONGER board, "Pennsylvania's oil and gas program is now completely funded by well permit fees. The increase in permit fees allowed DEP to increase the size of its permitting, compliance and enforcement staff."[240]
- An Ohio law adopted in 2010 required that DOGRM oil and gas well inspectors "draw their salaries from fees paid by drilling companies."[241]
- Michigan imposes a $0.0029 fee against total production, which is used by the Michigan Department of Environmental Quality to cover the costs of oil and gas oversight.[242]
- In 2011, the Sunset Commission in Texas recommended that the RRC's Oil and Gas program become self-supporting, and that this should be done by increasing fees for permits, licenses, certificates, and reports levied on the oil and gas industry. The Commission's rationale for having the program be self-supporting, rather than relying on general revenue, was two-fold: other regulatory agencies in Texas have statutory means to ensure that fee revenues cover the costs of regulation, and using general revenue to regulate the oil and gas industry unfairly shifts oversight costs from the industry to taxpayers.[243]

In addition to funding enforcement through permit and other fees, the revenue from penalties is a potential source of funding for oil and gas agencies that should be considered—particularly at a time when drilling is expanding and state budgets are declining. Taking enforcement actions, increasing maximum penalties, and actually assessing and collecting penalties could help fund improved oversight of oil and gas operations.

Texas provides an example of the revenue that could be generated from penalties. In 2009, there were close to 24,000 sign violations at oil and gas facilities in Texas, and the Sunset Commission reported that, "if operators had to pay a fine of $250[244] for each sign violation,

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[240] STRONGER (State Review of Oil and Natural Gas Environmental Regulations, Inc.). Sept. 2010. *Pennsylvania Hydraulic Fracturing State Review.* p. 6. http://www.shalegas.energy.gov/resources/071311_stronger_pa_hf_review.pdf

[241] Wolf, I. Nov. 27, 2010. "Fracking practice for natural gas puts water wells at risk, critics say," *Naples News.* http://www.naplesnews.com/news/2010/nov/27/natrual-gas-drilling-well-fracking-water-supply/

[242] Public Sector Consultants. Feb. 13, 2012. (Revised) *An Overview of State Tax Revenue Models for Four Natural Resource Extractive Industries.* p. 10. http://bridgemi.com/wp-content/uploads/2012/02/Severance-Tax-Report-Revised-2-13-12.pdf

[243] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas.* p. 3. http://www.sunset.state.tx.us/82ndreports/rct/rct_fr.pdf

[244] $250 was the standard penalty suggested well sign violations. (Source: TX RRC document "Recommended Standard Penalty Schedule for Enforcement Cases." Obtained from RRC) The 2012 changes to rule 3.1 "Penalty Guidelines for Oil and

the number of these violations would decrease."[245] If a $250 fine had automatically been applied for all of those violations, it would have generated $6 million in 2009,[246] which could have helped to fund more inspectors.

AGENCY BUDGETS: RECOMMENDATIONS

RECOMMENDATION: *Agencies should increase revenue for oil and gas enforcement programs by taking more enforcement actions, increasing maximum penalties, and assessing and collecting maximum penalties that are allowed by law.*

RECOMMENDATION: *Agencies should increase fees for various permits related to oil and gas development to help partially or completely cover monitoring and enforcement costs.*

RECOMMENDATION: *Oil and gas agencies should continue to press state legislatures to increase agency budgets. In states where oil and gas severance taxes are collected, oil and gas agencies could request that sufficient funds from this income source be allocated to their agencies to cover monitoring and enforcement budgets.*

2.2. STAFFING ISSUES

NOT ENOUGH STAFF

All the states examined for this report have insufficient agency staff to adequately inspect oil and gas well sites. For example, there are just 12 inspectors in New Mexico to oversee more than 50,000 active oil and gas wells. (See Tables 1 and 2)

Oil and gas agencies in many states have acknowledged a shortage of staff. In 2010, a policy document instructed Texas inspectors, when dealing with clients, to "never use our limited staffing problem as an excuse for not doing a good job. Use the positive approach that we are doing the best we can, but could do even more with increased funding and staffing levels."[247]

In 2008, Mark Fesmire, then-director of the New Mexico OCD stated that, "We have 60 employees. . . There is no way, given our budget, that we can look over their [the oil and gas industry] shoulder the whole time."[248] Charlie Perrin, district supervisor for OCD's Aztec office, stated that his staff tries to inspect each of the 24,000 active wells in his district every five years. "The public wants us to do our jobs. But our hands are tied with political things. There's not enough money, not enough trucks; [fuel] is too expensive."[249]

Gas Violations" increased it to $500. (See Figure : 16 TAC §3.107(e)(1). http://www.sos.state.tx.us/texreg/archive/August242012/adopted/16.ECONOMIC%20REGULATION.html#221)

[245] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 34. http://www.sunset.state.tx.us/82ndreports/rct/rct_fr.pdf

[246] 24,000 violations x $250 per violation = $6 million.

[247] Ross, Charles C. Deputy Director, Field Operations, RRC of Texas. February 1, 2010. "Field Operations: Job Priorities." Obtained from TX RRC Open Records Coordinator, Debra Ravel, via email. Sept.29, 2011.

[248] Haywood, P. March 2, 2008. "Drilling's hidden Costs," *Santa Fe New Mexican.* http://www.santafenewmexican.com/Local%20News/Drilling-s-hidden-costs

[249] Haywood, P. March 1, 2008. "Inspectors struggle to monitor vast area," *Santa Fe New Mexican*. http://www.santafenewmexican.com/Local%20News/Inspectors-struggle-to-monitor-vast-area

CONFLICTS OF INTEREST AND THE REVOLVING DOOR

In the wake of the BP Macondo well blowout in the Gulf of Mexico, numerous media reports focused on the close ties between oil and gas companies and federal government employees tasked with overseeing them. Documents obtained by the *Associated Press* showed that 1 of every 5 employees involved in inspections in the Gulf had been recused from some duties because of the risk of coming into contact with a family member or friend working for a company that the inspector regulated. The press report also cited a U.S. Inspector General report finding that some government workers tipped off companies about upcoming inspections, and that accepting gifts from oil and gas companies was commonplace in some regional offices.[250]

Another newspaper reported that offshore companies invited federal agency staff to skeet-shooting contests, hunting and fishing trips, golf tournaments, and crawfish boils in 2005, 2006, and 2007, but just one employee in the region reported receiving gifts and reimbursements for travel in required disclosure forms.[251]

The close relationship between the oil and gas industry and government inspectors is not unique to the federal level. In 2007, employees of the Texas RRC reported to the State Auditors Office that they accepted meals, caps, gift baskets, and other small gifts from oil and gas operators that they were regulating.[252]

Another aspect of the close relationship between regulators and industry is the problem of the "revolving door." Agencies hire personnel who have worked for the industry because they have technical expertise. Agency employees often leave to work in industry because corporate salaries are much higher.

In West Virginia, inspectors are currently required to have six years of industry experience.[253] Randy Huffman, secretary of the WVDEP recently said that he wants the industry-experience requirement lifted because "it makes his agency compete with industry for hiring, needlessly limits the pool of candidates, and could raise concerns about whether inspectors are impartial."[254]

In many states, the exodus of oil and gas agency employees to industry is a real concern. This 'revolving door' that delivers regulators into the employ of oil and gas companies creates questions from the public such as, "How long were particular oil and gas employees considering jobs with industry while still supposedly regulating them?"

In recent years, there have been some high profile cases of top government employees leaving government and quickly taking positions within industry. For example, in 2009, the

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[250] Cappiello, D. July 26, 2011. "AP IMPACT: Gulf oil industry-gov't ties persist," *Associated Press.* Available at: http://seattletimes.com/html/nationworld/2015732566_apusoffshoredrillingrevolvingdoor.html

[251] Dloughy, J.A. May 26, 2010. "Report says MMS workers took energy company gifts," *Houston Chronicle.* http://www.chron.com/business/energy/article/Report-says-MMS-workers-took-energy-company-gifts-1609147.php

[252] State Auditor's Office (Texas). August 2007. *An Audit Report on Inspections and Enforcement Activities in the Field Operations Section of the Railroad Commission.* SAO Report No. 07-046. p. 9. http://www.sao.state.tx.us/Reports/report.cfm/report/07-046

[253] Knezevich, A. Aug.4, 2011. "Lawmakers may change hiring process for gas inspectors," *Charleston Gazette.* http://wvgazette.com/News/201108041407?page=2&build=cache

[254] Soraghan, M. Nov. 30, 2011. "Drilling regulators pull double duty as industry promoters," *Greenwire.* http://www.eenews.net/public/Greenwire/2011/11/30/1

federal Office of the Inspector General (IG) found that Steve Henke, District Manager of the Bureau of Land Management in Farmington, New Mexico, took gifts and solicited donations from an oil and gas company, misused travel funds to attend a PGA golf tournament as a guest of an oil and gas company, and expedited permits for a company that provided Henke's son with an internship—all without disclosing this information as required by the federal government.[255] In August 2010, three months after retiring from the BLM, Henke was hired as president of the New Mexico Oil and Gas Association, the leading industry group in the state.[256]

In 2012, the director of the Colorado Oil and Gas Conservation Commission, David Neslin, resigned and immediately went to work for the law firm Davis Graham & Stubbs LLP, to be "part of a team serving energy industry clients."[257] That firm represented multiple oil and gas industry clients in 2008, when the COGCC was overhauling its oil and gas regulations.[258] In 2007, Neslin's predecessor at COGCC, Brian Macke, accepted a position with Delta Petroleum a little more than a month after his departure from the COGCC.[259]

But it is not just top-level bureaucrats who are leaving government for industry.

- According to the New Mexico OCD's enforcement and compliance manager, Daniel Sanchez, currently the OCD is short-staffed because, "[industry] can pay much more than government."[260] This is not a new problem in New Mexico. In 2008, Charlie Perrin, district supervisor for the state's Aztec office, had a difficult time keeping his office staffed. "State salaries (from $12 to $23 per hour, depending on experience and education) make it hard to keep inspectors." Consequently, several of Perrin's staff members at the time were "just learning the job."[261]
- In 2011, in its review of the Texas RRC, the Sunset Commission found that ". . . inadequate pay and lack of career advancement resulted in 26 employees under the age of 40 leaving in 2009," and ". . .having to compete with higher paying private sector jobs also creates barriers to recruiting employees."[262]
- In 2011, before he left his post as secretary of the Pennsylvania DEP, John Hanger told the *Citizens' Voice* that during this time of high unemployment DEP has not had a problem hiring new staff for its oil and gas program, but that retention was a challenge.

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[255] Office of Inspector General. U.S. Dept. of Interior. Report of Investigation – Henke, Steven P. June 7, 2010. Case Number OI-CO-09-0259-I. p. 1. Report available at: http://pogo.ly/qjeyrH

[256] Montoya Bryan, S. July 21, 2010. "Steve Henke, former BLM director, selected to lead New Mexico's oil and gas industry group," *Huffington Post.* http://www.huffingtonpost.com/2010/07/21/steve-henke-former-blm-di_n_654923.html

[257] Tsai, C. Feb. 1, 2012. "Colorado Oil and Gas Commission director resigning," *Colorado Springs Gazette.* http://www.gazette.com/articles/gas-132752-oil-colorado.html#ixzz1ldY2rzeX

[258] "Mueller, K. (DGS Law). "Colorado Oil & Gas Conservation Commission Issues Final Revised Rules." http://www.dgslaw.com/attorneys/ReferenceDesk/DGS-Client-Alert-021109-Spill-Prevention-Control-Countermeasure-Rule.html

[259] Macke's last day of work was Oct. 31, 2007, (Source: Merritt, G. Oct. 19, 2007. "Head of state oil, gas commission resigns amid big changes," *Glenwood Springs Post Independent.* http://www.postindependent.com/article/20071019/VALLEYNEWS/110190068) and was hired by Delta Petroleum in December of 2007. (Source: Dec. 13, 2007. "Delta Petroleum Adds Macke to Senior Management Team," *Rigzone.* http://www.rigzone.com/news/article.asp?a_id=54006)

[260] Pers. Comm. with New Mexico OCD Enforcement and Compliance Manager, Daniel Sanchez. July 29, 2011.

[261] Haywood, P. March 1, 2008. "Inspectors struggle to monitor vast area," *Santa Fe New Mexican.* http://www.santafenewmexican.com/Local%20News/Inspectors-struggle-to-monitor-vast-area

[262] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas.* pp. 52,53. http://www.sunset.state.tx.us/82ndReports/RCT/RCT_FR.pdf.

> "The turnover in staff is one of the hurdles that has to be overcome."[263] The article listed a litany of defections from DEP to oil and gas companies: Range Resources, Chesapeake Energy, and Atlas Energy together hired at least four former well site inspectors; a 30-year veteran with DEP had been hired by Chief Oil and Gas; and Barbara Sexton, the department's second-highest ranking official, became director of governmental affairs for Chesapeake.[264]

While there may not be much that an agency can do to prevent employees from negotiating with companies for employment opportunities, it is possible to enact laws to prevent former employees from interacting with the agency for a period of time.[265]

The importance of retaining experienced staff cannot be overstated. In an interview for this report, an ex-regulator commented that, "It can be difficult to find real violations. You need experience technically to really know what is happening. State employees are not always the most experienced."

The Texas RRC has similarly acknowledged the importance of experienced staff. "Retention of employees in the engineering and technical oilfield disciplines is particularly difficult. Without these employees, progressive regulatory models cannot be implemented, and basic services may begin to deteriorate. A program to provide competitive salaries to attract and retain the RRC's human resources is critical." [266]

Clearly, it has, and continues to be, a challenge for state oil and gas agencies to retain staff with the level of experience necessary to adequately enforce the rules. More must be done to attract and keep these valuable employees. Otherwise, adequate enforcement is not going to occur.

STAFFING ISSUES: RECOMMENDATIONS

RECOMMENDATION: *To avoid conflict-of-interest issues, oil and gas inspectors and enforcement staff should not be allowed to receive gifts (either material or in-kind, e.g., meals, travel, and entertainment) from oil and gas companies or employees.*

RECOMMENDATION: *Statutory restrictions should be placed on past employees of oil and gas agencies to prohibit them (for a period of time) from representing or assisting private companies in dealing with matters related to the agency. These past agency employees should also be prevented from disclosing to new employers any confidential information obtained while in the employ of an agency.*

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[263] Legere, L. January 25, 2011. "DEP losing staff to gas drilling industry," *The Citizens' Voice.* http://citizensvoice.com/news/drilling/dep-losing-staff-to-gas-drilling-industry-1.1094471

[264] ibid.

[265] For example, Delaware has "post-employment restrictions that relate to conflict of interest: "*No person who has served as a state employee, state officer or honorary state official shall represent or otherwise assist any private enterprise on any matter involving the State, for a period of 2 years after termination of employment or appointed status with the State, if the person gave an opinion, conducted an investigation or otherwise was directly and materially responsible for such matter in the course of official duties as a state employee, officer or official. Nor shall any former state employee, state officer or honorary state official disclose confidential information gained by reason of public position nor shall the person otherwise use such information for personal gain or benefit."* Delaware Code. Title 29, Chapter 58, Subchapter 1, Section 5805: *Prohibitions relating to conflicts of interest.* http://codes.lp.findlaw.com/decode/29/58/I/5805

[266] RRC of Texas. Sept. 2009. *Self-Evaluation Report*. Submitted to Texas Sunset Advisory Commission. p. 14. http://www.rrc.state.tx.us/about/divisions/RRCSelfEvaluationReport2009.pdf

RECOMMENDATION: *Enforcement staff wages and benefits should be increased to make public employment more competitive.*

2.3. DATA COLLECTION, MANAGEMENT, AND TRANSPARENCY

This report contains numerous examples of poor record-keeping and data collection, management, and availability. Lack of access to information is a significant barrier to citizen enforcement efforts (i.e., it can be difficult for citizens to access and interpret data), as well as to agency enforcement efforts.

The Sunset Commission of Texas shares this opinion, berating the RRC for its poor data management and tracking. For example, while the RRC does track violations according to which rule was violated, "…the data do not indicate whether the violations are serious or how many represent repeated violations by the same operator. By relying on this limited information the Commission cannot determine or ensure effective and consistent enforcement across the state."[267] When the Sunset Commission asked the RRC how many of the 18,000 water protection violations in 2009 resulted in an enforcement action, the agency had to do a manual count of each violation in the enforcement dockets to produce the total.[268]

In 2010, *Scripps Howard News Service* reported that the Ohio Department of Natural Resources had data to show that well operators had received 14,409 Notices of Violation since 2000. Nearly 2,000 of these lacked any electronic record of when, or if, the violations had been resolved. Similarly, Pennsylvania officials told the news service that their violation files—which include thousands of notations of violations with no accompanying resolution data—could not be trusted to be accurate. Instead of keeping this information up-to-date (and thus available for use by citizens, advocates, or policymakers), "…inspectors are devoting their limited manpower in the field rather than completing paperwork."[269]

RECOMMENDATION: *Agencies need to document, track, and publish annual or quarterly statistics on inspections, violations, penalties, different types of enforcement actions, and complaints. By doing so, it will help the agencies know where to focus enforcement efforts (e.g., highlight bad actors, identify rules that are frequently violated) and show differences in compliance among regions and operators.*

RECOMMENDATION: *In addition to publishing statistics, all data on inspections, violations, penalties, enforcement actions and complaints should be made publicly available through searchable online databases and for download so that the public can analyze the data in the aggregate, look up specific cases, and find information as to whether or not violations or complaints have been resolved. This level of data transparency will help hold agencies accountable for their inspection and enforcement practices, and companies can be held accountable for their violations.*

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[267] Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 34. http://www.sunset.state.tx.us/82ndreports/rct/rct_fr.pdf

[268] ibid.

[269] Wolf, I. Nov. 27, 2010. "Fracking practice for natural gas puts water wells at risk, critics say," *Naples News.* http://www.naplesnews.com/news/2010/nov/27/natrual-gas-drilling-well-fracking-water-supply/

2.4. OTHER FACTORS

MORE RESOURCES ALLOCATED TO PERMITTING RATHER THAN ENFORCEMENT

In 2005, the Government Accountability Office (GAO) reported that the number of oil and gas drilling permits approved by the federal BLM had tripled from 1,800 in 1999 to 6,400 in 2004. The GAO found that "increases in permitting activity are compromising the agency's ability to conduct certain mitigation activities—such as inspections and idle well reviews—because staff responsibilities are being shifted away from these important activities to process permits."[270]

It is also common for state agencies to respond to booms in oil and gas development by expediting permitting processes. The pressure to approve permits can jeopardize the thorough gathering and review of information that is critical when making a permitting determination, such as proximity of a facility to a water source or impacts on nearby residential areas.

In 1998, industry in Texas pushed regulators hard to streamline the oil and gas permitting process. At the time, it took three to five days to process a permit application. Texas RRC Commissioners and staff met with oil and gas industry representatives and developed a permitting system that focused on electronic processing "for the purpose of increasing process efficiencies and to reduce industry and RRC costs." With the help of industry, the RRC received $1.4 million from the Texas Legislature, as well as $700,000 from the U.S. Department of Energy to undertake the electronic permitting project.[271] As a result of this initiative, approximate processing times are anywhere from one to seven days for expedited permits and three to 14 days for standard drilling permits.[272]

During the past two years, Colorado has also reduced its permitting times significantly, although not to the same degree as Texas. In 2010 and 2009, the median times were 45.7 and 52.3 days, respectively, while in 2011 the median time required to process a drilling permit was 27 days.[273]

In 2009 and 2010 Ohio averaged 12 days to issue drilling permits (no data are available for 2011).[274]

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[270] Government Accountability Office. June 2005. *Oil and Gas Development: Increased Permitting Activity Has Lessened BLM's Ability to Meet Its Environmental Protection Responsibilities.* GAO-05-418. p. 48. http://www.gao.gov/new.items/d05418.pdf

[271] Cisco, S. and LaHood, D. May 8, 2000. "Texas Railroad Commission introduced Internet-based permit process," *Oil and Gas Journal*. http://www.ogj.com/articles/print/volume-98/issue-19/drilling-production/texas-railroad-commission-introduces-internet-based-permit-process.html

[272] RRC of Texas web site: "Drilling Permit Processing Time." Accessed September 19, 2011. and August 30, 2012. http://www.rrc.state.tx.us/data/drilling/index.php

[273] (Median permitting times are for the first quarter of each year). Neslin, D. April 25, 2011. "Memorandum to the Colorado Oil and Gas Conservation Commission." http://cogcc.state.co.us/announcements/CommissionLtr4_25_11.pdf

[274] This total includes permits issued to convert, deepen, drill, plugback, plug and abandon, reissue, and reopen wells. (Source: Ohio Division of Mineral Resources Management. 2010. *Summary of Ohio Oil and Gas Activities.* p. 1. http://www.ohiodnr.com/portals/11/publications/pdf/oilgas10.pdf)

No agency statistics were found on the average time to issue permits in Pennsylvania. In April 2011, it was revealed that even though multiple DEP staff sign off on drilling permits, the total review time for a drilling permit in Pennsylvania could be as little as 35 minutes.[275]

During discussions with stakeholders conducted for this report, the consequences of speeding up the permitting process were highlighted, including a lack of time to consult with the specialists who may be able to include permit conditions (such as those who can verify the location of springs, know whether an area is prone to hydrogen sulfide gas, and can apply the definition of "wild and scenic" areas) that can ultimately prevent or mitigate impacts. In skipping thorough analysis, operators may evade proper special permit requirements or stipulations that could aid enforcement efforts.

Citizens and independent organizations have helped bring to light some of the consequences of the expedited permitting processes in Pennsylvania, including –

- In October 2009, DEP revoked three erosion and sedimentation permits due to technical deficiencies discovered after permit approval.[276] As part of a July 2011 settlement agreement of the permit appeals, DEP agreed to prevent the use of its "expedited" permitting process when considering drilling applications located near streams with the highest water quality and considered to be of exceptional value.[277]
- In December 2010, Lake Erie Energy Partners LLC was issued two drilling permits. DEP revoked the permits after North East Township residents contacted DEP to alert them to water supply notification shortcomings in the permit applications.[278]

Unfortunately, citizens are simply not able to review all permits (nor should they be expected to carry this responsibility in the absence of agency action). If a regulatory agency cannot perform a thorough review of permits on its own, the permitting process should be revamped.

RECOMMENDATION: *Agencies should focus on a thorough review of permits and specific conditions related to the permit, including provisions that can be enforced or that are more likely to result in regulatory violations, rather than focusing on expediting permit approvals.*

RECOMMENDATION: *Agencies should require permitting staff to communicate with inspections staff and/or consult the agency database on inspections, violations, and enforcement actions to ensure that a company's history of compliance is taken into consideration during the permitting process.*

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[275] Rubinkam, M. April 13, 2011. "Pennsylvania is approving gas drilling permits with scant review," *Associated Press.* Reprinted in USA Today: http://www.usatoday.com/money/industries/energy/2011-04-13-pa-gas-drilling-permits.htm

[276] Pennsylvania DEP. Oct. 28, 2009. "DEP Revokes Erosion and Sedimentation Control Permits for Two Gas Companies." http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=2409&typeid=1
The three permits were appealed to the state Environmental Hearing Board by the Chesapeake Bay Foundation, which prompted DEP officials to re-examine the permits to determine if they met the regulatory requirements, and ultimately led to the permit revocations. (Chesapeake Bay Foundation. July 7, 2011. "Settlement reached in Marcellus permit appeal case," Press Release. http://www.cbf.org/page.aspx?pid=2561)

[277] Pennsylvania DEP. Jan. 20, 2012. "DEP accepts public comment on oil and gas erosion control permits," News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=19225&typeid=1

[278] Pennsylvania DEP. April 4, 2011. "DEP Issues Corrected Well Drilling Permits to Lake Erie Energy Partners." News Release. http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=16895&typeid=1

BARRIERS TO CITIZEN INVOLVEMENT IN ENFORCEMENT

Citizen enforcement is a feature of many federal environmental statutes, allowing citizens to sue companies for violations when the government fails to do so. Traditionally, Congress has viewed citizen enforcement as an important supplement to agency enforcement.[279] It is also a means of holding agency regulators accountable for enforcing pollution laws.[280]

Unfortunately, most state environmental or resource statutes do not have citizen suit provisions. However, a few, such as New York, allow citizens to take operators to court to ask for an injunction against oil and gas violations if the state fails to do so.[281]

Citizen involvement in enforcement is further hampered because of the poor state of record-keeping and lack of publicly accessible online inspection and enforcement data. Most citizens and citizen advocacy organizations lack the resources to perform paper file reviews, which in the absence of online data are necessary to build citizen enforcement cases.

RECOMMENDATION: *States should add citizen suit provisions to oil and gas statutes and environmental statutes that pertain to oil and gas operations. This would enable citizens to hold agencies accountable for enforcing rules to protect the environment, public health and safety, and, in turn, facilitate the remediation of damage caused to individuals and property.*

THE BURDEN OF PROOF MUST BE SHIFTED

Currently, enforcement action often requires that agencies and citizens first prove that harm has occurred. It can be very difficult and expensive to prove a direct connection between problems such as groundwater pollution or health impacts and oil and gas activity. In addition, companies are often able to draw on a cadre of their own scientists and attorneys to dispute agency or citizen science.[282]

A high burden of proof is often placed on state agencies seeking to use enforcement tools. As mentioned above, the New Mexico OCD must prove that a violator acted "knowingly and willfully" in order to assess civil penalties.[283] Also, as described in Section1.4, in some states, cease and desist orders or denial of new permits may only be used in "emergency situations," or "if there is a material and substantial violation," or the violation "presents an

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[279] Center for Progressive Regulation. "Environmental Enforcement." http://www.progressiveregulation.org/perspectives/environEnforce.html

[280] April 23, 2009. "Poisoned Waters," *PBS Frontline.* http://www.pbs.org/wgbh/pages/frontline/poisonedwaters/involved/action.html

[281] New York Code. Environmental Conservation. Article 71. Enforcement. Title 13: Enforcement of Article 23. Section 71-311. Injunction against violations. http://codes.lp.findlaw.com/nycode/ENV/71/13/71-1311

[282] For example, after a well blowout in Leroy Township, PA, water tests in a nearby water well revealed post-blowout concentrations of methane and other constituents at 10-times the concentration found in the baseline water sample (Source: Agency of Toxic Substances and Disease Control (ATSDR). Nov. 4, 2011. *Health Consultation – Chesapeake ATGAS 2H Well Site. Leroy Township, Bradford County, PA.* pp. 17, 18. http://www.atsdr.cdc.gov/HAC/pha/ChesapeakeATGASWellSite/ChesapeakeATGASWellSiteHC110411Final.pdf) Cheseapeake responded saying the predrilling baseline water test was unrepresentative of the actual conditions that existed prior to drilling. (Cheseapeake Energy Corporation. Submission to ATSDR of Information Quality Request for Correction. http://aspe.hhs.gov/infoquality/request&response/41a-Petition.pdf)

[283] A legislative effort in 2011 to remove this burden of proof failed. (Source: New Mexico Legislative Finance Committee. Feb. 17, 2011. Fiscal Impact Report for HB 176 "Oil and Gas Enforcement." http://www.nmlegis.gov/Sessions/11%20Regular/firs/HB0176.pdf)

imminent danger to the health or safety of the public," or "a knowing and willful pattern of violation exists." In all of these cases, the state agencies are prevented from utilizing the enforcement tools against violations unless they can prove that near-catastrophic conditions exist.

Citizens' and agencies' burdens of proof are made heavier by a lack of pre-drilling environmental data (e.g., ground- and surface-water and air quality data), as well as a lack of monitoring data collected or reported during drilling and production. This means that it is virtually impossible for the public or agencies to track the gradual decline in environmental quality, or to find violations as they are happening.

In Pennsylvania, many oil and gas operators test for chemicals in private water supplies in the vicinity of proposed oil and gas well locations because operators are presumed responsible if water supplies become polluted after drilling (some conditions apply).[284] But companies are not presumed responsible for impacts to water quantity. Thus, if changes to water quantity occur after drilling, it is up to citizens and DEP to prove the companies wrong.[285] So citizens, who may or may not be reaping any benefits from oil and gas wells drilled near their property, are shouldering the cost of proving that their water quantity has been affected by drilling.

Until there is a shift in the burden of proof onto industry, or at least a reduction of the burden placed on agencies and citizens, state agencies will not be able to fully use the enforcement tools available to them, and bad actors will continue to get away with practices that impact or threaten human health and the environment.

RECOMMENDATION: *Changes should be made to regulations to reduce the burden of proof that must be met before agencies can take enforcement action against operators that violate oil and gas rules.*

RECOMMENDATION: *Companies should be required to conduct pre-and post-drilling water (quality and quantity), air and soil monitoring. The data should be submitted to oil and gas and other relevant agencies (e.g., environment departments), and be made publicly available so that it can be reviewed and used by citizens.*

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[284] The presumption exists under certain conditions – e.g., Unless rebutted, the Act presumes that an operator is responsible for pollution of a water supply if the affected water supply is 1,000 feet from a conventional well or 2,500 feet from an unconventional well and that pollution occurred within 6 or 12 months of the later of completion, drilling, stimulation or alteration of the conventional and unconventional well, respectively. (PA Act 13 of 2012. Section § 3218. Protection of water supplies. http://www.ctbpls.com/www/PA/11R/PDF/PA11RHB01950CC1.pdf)

[285] Pennsylvania State Extension. 2011. Marcellus Shale Gas Well Drilling: Regulations *to Protect Water Supplies in Pennsylvania.* p. 3. http://www.cce.cornell.edu/EnergyClimateChange/NaturalGasDev/Documents/PDFs/marcellus_regulations_fact_sheet[1].pdf

3 THE PATH FORWARD

This report shows that states across the nation are betraying one of the basic agreements between government and the governed: to enforce the law. That betrayal feeds into the growing lack of confidence that government should be about equal treatment and not about financial or political clout.

This betrayal of the public interest also severely weakens state claims that they can protect the public from the impacts of the shale boom. A rule – even an improved rule – on the books means little if an oil or gas company knows that it can be ignored with little or no consequence.

To address the problem we call upon states to take the following steps::

Acknowledge that public health is at risk because state enforcement of existing oil and gas rules is broken:

- More than half of all wells go uninspected year: hundreds of thousands of wells.
- Those companies that are found in violation are rarely penalized: ambiguous policies and rules leave the consequence for violations unclear to the public, companies and inspectors. Consequences appear to vary violation by violation.
- Penalties are so weak that it is cheaper for violators to pay the penalty than comply with the law.

Fix state enforcement by making common sense policy and regulatory changes:

- Writing into rule the minimum number of inspections/inspectors per number of wells, and providing adequate money and equipment to perform the inspections.
- Establishing clear rules so inspectors, companies, and the public know when operators are in violation, and the consequences.
- Formalize the public's role in enforcement, including sharing information with the public and allowing citizen suits. The public lives with gas development in their communities – they often know of violations before anyone else, including inspectors.

Until state enforcement is fixed, refuse new permits to drill:

Oil and gas regulations are the law of the land. Oil and gas extraction is permitted on a well-by-well basis, conditioned upon compliance with the law. Until states can demonstrate in good faith that they are upholding the, they cannot maintain the public trust if they continue to permit new drilling.

Table A1-1. Comparison of inspection staff and activity–2010.

State	Inspectors	Active wells[1]	Number of wells inspected	Inspections	Active wells per inspector	Inspections per inspector
CO	15[2]	43,354[3]	No data	16,228[4]	2,890	1,082
NM	12[5]	53,063[6]	No data	20,780[7]	4,422	1,732
NY	16[8]	10,315[5]	No data	2,460[9]	645	154
OH	21[10]	64,378[11]	5,644[12]	9,374[13] or 10,472[14]	3,066	446 or 499
PA	65[15]	91,167[16]	8,565[17]	15,368[18]	1,403	236
TX	88[19]	260,104[20]	No data	121,123[21]	2,956	1,376

Table A1-2. Comparison of inspection staff and activity–2011.

State	Inspectors	Active wells	Number of wells inspected	Inspections	Active wells per inspector	Inspections per inspector
CO	15[22]	46,835[23]	No data	12,239[24]	3,122	816
NM	12[25]	53,209[26]	No data	25,543[27] or 29,394[28]	4,434	2,129 or 2,450
NY	14[29]	11,852[30]	No data	No data	848	No data
OH	27[31]	64,481[32]	6,590[33]	10,422[34]	2,388	341
PA	84[35] or 88[36]	77,898[37]	11,283[38]	22,670[39]	927 or 885	270 or 258
TX	97[40]	261,476[41]	No data	114,878[42]	2,696	1,184

Table A1-3. Estimated number of active wells not inspected in 2010.

State	Number of inspections[43]	Number of wells inspected[44]	Number of active wells[45]	Approx. # of active wells NOT inspected	% of active wells NOT inspected
CO	16,228	16,228 (estimated)	43,354	27,126	63
NM	20,780	20,780 (estimated)	53,063	32,283	61
NY	2,460	2,460 (estimated)	10,315	7,855	76
OH	10,472	5,644 (actual)	64,378	58,734	91
PA	15,368	8,565 (actual)	91,167	82,602	91
TX	121,123	121,123 (estimated)	260,104	138,981	53

Table A1-4. Oil and gas violations and inspections by state–2010.

State	Violations	Inspections[46]	Violations found per inspection	Notes
CO	No data	16,228		319 Notices of alleged violations[47]
NM	No data	20,780		418 Letters of violation[48]
NY	No data	2,460	No data	No data
OH	1,094[49]	10,472	0.10	Violations
PA	2,861[50]	15,368	0.19	Violations
TX	71,646[51]	121,123	0.59	Violations

Table A1-5. Civil penalties collected (2009 to 2011).

	Colorado[52]	New Mexico[53]	New York[54]	Pennsylvania[55]	Ohio[56]	Texas[57]
2009	$162,000		$40,000	$1.6 million	$17,500	$ 2.0 million
2010	$1.2 million	$14,000		$4.0 million	$194,000	
2011	$3.0 million			$1.3 million	$73,935 (FY)	

Table A1-6. Civil penalties for violations of oil and gas regulations state.

State	Maximum penalty	When maximum penalty is applied
Texas[58]	Max $1000 - $10,000 for each day violation continues	Amount depends on rule that is violated. Largest penalty only applies if the provision, rule, or order pertains to safety or the prevention or control of pollution
Ohio[59]	Max $2,500 – $20,000 per each continuing day of violation	Amount depends on which section of Code is violated. Largest penalty primarily applies to rules to prevent pollution from extraction, storage and injection of brine, oil, natural gas or other fluids.
New Mexico[60]	Max $1,000 for each day violation continues	Applies to anyone who knowingly and willfully violates the Oil and Gas Act
New York[61]	Max $8,000 per violation plus $1,000 - $2,000 for each day violation continues	Applies to violation of Article 23 or any regulation, order or permit condition.
Colorado[62]	$500 - $1,000/day that violation continues	Maximum total fine for violations that do not have adverse effects on public health/welfare/resources is $10,000 regardless of # of days of continued violation. For violations that affect public health/welfare/resources the total may exceed $10,000.
Pennsylvania[63]	$25,000 per violation plus $1,000 for each day violation continues (conventional wells) and $75,000 per violation plus $5,000 for each day (unconventional well)	Applies to violations of Title 58 Oil and Gas.

Table A1-8. Oil and gas program budgets (2008 and 2011).

	Colorado[64]	Pennsylvania[65]	Texas[66]
2008	$5.4 million	$0.7 million	$14.8 million
2011	$6.5 million	$12.5 million	$12.2 million

ENDNOTES

[1] Active well data. There is no universal definition of an active well. Generally, active wells refer to wells that are operating, as opposed to wells that have been temporarily plugged or shut-in or permanently plugged and abandoned. Those wells that are inactive due to temporary shut-in should still be monitored, but for the purposes of this paper we did not include inactive wells. The Railroad Commission of Texas (**hereafter RRC**) does the best job of reporting well status, separating inactive from active wells, and separating active wells into oil and gas wells, stripper wells (those that produce small amounts of oil or gas), injection wells and others. Active wells in Pennsylvania were determined by counting the number of wells in DEP's "Production Reporting Database" whose well status indicated "active." The Colorado Oil and Gas Conservation Commission (**hereafter COGCC**) reports the number of "active" wells in its staff report. New Mexico does not consistently report active wells, so "producing wells" were used. New York used active producing well data. (See citations for each state for more information)

[2] COGCC. *2010 Report to the Water Quality Control Commission and Water Quality Control Division of the Colorado Department of Public Health and the Environment.* 2010, p. 3. http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/WQCC09_10RPT.pdf

[3] COGCC. January 13, 2011. Staff Report. p. 24. http://cogcc.state.co.us/Staff_Reports/2011/2011_01_SR.pdf

[4] ibid. p. 25.

[5] Pers. Comm. Daniel Sanchez, Sonny Swazo (NM Oil Conservation Division, **hereafter OCD**) and Jim Winchester and Lisa Sumi, Earthworks. March 5, 2012.

[6] We looked for data on "active" wells, but the OCD does not have active well statistics on its web site. The New Mexico Energy, Minerals and Natural Resources Annual Reports for 2010 and 2011 have information on the number of "wells," while previous reports, e.g., 2008 and 2009 have data on "active producing wells." (http://www.emnrd.state.nm.us/main/Publications.htm) Because of this lack of consistency, we decided to report the number of producing wells, based on data from the Petroleum Recovery Research Center. GO-TECH web site. "General Production Data Search." Data accessed March 22, 2012. http://octane.nmt.edu/gotech/Petroleum_Data/General.aspx Search 2010. Select: Production. Ignore wells with no data (to omit wells with no associated production data from search results.). Summary provides a well count of wells that produced oil or gas in 2010.

[7] Information request to Jim Winchester, New Mexico Environment Department & Energy (**hereafter NMED**), Minerals & Natural Resources Department from Lisa Sumi, Earthworks. Feb. 24, 2012.

[8] Sickle, A. April 28, 2010. "New York DEC staff shorthanded to reply to 14,000 Marcellus Shale comments – environmental inspectors down to 16," National Security News Service. http://www.dcbureau.org/20100429137/natural-resources-news-service/new-york-dec-staff-shorthanded-to-reply-to-13500-marcellus-shale-comments-environmental-inspectors-down-to-16.html

[9] McAllister, E. June 29, 2011. "Insight: NY water at risk from lack of natgas inspectors?" *Reuters*. http://www.reuters.com/article/2011/07/29/us-newyork-shale-drilling-idUSTRE76S5FA20110729

[10] State Review of Oil and Natural Gas Environmental Regulations (STRONGER), Inc. January 2011. Ohio Hydraulic Fracturing State Review. p. 6. http://www.dnr.state.oh.us/Portals/11/oil/pdf/stronger_review11.pdf

[11] Ohio Division of Mineral Resources Management. 2010. *Summary of Ohio Oil and Gas Activities.* p. i. http://www.ohiodnr.com/portals/11/publications/pdf/oilgas10.pdf

[12] Ohio Department of Oil and Gas Resources Management (**hereafter DOGRM**). Risk Base Data Management System (RBDMS) Database. Data updated and accessed March 7, 2012. http://www.ohiodnr.com/mineral/production/tabid/15389/Default.aspx. Filtered "tblInspections" by dates: 1/1/2010 to 12/31/2010. Filtered to include only oil and gas well inspections – i.e., codes AD, CT, DD, FR, OR, PB, PL, PW, SC, UD, UL, UP and WR. (This returned 9,373 inspections). Filtered by API_WELLNO to include unique records only. (This returned 5,644 oil and gas inspections with unique API numbers.)

[13] Ohio RBDMS. Downloaded tblInspections into Excel. Filtered by dates: between 1/1/2010 and 12/31/2010 or 1/1/2011 and 12/31/2011. Then filtered to include only oil and gas well inspections – i.e., codes AD, CT, DD, FR, OR, PB, PL, PW, SC, UD, UL, UP and WR.

[14] Email request for data made Sept. 16, 2011. Data received Oct. 4, 2011. Updated information received March 1, 2012. Beth Wilson, Public Information officer, DOGRM.

[15] As of early 2011, Pennsylvania Department of Environmental Protection (**hereafter DEP**) said they had 65 inspectors. So it is assumed that this is the number that were working in Pennsylvania in 2010. "The DEP's enforcement staff has increased nearly four-fold in the past two years, to about 130 people, 65 of whom are inspectors." (Source: Kusnetz, N. Feb. 3, 2011. "Many PA gas wells go unreported for months," *Propublica.* http://www.propublica.org/article/many-pa-gas-wells-go-unreported-for-months)

[16] Data from PA DEP Oil and Gas Reporting web site. Statewide Data Downloads. Data accessed March 16, 2012. https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx Had to download two spreadsheets for Marcellus wells (July 2009-June 2010 and June-Dec 2010). Combined the data into one spreadsheet. To find number of active wells we filtered the data to select Well Status: "ACTIVE" and to avoid duplicates from the two datasets filtered by Well Permit # to find "unique records only." (There were 5,722 active Marcellus wells). For non-Marcellus wells we downloaded the Annual O&G without Marcellus spreadsheet for 2010, then filtered to select only Well Status: "ACTIVE". (There were 85,445 active non-Marcellus wells). Total active wells = 5,722 + 85,445 = 91,167.

[17] Pennsylvania DEP. Compliance Report system. Data accessed March 20, 2012. Search: 01/01/2010 to 12/31/2010. Inspections with violations only: No. Download data into Excel. Then filteed by Permit #, selecting "unique records" to find how many wells were inspected. http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance

[18] ibid. Search: 01/01/2010 to 12/31/2010. Inspections with violations only: No. Downloaded data into Excel. When data are downloaded into Excel, the spreadsheet has a statistic for Inspections. Data accessed March 20, 2012.

[19] RRC presentation. July 2011. Slide 8. http://www.dallascityhall.com/pdf/GasDrilling/RRC_July2011.pdf

[20] Texas has data for active wells, (see their Well Distribution Tables http://www.rrc.state.tx.us/data/wells/welldistribution/index.php) but the number includes wells not used for oil and gas extraction (e.g., hydrocarbon storage, withdrawal, brine mining, injection disposal and other. So we used the number of producing oil and natural wells to represent active oil and gas wells. (Source: RRC "Natural Gas Production and Well Counts (1935-2011)" and "Oil Production and Well Counts (1935-2011)" found at: http://www.rrc.state.tx.us/data/production/index.php)

[21] Statistics from 2007 – 2011 from: Texas Legislative Budget Board. Agency Budget and Performance Measures for Fiscal Years 2007-2011. Search: "Railroad Commission." http://bapm.lbb.state.tx.us/main.aspx?FiscalYear=2011

[22] COGCC. 2011 *Report to the Water Quality Control Commission and Water Quality Control Division of the Colorado Department of Public Health and the Environment*. 2011, p. 3. http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/WQCC10_11RPT.pdf

[23] COGCC. January 20, 2012. Staff Report. p. 26. http://cogcc.state.co.us/Staff_Reports/2012/2012_01SR.pdf

[24] COGCC. January 20, 2012. Staff Report. p. 27. http://cogcc.state.co.us/Staff_Reports/2012/2012_01SR.pdf

[25] Pers. Comm. Daniel Sanchez, Sonny Swazo (NM OCD) and Jim Winchester and Lisa Sumi, Earthworks. March 5, 2012.

[26] Petroleum Recovery Research Center. GO-TECH web site. "General Production Data Search." Data accessed March 22, 2012. http://octane.nmt.edu/gotech/Petroleum_Data/General.aspx Search 2011. Select: Production. Ignore wells with no data (to omit wells with no associated production data from search results.). Summary provides a well count. Data accessed March 22, 2012.

[27] See endnote 7.

[28] *New Mexico Energy, Minerals and Natural Resources Departmental Annual Report*. (No publication date). Page 43. http://www.emnrd.state.nm.us/main/documents/EMNRD-2011-Annual-Report.pdf

[29] McAllister, E. June 29, 2011. "Insight: NY water at risk from lack of natgas inspectors?" *Reuters*. http://www.reuters.com/article/2011/07/29/us-newyork-shale-drilling-idUSTRE76S5FA20110729

[30] New York Department of Environmental Conservation (hereafter DEC) web site. DEC Oil & Gas Searchable Database. "Wells Search." (http://www.dec.ny.gov/cfmx/extapps/GasOil/search/wells/index.cfm) 1) Performed Well Data Search on Nov. 3, 2011. Searched Well Status = active. On that date there were 11,844 active wells. 2) On April 17, 2012 performed Well Data Search. Searched Spud/Start Drilling Date greater than or equal to 11/04/2011 and Spud/Start Drilling Date less than or equal to 12/31/2011. There were 22 wells spudded (which started to be drilled) between Nov. 4 and Dec. 31, 2011. 3) Performed Well Data Search – Plugging and Abandonment Date greater than or equal to

11/04/2011 and Plugging & Abandonment Date less than or equal to 12/31/2011. 14 wells were plugged and abandoned between Nov. 4 and Dec. 31, 2011. 4) Therefore, 11,844 + 22 – 14 = approximately 11,852 active wells at the end of 2011.

[31] Based on current listing of oil and gas field inspectors. Does not include supervisors, but does include back-up inspectors. (Accessed March 7, 2012). http://www.ohiodnr.com/mineral/inspectors/tabid/10355/Default.aspx

[32] For 2011 active wells, used Ohio RBDMS. Downloaded "tblWells." Filtered by dates: between 1/1/2011 and 12/31/2011. Counted number of wells plugged and abandoned (DT_PA). Counted number of wells spud (DT_SPUD). Subtracted wells plugged from wells spud. This is the total number of active wells added in 2011. Added this to number of active wells in 2010.

[33] Ohio RBDMS. (See endnote 12) Data updated and accessed March 7, 2012. To find number of oil and gas wells inspected: Filtered by dates: between 1/1/2011 and 12/31/2011. Then filtered to include only oil and gas well inspections – i.e., codes AD, CT, DD, FR, OR, PB, PL, PW, SC, UD, UL, UP and WR. Then filtered by API_WELLNO to include unique records only.

[34] Ohio RBDMS. (See endnote 12) Data updated and accessed March 7, 2012. Downloaded tblInspections.into Excel. Filtered by dates: between 1/1/2010 and 12/31/2010 or 1/1/2011 and 12/31/2011. Then filtered to include only oil and gas well inspections – i.e., codes AD, CT, DD, FR, OR, PB, PL, PW, SC, UD, UL, UP and WR.

[35] "Today, 202 staff members are assigned to the program – 84 of whom are devoted exclusively to well site inspection." (Source: Governor's Marcellus Shale Advisory Commission. July 22, 2011. Report. p. 66. http://files.dep.state.pa.us/PublicParticipation/MarcellusShaleAdvisoryCommission/MarcellusShaleAdvisoryPortalFiles/MSAC_Final_Report.pdf)

[36] "Pennsylvania, whose natural gas production has rocketed in recent years thanks to drilling in its slice of the Marcellus, has 202 workers charged with oil and gas inspections for more than 22,000 wells. Eighty-eight of these staffers specialize in actual well inspection." (Source: McAllister, E. June 29, 2011. "Insight: NY water at risk from lack of natgas inspectors?" Reuters. http://www.reuters.com/article/2011/07/29/us-newyork-shale-drilling-idUSTRE76S5FA20110729)

[37] We had to download two spreadsheets for Marcellus wells (Jan-June 2011 and June-Dec 2011). We combined the data into one spreadsheet, filtered the data to select Well Status: "ACTIVE", and then we filtered by Well Permit # to find "unique records only." For non-Marcellus wells we downloaded the Annual O&G, without Marcellus spreadsheet for 2011, then filtered to select only Well Status: "ACTIVE". (Source: DEP Oil and Gas Reporting web site. Statewide Data Downloads. Data accessed March 16, 2012. https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx)

[38] PA DEP. Compliance Report system. (See endnote 17) Data accessed March 20, 2012. Search: 01/01/2011 to 12/31/2011. Inspections with violations only: No. Download data into Excel. Then filteed by Permit #, selecting "unique records" to find how many wells were inspected.

[39] PA DEP. Compliance Report system. (See endnote 17) Search: 01/01/2011 to 12/31/2011. Inspections with violations only: No. Downloaded data into Excel. When data are downloaded into Excel, the spreadsheet has a statistic for Inspections. Data accessed March 20, 2012.

[40] A January 2012 press release from the Railroad Commission said that "As a result of an increased appropriation from the 82nd Legislature, the Commission increased the number of oil and gas inspectors from 88 to 153." (Source**:** RRC. Jan. 18, 2012. "2011: Year of Railroad Commission Accomplishments." News Release. http://www.rrc.state.tx.us/pressreleases/2012/011812.php)
An email from RRC clarified that RRC "provided for an additional 21+ full time inspector positions in the past year." And that the RRC has "97 Full-time inspectors" but that lead techs, state pluggers, and cleanup coordinators "also spend a relatively large percentage of their time in the field." When the latter positions are added in, there are 153 employees who carry out some inspection duties. (Source: Email from Leslie Savage, Railroad Commission of Texas to Bruce Baizel, Earthworks. April 10, 2012.)

[41] See endnote 20.

[42] Railroad Commission of Texas. Jan. 18, 2012. "2011: Year of Railroad Commission Accomplishments." News Release. http://www.rrc.state.tx.us/pressreleases/2012/011812.php

[43] See Table A1-1.

[44] Because data for number of wells inspected were lacking for states other than Ohio and Pennsylvania (data from Table 1), it was assumed that each inspection was done for a different well. In most states, some wells are visited more than once a year (e.g., if violations are found and follow-up inspections are required), so it is highly possible that fewer active well sites were visited in CO, NM and NY than what is reflected in the table.

[45] See Table A1-1.

[46] See Table A1-1.

[47] COGCC Staff Report. January 23, 2012. http://cogcc.state.co.us/Staff_Reports/2012/2012_01SR.pdf

[48] See endnote 7.

[49] Ohio RBDMS (See endnote 12). Data updated and accessed March 7, 2012. Downloaded "tblInspFail". Filtered by DT_MOD (1/1/2011 to 12/31/2011) and similarly for other years. Filtered TYP_INSP to remove inspections not related to oil and gas production wells (removed administrative inspections (AM), brine hauler (BH), enhanced recovery (ER), solution mining projects (SM), storage wells (SO) and saltwater injection wells (SW)). Column OAC (violations of Ohio Administrative Code) had 1,667 entries for 2011.

[50] Pennsylvania DEP. Compliance Report system. (See endnote 17) Most data accessed Feb. 28, 2012. Data for 2008-2011 accessed March 20, 2012. Search: by year - 01/01/2008 to 12/31/2008, etc. Inspections with violations only: No. Download data into Excel. When data are downloaded into Excel, the spreadsheet has a statistic for number of inspections.

[51] Railroad Commission of Texas presentation. July 2011. Slide 51. http://www.dallascityhall.com/pdf/GasDrilling/RRC_July2011.pdf

[52] From COGCC Annual Reports to Water Quality Control Commission and Water Quality Control Division of the Colorado Department of Public Health and the Environment. All annual reports available at: http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/AnnualReports.htm

[53] This amount was collected "largely through violations of the terms of agreed compliance orders," not civil penalties per se. (Source: New Mexico Legislative Finance Committee. Feb. 17, 2011. Fiscal Impact Report for HB 176 "Oil and Gas Enforcement." http://www.nmlegis.gov/Sessions/11%20Regular/firs/HB0176.pdf)

[54] New York Division of Mineral Resources. *2009 Oil, Gas and Mineral Resources Annual Report.* p. 20. http://www.dec.ny.gov/pubs/36033.html (No annual reports published since the 2009 report)

[55] Pennsylvania DEP. Oil and Gas Compliance Report. Accessed March 20, 2012. See endnote 17) Searched violations for each year (e.g., from 1/1/2011 to 12/31/2011). Where penalty data existed, data were only counted once for each distinct CACP, COA or NOV. This was done by sorting the database to show all penalties, and then filtering the column Enforcement ID number to include "unique records only." This ensured that the penalty for each enforcement action was only counted once.

[56] Email requests for data made Sept. 16, 2011 and Feb. 28, 2012. Data received Oct. 4, 2011 and March 1, 2012 from Beth Wilson, Public Information officer with Ohio Division of Minerals Resources Management.

[57] Sunset Advisory Commission. January 2011. Sunset Advisory Commission Decision. Railroad Commission of Texas. p. 8. http://www.sunset.state.tx.us/82ndreports/rct/rct_dec.pdf

[58] Texas Natural Resources Code (TNRC). Title 3. Oil and Gas; Subtitle B. Conservation and Regulation of Oil and Gas; Chapter 85. Conservation of Oil and Gas; Subchapter A. General Provisions; Section 85.381. Penalty for violation of laws, rules and orders. http://www.statutes.legis.state.tx.us/Docs/NR/htm/NR.85.htm

[59] Ohio Revised Code; Title (15) XV Conservation of Natural Resources; Chapter 1509: Division of Mineral Resources Management-Oil and Gas; Section 1509.33. http://codes.ohio.gov/orc/1509.33

[60] New Mexico Statutes Annotated 1978; Chapter 70 Oil and Gas; Article 2 Oil Conservation Commission; Division; Regulation of Wells; 70-2-31. Violations of the Oil and Gas Act; Penalties http://www.nmonesource.com/nmpublic/gateway.dll/nmsa1978/stat/ch70/27446/27478?f=templates$fn=document-frameset.htm$q=[field%20folio-destination-name:%2770-2-31%27]$x=Advanced#0-0-0-109803

[61] New York Consolidated Laws. Environmental Conservation. Article 71. Enforcement. Title 13. Enforcement of Article 23 (Mineral Resources). Section 71-1307. Sanctions. http://public.leginfo.state.ny.us/LAWSSEAF.cgi?QUERYTYPE=LAWS+&QUERYDATA=$$ENV71-1307$$@TXENV071-1307+&LIST=LAW+&BROWSER=BROWSER+&TOKEN=13266643+&TARGET=VIEW

[62] COGCC Rules. 523. Procedure for assessing fines. http://cogcc.state.co.us/RR_Docs_new/rules/500Series.pdf

[63] Pennsylvania Consolidated Statute. Title 58- Oil and Gas; Chapter 32, Subchapter E. § 3256. Civil penalties. http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/58/00.032..HTM

[64] These are actual program expenditures in the fiscal year. Data are from: Colorado Transparency Online Project. Budget to Actual Fiscal Year Reports from Fiscal Year 2005-2005 through 2009-2010. http://tops.state.co.us/tops_Bud2ActFY.htm

[65] 2008 data from: Swift, R. January 29, 2010. "DEP hiring more gas drilling inspectors," *Times-Tribune*. http://thetimes-tribune.com/news/dep-hiring-more-gas-drilling-inspectors-1.579626#axzz1Y98LK400
2011 data from: March 16, 2011. *Budget presentation by the Department of Conservation and Natural Resources to the House of Representatives Appropriation Committee.* p. 8. http://www.legis.state.pa.us/cfdocs/legis/tr/transcripts/2011_0034T.pdf

[66] 2008 data from: RRC. *2010 Operating Budget*. Operating Budget. IIA. Summary of Budget by Strategy. p. 1 of2. http://www.lbb.state.tx.us/External_Links/OB/Railroad_2010.pdf 2011 data from: *RRC. 2012 Operating Budget.* IIA. Summary of Budget by Strategy. p. 1&2 of 3. http://www.rrc.state.tx.us/about/divisions/opBudget.pdf

Table A2-1. Colorado inspection data.

	2005	2006	2007	2008	2009	2010	2011
Inspectors[1]	7	9	9	9	12	15	15
Inspections[2]	7,497	9,667	10,120	9,454	9,991	16,228	12,239
Inspections per inspector	1,071	1,074	1,124	1,050	833	1,082	816
Active wells at end of year[3]	28,952	31,096	33,815	37,359	40,956	43,354	46,835
Active wells per inspector	4,136	3,455	3,757	4,151	3,413	2,980	3,122
Active wells NOT inspected per year[4]	21,455	21,429	23,695	27,905	30,965	27,126	34,596
% of active wells NOT inspected per year	74.1	68.9	70.1	74.7	75.6	62.6	73.9

Table A2-2. Colorado enforcement actions and penalty data.

	2005	2006	2007	2008	2009	2010	2011
Enforcement Actions[5]							
Notices of Alleged Violation (NOAV)	255	247	542	308	260	319	230
Administrative Orders of Consent	5	12	9	16	8	10	10
Orders Finding Violation	4	5	0	2	1	3	19
TOTAL Enforcement Actions	**264**	**264**	**551**	**326**	**269**	**332**	**259**
Number of operators with NOAV[6]	95	86	125	109	115	83	79
Number of operators receving penalties[7]	15	12	13	11	6	10	22
Penalties collected ($mill)[8]	$0.48	$0.26	$0.089	$0.48	$0.17	$1.2	$3.0

* In 2010 and 2011, the COGCC pursued a backlog of enforcement matters, most of which involved incidents that had occurred in previous years.[9]

Table A2-3. Colorado citizen complaints.[10]

	2004/ 2005	2005/ 2006	2006/2 007	2007/2 008	2008/ 2009	2009/ 2010	2010/ 2011
Total Complaints	144	277	348	296	200	164	249
Resolved Complaints*	116	152	260	97	159	NR*	NR*
% Resolved	81	55	75	33	80		

* The COGCC used to publish statistics on how many complaints were received, and how many were resolved. In 2007 COGCC was required by Section 34-60-104 (III) (A) of the Colorado Revised Statutes to submit a quarterly report to the General Assembly concerning the number of complaints received by the Commission.[11] The report included a list of all complaints, type of complaint, information on the complainant's identity, and the commission's response. Unfortunately, in 2010, subsection III was repealed,[12] and as a result the COGCC no longer publishes data on resolved complaints.

Table A2-4. COGCC expenditures and staffing levels.

	2004/ 2005	2005/ 2006	2006/2 007	2007/2 008	2008/ 2009	2009/ 2010	2010/ 2011
COGCC Program Expenditures ($ mill)[13]	$3.40	$7.60	$4.50	$5.40	$6.00	$6.40	$6.54
COGCC Full-Time Eq. Employees (FTE)[14]	38	49	55	56	69	69	69
COGCC inspectors[15]	7	9	9	9	12	15	15
Active oil and gas wells[16]	28,952	31,096	33,815	37,459	40,956	43,354	46,835

Table A2-5. Colorado oil- and gas-related spills.[17]

	2004/ 2005	2005/ 2006	2006/2 007	2007/2 008	2008/ 2009	2009/ 2010	2010/ 2011
Spills/releases	257	364	313	380	346	438	516
Resolved*	214	328	NR	NR	NR	NR	NR
% resolved	83	90	-	-	-	-	-

* In the past, the Colorado Oil and Gas Conservation Commission would report the number of spill incidents that had been resolved (as seen in 2005, 2006 data). The agency no longer reports that information.

Table A2-6. The five spills that led to penalties in 2011.

Operator	Date of NOAV	Spill details	Enforcement Action	Penalty Amount
OXY USA WTP LP	7/17/08	The NOAV stated "Unauthorized discharge of E&P waste has occurred in the vicinity of a cabin owned by Mr. Ned Prather. That discharge has impacted waters of the state, specifically an unnamed spring located 2,300 feet to the east of the above-referenced well."[18] No spill volume reported by OXY, but cause of spill reported to be a torn pit liner.[19]	OXY denied a release occurred from the well pad. OXY and COGCC signed an Administrative Order on Consent (AOC), which required OXY to pay a penalty but stated that "nothing in this AOC shall constitute or be construed as an admission by OXY that any discharge occurred from the Well Pad or that it committed any violations of any rules of the COGCC or other applicable law"[20]	$90,000 "to settle NOAV" + $60,000 to fund a public project in Garfield County
Grynberg, Jack J.	11/9/09	The NOAV stated "Staff observed oil on the surface of the pit. Fluid contents had breached the containment of the pit and pooled up on the surface of the pad."[21] Spill not reported by Grynberg.[22]	Grynberg and COGCC signed an AOC, which stated that "Grynberg does not admit to the alleged violations but agrees to pay the total fine. . ." and "nothing in this AOC shall constitute or be construed as an admission by Grynberg that it committed any violations of any rules of the COGCC or other applicable law."[23]	$32,500 "for the Rule violations "

Table A2-6 (continued). The five spills that led to penalties in 2011.

Berry Petroleum	11/28/07	The NOAV stated "Berry Petroleum notified the COGCC of the release of an unknown volume of drilling fluids from a reserve pit at the subject location. At that time, the Operator also described a series of two prior releases from the same pit and their resulting countermeasures including two unsuccessful attempts to repair the pit liner. . . releases have impacted Waters of the State in a tributary to Garden Gulch & currently threaten to impact Garden Gulch. Prior to 01-21-208, Berry Petroleum had not notified the NRC, the COGCC, & the CDPHE-WQCD as required."[24] No spill volume reported by Berry.[25]	Berry signed an AOC with COGCC, which stated that "Following its January 21, 2008 report to COGCC, Berry fully cooperated with the COGCC Staff's response actions and requirements. . . .Berry does not admit to the alleged violations but agrees to pay the total fine. . . nothing in this AOC shall constitute or be construed as an admission by Berry that any discharge occurred from the Well Pad or that it committed any violations of any rules of the COGCC or other applicable law."[26]	$100,000 "to settle NOAV" + $73,000 to fund a public project.[27]
Marathon Oil	1/31/08	The NOAV stated "the operator notified the COGCC of the release of 31,590 bbl of water from a lined reserve pit. The released water was flow-back from a hydrofracture job that was being stored in the reserve pit in anticipation of being reused. The released fluid has infiltrated the subsurface, moved laterally, and discharged from a cliff above Garden Gulch."[28]	Marathon and COGCC signed an AOC, which stated that "COGCC Staff believes that the release of flow-back fluids . . . resulted in a significant adverse impact to the environment and public health, safety, and welfare. Marathon does not agree. . ." And "Marathon does not admit to the alleged violations but agrees to pay the total fine. . . nothing in this AOC shall constitute or be construed as an admission by Marathon that it committed any violations of any rules of the COGCC or other applicable law."[29]	$143,000 for the Rule violation.[30]
S & S Oil & Gas Operating	5/1/05	NOAV for Tanner SEC REC Unit #501 well stated "Inspection required oily soil at water tanks to be remediated and berms raised to provide appropriate amount of secondary containment at both oil production tanks and water tanks."[31]	At an August 8, 2011 COGCC Commission hearing COGCC staff requested that S & S be found in violation of Rules 210.b.(1), 309., 319.b.(3), 326.b.(1), 906.a., and 906.e.(1) at the Tanner SEC REC Unit #501 well, and pay a fine of $60,000.[32] S&S failed to show up for that hearing, as well as a second hearing in Sept. 19, 2011.[33]	$60,000 assessed. Penalty not paid as of Sept. 2011.

ENDNOTES

[1] From COGCC annual reports to Water Quality Control Commission (WQCC) and Water Quality Control Division (WQCD) of the Colorado Department of Public Health and the Environment. 2010, p. 3; 2009, p. 3; 2008, p. 2; 2007, p. 2; 2006, p. 2; 2005, p. 2. All annual reports available at: http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/AnnualReports.htm

[2] From COGCC Staff Reports. January 20, 2012. p. 26. (for 2009 – 2011 data), Feb. 22, 2010, p. 23 (2007, 2008) and Jan. 13, 2009, p. 19 (for 2005, 2006 data). http://cogcc.state.co.us/Staff_Reports/StaffReports.html (Note: Where there were discrepancies in data, I used the more recent report.)

[3] ibid. January 20, 2012. p. 25. (for 2009 – 2011 data), Feb. 22, 2010, p. 22 (2007, 2008) and Jan. 8, 2007, p. 25 (for 2005, 2006 data).

[4] Calculated by subtracting the number of inspections from the number of wells. We assumed each inspection was conducted at a different well site. In reality, some wells sites would have been visited more than once per year (e.g., follow-up inspections if violations are found, in response to complaints, etc.). So the number of active wells NOT inspected would be even larger than the number reflected in the chart.

[5] NOAV, AOC and OFV data from COGCC Staff Reports. See endnote 2.

[6] COGIS Inspection/Incident Inquiry. NOAV search. Downloaded data. For each year filtered results to determine the number of operators with NOAV. Data accessed August 31, 2012. http://cogcc.state.co.us/COGIS/LiveQuery.html

[7] From COGCC annual reports to WQCC/WQCD (See endnote 1). 2010, p. 9; 2009, p. 9; 2008, p. 7; 2007, p. 7; 2006, p. 7; 2005, p. 8.

[8] ibid.

[9] ibid. 2010, p.9 and 2011, p. 11

[10] COGCC annual reports to WQCC/WQCD (See endnote 1).

[11] COGCC web site: "Quarterly Complaint Reports." http://cogcc.state.co.us/Library/ComplaintReports/QtrComplaintRpt.htm

[12] Colorado Revised Statutes. Title 34. Article 60. Section 34-60-104. Oil and gas conservation commission. http://www.lexisnexis.com/hottopics/colorado?source=COLO;CODE&tocpath=1OUNX9SKRIS2QOAK9,2DT0WOCRR8Q11DJG8,31NIKS5F9BSWWEQIK;1SXGPUSO2YQDTCL8A,2QRCL8Y8IKJCQEO00,38ALLG4AZAICDMJ8S;1SPBJWTOAAWBIC1PY,2SSCH63RMGC7S2QCL,3OLJPO2AGHKGKIKPR;103U42BXZ9STGLI6C,2N762IAL4O5ZDNT2B,3B371MED4M1Q51L19&shortheader=no

[13] These amounts show ACTUAL expenditures in the fiscal year. So for 2005, the expenditures take place from July 2004 thorough June 2005. Data are from: Colorado Transparency Online Project. Budget to Actual Fiscal Year Reports from Fiscal Year 2005-2005 through 2009-2010. http://tops.state.co.us/tops_Bud2ActFY.htm

[14] See footnote 2. 2010, p. 3; 2009, p. 3; 2008, p. 2; 2007, p. 2; 2006, p. 2; 2005, p. 2.

[15] ibid.

[16] See footnote 3.

[17] Spills data for 2005 – 2011 from COGCC Annual Reports to the Water Quality Control Commission of the Colorado Department of Public Health and the Environment. http://cogcc.state.co.us/Library/WQCC_WQCD_AnnualReports/AnnualReports.htm

[18] NOAV report. Oxy USA. August 10, 2008. http://cogcc.state.co.us/cogis/NOAVReport.asp?doc_num=200193504

[19] Spill Report. Oxy USA. Jun 23, 2009. http://cogcc.state.co.us/cogis/SpillReport.asp?doc_num=200220400

[20] COGCC Order No. 1V-365. http://cogcc.state.co.us/orders/orders/1v/365.html

[21] NOAV Report. Grynberg, Jack J. Nov. 11, 2009. http://cogcc.state.co.us/cogis/NOAVReport.asp?doc_num=200221984

[22] COGIS – Inspection/Incident Inquiry. Select Spill/Release. Search Operator: Grynberg. No spill reported in 2009 or 2010. http://cogcc.state.co.us/cogis/IncidentSearch.asp

[23] COGCC Order No. 1V-367. http://cogcc.state.co.us/orders/orders/1v/367.html

[24] NOAV report. Berry Petroleum. March 5, 2008. http://cogcc.state.co.us/cogis/NOAVReport.asp?doc_num=200127625

[25] Spill Report. Berry Petroleum. Jan. 28, 2008. http://cogcc.state.co.us/cogis/SpillReport.asp?doc_num=1981710

[26] COGCC Order No. 1V-372. http://cogcc.state.co.us/orders/orders/1v/372.html

[27] ibid.

[28] NOAV report. Marathon Oil Co. April 11, 2008. http://cogcc.state.co.us/cogis/NOAVReport.asp?doc_num=200130139

[29] COGCC Order No. 1V-373. http://cogcc.state.co.us/orders/orders/1v/373.html

[30] ibid.

[31] NOAV report. S & S Oil and Gas Operating. March 15, 2009. http://cogcc.state.co.us/cogis/NOAVReport.asp?doc_num=200205807

[32] COGCC Order No. 1V-379. http://cogcc.state.co.us/orders/orders/1v/379.html

[33] COGCC Order No. 1V-384. http://cogcc.state.co.us/orders/orders/1v/384.html

Table A3-1. Summary of OCD inspections and sanctions.[1]

	Inspections	Letters of violation	Penalties assessed[2]
2008			$479,250
2009	27,160	673	$727,500
2010	20,780	418	$14,000
2011	25,543	202	No data

Table A3-2. New Mexico OCD inspection statistics

	Inspectors[3]	Total number of inspections[4]	Average # of inspections per inspector	Producing oil and gas wells[5]	Active (producing) wells per inspector
2008	13			53,179	4,091
2009	9	27,160	3,018	52,545	5,838
2010	12	20,780	1,732	53,063	4,422
2011	12	25,543	2,129	53,209	4,434

Table A3-3. Active producing wells in New Mexico (OCD vs PTTC data).

	2007	2008	2009	2010	2011
OCD	50,662 active producing wells[6]	51,574 active producing wells[7]	51,968 active producing wells[8]	55,695 wells[9]	56,337 wells[10]
PTTC[11]	53,184	53,179	52,545	53,063	53,209

Table A3-4. Data on OCD letters of violation and other letters of non-compliance.

	2009	2010	2011
Letters of Violation			
OCD statistics (provided 02/27/12)[12]	673	418	202
LOV data from OCD Compliance Summaries (provided 03/05/12)[13]		414	203
Compliance achieved as of 02/16/12		220	101
All non-compliance letters sent			
Data from OCD Compliance Summaries (provided 03/05/12)		797	453
Compliance achieved as of 02/16/12		311	170

Table A3-5. Inconsistent OCD enforcement actions for the same types of violation - 2011.

Well Sign	API	Operator	Description/Comments	Rule	LOV	FVI	LET
MARSHALL COM 006	3002507017	STEPHENS & JOHNSON OP CO	No well sign	None	1		
BLACK MAMBA 15 STATE 001	3002539808	DEVON ENERGY PROD CO, LP	No well sign	19.15.16.8	1		
NEW MEXICO D 001	002520783	CONOCOPHILLIPS COMPANY	No well sign	19.15.16.8	1		
BRITT-LAUGHLIN COM 004	3002506005	ENERVEST OPERATING L.L.C.	No well sign	19.15.16.8	1		
BRITT-LAUGHLIN COM 005	3002505907	ENERVEST OPERATING L.L.C.	No well sign	19.15.16.8	1		
LEE STEBBINS NCT B 003	3002510061	OXY USA INC	No well sign	19.15.16.8	1		
CHRISTMAS COWDEN 001	3002510053	BEC CORP	No well sign	19.15.16.8	1		
E N GRIZZELL 002	3002525293	APACHE CORP	No well sign	19.15.16.8	1		
JALMAT YATES UNIT 010	3002527073	LEGACY RESERVES OP, LP	No well sign	19.15.16.8	1		
JALMAT YATES UNIT 015	3002526405	LEGACY RESERVES OP, LP	No well sign	19.15.16.8	1		
WEST DOLLARHIDE QUEEN SAND 075	3002529984	CHAPARRAL ENERGY LLC	No well sign.	19.15.16.8	1		
WEST DOLLARHIDE QUEEN SAND 082	3002530006	CHAPARRAL ENERGY LLC	No well sign.	19.15.16.8	1		
STATE AO 001	3002504441	BURGUNDY OIL & GAS INC	No well sign.	19.15.16.8	1		
BP MCDONALD WN STATE 021	3002509015	APACHE CORP	No well sign.	19.15.16.8	1		
WALTER LYNCH 013	3002540079	APACHE CORP	No well sign.	19.15.16.8	1		
WALTER LYNCH 011	3002537555	APACHE CORP	No well sign.	19.15.16.8	1		
WALTER LYNCH 012	3002537556	APACHE CORP	No well sign.	19.15.16.8	1		
BELL LAKE UNIT 016	3002524910	KAISER-FRANCIS OIL CO	No well sign	103		1	
STATE 1 002	3002537774	CIMAREX ENERGY CO. OF CO	No well sign.	103		1	
KRIS BMU STATE COM 002	3002536564	YATES PETROLEUM CORP	Need sign.	19.15.16.8			1
U 0 SAWYER 001	3002503629	EOR OPERATING COMPANY	Need to install well sign.	19.15.16.8			1
J P COLLIER 001	3002500996	PRIDE ENERGY COMPANY	Need to install well sign.	19.15.16.8			1
HOUSTON A 001	3002507202	CHAPARRAL RESOURCES LLC	Need well sign.	19.15.16.8			1
MOZART 001	3002526294	EVERQUEST ENERGY CORP	Need well sign.	19.15.16.8			1
CHAVEROO SAN ANDRES UNIT 028	3000520899	RIDGEWAY ARIZONA OIL CORP.	No well sign.	19.15.16.8			1
SOUTH DENTON 6 STATE 002	3002539734	BC OPERATING, INC.	No well sign.	19.15.16.8			1
AMERADA HARDIN 001	3002507312	AVRA OIL CO	No sign. Also diked area has been full of liquids	19.15.16.8			1
MILNESAND UNIT036	3004100087	EOR OPERATING COMPANY	No well sign.	19.15.16.8			1
GRIFFIN 001	3002523781	FASKEN OIL & RANCH LTD	No well sign.	19.15.16.8			1
MILNESAND UNIT 124	3004100031	EOR OPERATING COMPANY	Unable to find sign.	19.15.16.8			1
COASTAL A STATE 002	3002523813	DWIGHT A TIPTON	Still need well sign installed.	19.15.16.8			1
CLIPPER A STATE 001	3002525713	EVERQUEST ENERGY CORP	2nd letter. Still needs sign.	19.15.16.8			1
COASTAL A STATE 001	3002523799	DWIGHT A TIPTON	3rd letter. Still no sign.	19.15.16.8			1
					17	2	14

Failed pressure tests	API	Operator	Description/Comments	Rule	LOV	FVI	LET
JALMAT YATES UNIT 028	3002526872	LEGACY RESERVES OPERATING	Pressure test failure. Possible tubing or packing leak.	None	1		
NORTH HOBBS G/SA UNIT 331	3002507538	OCCIDENTAL PERMIAN LTD	MIT failure.	None	1		
LANGLIE MATTIX PENROSE SAND 221	3002510476	LEGACY RESERVES OPERATING	Failed pressure test. 5-year test.	None	1		
LANGLIE MATTIX PENROSE SAND 192	3002510473	LEGACY RESERVES OPERATING	Failed 5-yr pressure test.	None	1		
NORTH HOBBS G/SA UNIT 131	3002505484	OCCIDENTAL PERMIAN LTD	Failed pressure test. 5-year test.	None	1		
LANGLIE MATTIX QUEEN UNIT 022	3002523186	LINN OPERATING, INC	Failed MIT. Post-workover test.	None	1		
NORTH HOBBS GISA UNIT 241	3002507364	OCCIDENTAL PERMIAN LTD	Failed MIT test. Fluid to surface out intermediate.	None	1		
BELL LAKE UNIT 002	3002508489	KAISER-FRANCIS OIL CO	Failed annual IMIT. Possible tubing/packing failure.	None	1		
STATE L 736 001	3002523937	EVERQUEST ENERGY CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
NORTH MONUMENT G/SA UNIT 002B	3002512466	APACHE CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
NORTH MONUMENT G/SA UNIT 003	3002504155	APACHE CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
NORTH MONUMENT G/SA UNIT 004	3002505910	APACHE CORP	Failed BHT. Continuous flow of fluid on surface.	19.15.26.11		1	
NORTH MONUMENT G/SA UNIT 013	3002505623	APACHE CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
EAST BLINEBRY DRINKARD UNIT 003	3002506325	APACHE CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
NORTHEAST DRINKARD UNIT 103	3002509897	APACHE CORP	Failed BHT. Communication between tubing and casing	19.15.26.11		1	
NORTHEAST DRINKARD UNIT 805	3002506736	APACHE CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
WEST BLINEBRY DRINKARD 023	3002521225	APACHE CORP	Failed BHT. Fluid on surface casing.	19.15.26.11		1	
S. EUNICE SEVEN RIVERS QUEEN 427	3002509025	APACHE CORP	Failed annulus pressure test (annual IMIT)	19.15.26.11		1	
EAST BLINEBRY DRINKARD UNIT 031	3002506541	APACHE CORP	Attempted PT. Well failed due to vacuum on casing	19.15.26.11		1	
MCA UNIT 273	3002523730	CONOCOPHILLIPS COMPANY	Annual IMIT (pressure test) failed.	None			1
MCA UNIT 123	3002500705	CONOCOPHILLIPS COMPANY	Annual IMIT (pressure test) failed.	None			1
MCA UNIT 084	3002500639	CONOCOPHILLIPS COMPANY	Annual IMIT (pressure test) failed.	None			1
CENTRAL VACUUM UNIT 073	3002525728	CHEVRON U S A INC	Failed 2nd attempt to run IMIT.	None			1
WATTAM FEDERAL 006	3000520814	DORAL ENERGY CORP.	Failed MIT/pressure test.	19.15.26.11			1
TOM 36 STATE 001	3000520686	DORAL ENERGY CORP.	Failed BHT. Show of wtr.	19.15.26.11			1
MILLER FEDERAL 006	3000520530	DORAL ENERGY CORP.	BHT failed. Pressure on prod csg. Show of oil.	19.15.26.11			1
					8	**11**	**7**

Original data from OCD Compliance Summaries. Additional data from Letter of Violation documents in OCD well files (i.e., scanned copies of letters sent to operators).[14]

Copy of orientation letter sent to new operators in New Mexico.

As the operator of record of wells in New Mexico,

1. I am responsible for ensuring that the wells and related facilities comply with applicable statutes and rules, and am responsible for all regulatory filings with the OCD. I am responsible for knowing all applicable statutes and rules, not just the rules referenced in this list. I understand that the OCD's rules are available on the OCD website under "Rules," and that the Water Quality Control Commission rules are available on the OCD website on the "Publications" page.

2. I understand that if I acquire wells from another operator, the OCD must approve the operator change before I begin operating those wells. *See* 19.15.9.9.B NMAC. I understand that if I acquire wells or facilities subject to a compliance order addressing inactive wells or environmental cleanup, before the OCD will approve the operator change it may require me to enter into an enforceable agreement to return those wells to compliance. *See* 19.15.9.9.C(2) NMAC.

3. I must file a monthly C-115 report showing production for each non-plugged well completion for which the OCD has approved an allowable and authorization to transport, and injection for each injection well. *See* 19.15.7.24 NMAC. I understand that the OCD may cancel my authority to transport from or inject into all the wells I operate if I fail to file C-115 reports. *See* 19.15.7.24.C NMAC.

4. I understand that New Mexico requires wells that have been inactive for certain time periods to be plugged or placed on approved temporary abandonment. *See* 19.15.25.8 NMAC. I understand the requirements for plugging and approved temporary abandonment in 19.15.25 NMAC. I understand that I can check my compliance with the basic requirements of 19.15.25.8 NMAC by using the "Inactive Well List" on OCD's website.

5. I must keep current with financial assurances for well plugging. I understand that New Mexico requires each state or fee well that has been inactive for more than two years and has not been plugged and released to be covered by a single-well financial assurance, even if the well is also covered by a blanket financial assurance and even if the well is on approved temporary abandonment status. *See* 19.15.8.9.C NMAC. I understand that I can check my compliance with the single-well financial assurance requirement by using the "Inactive Well Additional Financial Assurance Report" on the OCD's website.

6. I am responsible for reporting releases as defined by 19.15.29 NMAC. I understand the OCD will look to me as the operator of record to take corrective action for releases at my wells and related facilities, including releases that occurred before I became operator of record.

7. I have read 19.15.5.9 NMAC, commonly known as "Part 5.9," and understand that to be in compliance with its requirements I must have the appropriate financial assurances in place, comply with orders requiring corrective action, pay penalties assessed by the courts or agreed to by me in a settlement agreement, and not have too many wells out of compliance with the inactive well rule (19.15.25.8 NMAC). *If I am in violation of Part 5.9, I may not be allowed to drill, acquire or produce any additional wells, and will not be able to obtain any new injection permits. See 19.15.16.19 NMAC, 19.15.26.8 NMAC, 19.15.9.9 NMAC and 19.15.14.10 NMAC. If I am in violation of Part 5.9 the OCD may, after notice and hearing, revoke my existing injection permits. See 19.15.26.8 NMAC.*

8. For injection wells, I understand that I must report injection on my monthly C-115 report and must operate my wells in compliance with 19.15.26 NMAC and the terms of my injection permit. I understand that I must conduct mechanical integrity tests on my injection wells at least once every five years. *See* 19.15.26.11 NMAC. I understand that when there is a continuous one-year period of non-injection into all wells in an injection or storage project or into a saltwater disposal well or special purpose injection well, authority for that injection automatically terminates. *See* 19.15.26.12 NMAC. I understand that if I transfer operation of an injection well to another operator, the OCD must approve the transfer of authority to inject, and the OCD may require me to demonstrate the well's mechanical integrity prior to approving that transfer. *See* 19.15.26.15 NMAC.

9. I am responsible for providing the OCD with my current address of record and emergency contact information, and I am responsible for updating that information when it changes. *See* 19.15.9.8.C NMAC. I understand that I can update that information on the OCD's website under "Electronic Permitting."

10. If I transfer well operations to another operator, the OCD must approve the change before the new operator can begin operations. *See* 19.15.9.9.B NMAC. I remain responsible for the wells and related facilities and all related regulatory filings until the OCD approves the operator change. I understand that the transfer will not relieve me of responsibility or liability for any act or omission which occurred while I operated the wells and related facilities.

Operator Company Name	Signature of Individual Signing for Operator
Date	Printed Name and Title of Individual Signing for Operator

Last revised 10-7-09

ENDNOTES

[1] Inspections and Letters of Violation from Oil Conservation Division Information Request. Received February 27, 2012 from Jim Winchester, New Mexico Environment Department & Energy, Minerals & Natural Resources Department Communications officer.
[2] Data for 2008 - 2010 from: New Mexico Legislative Finance Committee. Feb. 17, 2011. Fiscal Impact Report for HB 176 "Oil and Gas Enforcement." http://www.nmlegis.gov/Sessions/11%20Regular/firs/HB0176.pdf
[3] Pers. Comm. Daniel Sanchez, New Mexico Oil Conservation Division Enforcement and Compliance Manager, Sonny Swazo, OCD attorney, Jim Winchester, New Mexico Environment Department & Energy, Minerals & Natural Resources Department Communications officer, and Lisa Sumi, Earthworks. March 5, 2012.
[4] Email from Jim Winchester, New Mexico Environment Department & Energy, Minerals & Natural Resources Department Communications officer. Received February 27, 2012.
[5] Petroleum Recovery Research Center. GO-TECH web site. "General Production Data Search." Data accessed March 22, 2012. http://octane.nmt.edu/gotech/Petroleum_Data/General.aspx
Search years: 2008, 2009, 2010, 2011. Select: Production. Ignore wells with no data (to omit wells with no associated production data from search results.). Summary provides a well count. NOTE: this number does not include injection wells.
[6] "As of November 2007, there were 23,181 active oil producing wells, 27,481 active gas producing wells." Source: *2007 New Mexico Energy, Minerals and Natural Resources Annual Report*. p. 56. http://www.emnrd.state.nm.us/main/documents/EMNRDAnnualReport07_WEB.pdf
[7] "As of December 2008, there were 23,321 active oil producing wells, 28,253 active gas producing wells." Source: *2008 New Mexico Energy, Minerals and Natural Resources Annual Report*. p. 55. http://www.emnrd.state.nm.us/main/documents/EMNRD-Annual-Report-2008.pdf
[8] "As of December, 2009, there were 23,464 active oil producing wells and 28,504 active gas producing wells." Source: *2009 New Mexico Energy, Minerals and Natural Resources Annual Report.* p. 55. http://www.emnrd.state.nm.us/main/documents/EMNRD2009AnnualReportWeb.pdf
[9] "As of November 2010, there were 25,761 oil wells, 29,934 gas wells." Source: *2010 New Mexico Energy, Minerals and Natural Resources Annual Report.* p. 103. http://www.emnrd.state.nm.us/main/documents/EMNRD-2010-Annual-Report.pdf
[10] "As of November 2011, there were 26,624 oil wells, 29,713 gas wells." Source: *2011 New Mexico Energy, Minerals and Natural Resources Annual Report. p. 40.* http://www.emnrd.state.nm.us/main/documents/EMNRD-2011-Annual-Report-Updated-4-12.pdf
[11] Petroleum Recovery Research Center. GO-TECH web site. "General Production Data Search." Data accessed March 22, 2012. http://octane.nmt.edu/gotech/Petroleum_Data/General.aspx
Search years: 2007, 2008, 2009, 2010, 2011. Select: Production. Ignore wells with no data (to omit wells with no associated production data from search results.). Summary provides a well count. NOTE: this number does not include injection wells.
[12] OCD maintains an internal database that tracks notifications sent to operators regarding violations, enforcement actions taken, and compliance data, but this database is not accessible by the public. Nor does the agency publish statistics on violations found during inspections. Upon request, the OCD did provide Earthworks with statistics on the number of Letters of Violation (LOV) sent to operators in 2009, 2010, and 2011 (Information request to Jim Winchester, NMED and EMNRD from Lisa Sumi, Earthworks. Feb. 24, 2012.)
[13] ibid. Compliance Summaries for 2010 and 2011 received from OCD. (Email from Jim Winchester, NMED and EMNRD Communications officer, to Lisa Sumi, Earthworks. March 5, 2012.)
[14] Looked at Letter of Violation documents in OCD well files (i.e., scanned copies of letters sent to operators). Searched by API. https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/Wells.aspx

Table A4-1. New York inspection statistics.[1]

	Inspectors	Inspections	Inspections per Inspector	Active wells	Active wells per inspector	% of active wells inspected*
2012	17[2]			10,761[3]	633	
2011	14[4]			10,317[5]	737	
2010	16[6]	2,460[4]	154	10,315[5]	645	23.8
2009	16[7]	2,243	132	10,029	627	22.4
2008	19[7]	2,445		10,292	542	23.8
2007	19[2]	2,481		10,242	539	24.2
2006	19[7]	2,555		9,403	495	27.1
2005	19[7]	2,577		8,724	459	29.5
2004	19[7]	2,491		9,229	486	27.0
2003	20[2]	2,486		9,023	451	27.5
2002		3,394		8,879		38.2
2001		3,443		9,322		36.9

* assumes each inspection occurred at a different well

Table A5-1. New York penalty statistics.[8]

	Administrative fines and penalties for oil and gas violations	Environmental Benefit Projects	Cases brought by Attorney General	Number of enforcement actions
2011	No data found			
2010	No data found			
2009	$40,000			
2008	$10,500			
2007	$19,000	$75,000	$6,719	10 administrative cases
2006	$14,000	$50,000	$175,756	12 administrative cases
2005	$18,250	$137,500		
2004	$109,172			
2003	$141,551			
2002	$21,00			
2001	$4,500			

ENDNOTES

[1] Unless otherwise noted, inspection and active well data from: New York Department of Environmental Conservation. *Oil, Gas and Mineral Resources Annual Reports* (2001 through 2009). Reports available at: http://www.dec.ny.gov/pubs/36033.html **(Note:** active well data obtained by adding the number of active oil wells and active gas wells for a particular year. All active well data from the *2009 Oil, Gas and Mineral Resources Annual Report*, Part Three – Appendices. p. A-1. http://www.dec.ny.gov/docs/materials_minerals_pdf/09anrpt3.pdf)

[2] Nearing, B. July 17, 2012. "State well inspections 'inadequate'," *Times Union*. http://www.timesunion.com/local/article/State-well-inspections-inadequate-3714717.php

[3] New York Department of Environmental Conservation web site: "Wells Data Search." http://www.dec.ny.gov/cfmx/extapps/GasOil/search/wells/index.cfm Well Status = active, Well type(s) = dry hole, dry wildcat, gas development, gas wildcat, gas extension, oil development, oil wildcat, oil extension. Data accessed July 25, 2012.

[4] McAllister, E. June 29, 2011. "Insight: NY water at risk from lack of natgas inspectors?" *Reuters*. http://www.reuters.com/article/2011/07/29/us-newyork-shale-drilling-idUSTRE76S5FA20110729

[5] New York Department of Environmental Conservation web site: "Annual Well Production Search." http://www.dec.ny.gov/cfmx/extapps/GasOil/search/production/index.cfm Build Search: Producing Year 2010, Well Status = active, Well type(s) = dry hole, dry wildcat, gas development, gas wildcat, gas extension, oil development, oil wildcat, oil extension.Did the same for producting year 2011 and 2012. Data accessed July 25, 2012.

[6] Sickle, A. April 28, 2010. "New York DEC staff shorthanded to reply to 14,000 Marcellus Shale comments – environmental inspectors down to 16," *National Security News Service*. http://www.dcbureau.org/20100429137/natural-resources-news-service/new-york-dec-staff-shorthanded-to-reply-to-13500-marcellus-shale-comments-environmental-inspectors-down-to-16.html

[7] Lustgarten, A. Dec. 30, 2009. "State oil and gas regulators are spread too thin to do their jobs," *Propublica*. http://www.propublica.org/article/state-oil-and-gas-regulators-are-spread-too-thin-to-do-their-jobs-1230

[8] Data from New York Department of Environmental Conservation. *Oil, Gas and Mineral Resources Annual Reports* (for 2009, 2008, 2007, 2006, 2005. 2004, 2003, 2002 and 2001). http://www.dec.ny.gov/pubs/36033.html

Table A5-1. Ohio Pollution-related violations.[1]

Violation description	Section of OAC / ORC violated	Well type	2007	2008	2009	2010	2011
Well operation causing pollution and contamination	9-1-07 / 22(A)	AD, PW, SC, UD, UP	148	139	128	108	136
Drilling operation causing pollution and contamination	9-1-07 / 22(A)	DD	9	7	2	1	1
Defective casing, leaking well	NONE / 12A	OR	1	1	0	0	0
Defective casing, leaking well	NONE18 / 12A	PW	0	0	0	10	56
Defective casing, leaking well	NONE3 / 12A	PB					1
Uncontrolled flow of oil and gas from a well	9-9-04(D) / 23	PB	0	0	0	0	2
Unlawful venting or flaring of gas	9-9-05(B) / 23	UP, PW, AD, OR	17	11	11	9	28
Pollution and contamination	NONE) / 22(A)	PB	1	0	1	1	1
Pollution and contamination	NONE. / 22(A)	CT	0	1	0	0	1
		Total Pollution-Related Violations	176	159	142	129	226

Table A5-2. Data from Ohio Division of Oil and Gas Resources Management.[2]

	2008	2009	2010	2011
Oil and gas inspections	14,528	12,546	10,472	9,194
Oil and gas violations	722	634	615	692
Enforcement actions taken	55	21	23	29
Citizen complaints	140	176	146	411

Table A5-3. Ohio Inspection Data from RBDMS.

	2005	2006	2007	2008	2009	2010	2011
Inspectors	-	-	-	-	-	21[3]	27[4]
Oil and gas well inspections[5]	13,450	13,706	13,581	13,509	11,682	9,374	10,422
Oil and gas well inspections performed per inspector	-	-	-	-	-	446	386
Active wells[6]	62,675	62,966	63,654	64,207	64,427	64,378	64,481
Active wells per inspector	-	-	-	-	-	3,066	2,388
Wells inspected[7]	9,317	9,395	8699	8,418	7,507	5,644	6,590
Active wells not inspected[8]	53,358	53,571	54,955	55,789	56,920	58,734	57,871
% of active wells not inspected	85	85	86	87	88	91	90

Table A5-4. Ohio Violations and Penalty Data.

	2008	2009	2010	2011
RBDMS Number of violations related to oil and gas wells[9]	1,275	1,252	1,094	1,667
RBDMS Number of oil and gas wells with violations)[10]	599	585	535	708
Enforcement actions taken[11]	55	21	23	29
Enforcement actions (EA) per RBDMS violations[12]	0.043 (1 EA per 23 violations)	0.017 (1 EA per 60 violations)	0.021 (1 EA per 48 violations)	0.017 (1 EA per 57 violations)
Penalties assessed[13]	$16,500	$17,500	$194,000	$73,935 (Fiscal Year)

Table A5-5. All Inspections vs. Inspections Related to Oil and Gas Wells (2011).[14]

RBDMS Inspection Code	RBDMS Inspection Code Description	All RBDMS Inspections	RBDMS Inspections related to oil and gas well sites
AD	Annular Disposal	292	292
AM	Administrative Inspection	220	Not included
CT	Completion Testing	143	143
DD	Drill / Deepen / Reopen	1,230	1,230
ER	Enhanced Recovery Project	435	Not included
FR	Final Restoration	1,042	1,042
ND	Not Drilled	43	Not included
NF	Field Inspected, Well Not Found	240	Not included
NW	Non Well	8	Not included
OR	Orphan	158	158
PB	Plug / Plug Back	863	863
PL	Preliminary Restoration	919	919
PW	Production Wells	5,122	5,122
SC	Surface Facility Construction	28	28
SM	Solution Mining Project	16	Not included
SO	Storage Well	324	Not included
SW	Salt Water Injection Well	924	Not included
UD	Urban Drill / Deepen / Reopen	281	281
UL	Urban Preliminary Restoration	167	167
UP	Urban Production Wells	160	160
WR	Work Over Reconditioning	17	17
	TOTAL	**12,632**	**10,422**

Table A5-6. Violations found during inspections of oil and gas wells in Ohio (2011).[15]

RBDMS Inspection Code	RBDMS Inspection Code Description	All DOGRM inspections finding violations	"Oil and gas well" inspections finding violations	Violations from oil and gas well inspections
AD	Annular Disposal	16	16	53
AM	Administrative Inspection	12	Not included	Not included
CT	Completion Testing	0	0	4
DD	Drill / Deepen / Reopen	6	6	3
ER	Enhanced Recovery Project	21	Not included	Not included
FR	Final Restoration	37	37	51
ND	Not Drilled	0	Not included	Not included
NF	Field Inspected, Well Not Found	0	Not included	Not included
NW	Non Well	0	Not included	Not included
OR	Orphan	3	3	4
PB	Plug / Plug Back	6	6	11
PL	Preliminary Restoration	33	33	34
PW	Production Wells	676	676	1,438
SC	Surface Facility Construction	4	4	3
SM	Solution Mining Project	0	Not included	Not included
SO	Storage Well	0	Not included	Not included
SW	Salt Water Injection Well	33	Not included	Not included
UD	Urban Drill / Deepen / Reopen	4	4	3
UL	Urban Preliminary Restoration	0	0	0
UP	Urban Production Wells	34	34	62
WR	Work Over Reconditioning	0	0	1
	TOTAL	**885**	**819**	**1,667**

ENDNOTES

[1] Ohio Division of Oil and Gas Resources Management (DOGRM). Risk Based Data Management System (RBDMS). http://www.ohiodnr.com/mineral/production/tabid/15389/Default.aspx Data from the Failed Inspection table (tblInspFail in RBDMS). This table lists API number of the well with violations, type of inspection, and section of the OAC (Ohio Administrative Code) that was violated. Users can search by violation date. We filtered results by 01/01/2007 to 12/31/2007 and similarly for all other years in our table. Using the information in the Failed Inspection Description table or RBDMS (tblInspFlDesc) we were able to get descriptions of the particular rule violations, as well as the section of the Ohio Revised Code (from Chapter 1509: Division of Oil and Gas Resources Management) that was violated. Some of the descriptions changed based on well type (e.g., if the OAC column showed NONE5, the description was "defective casing, leaking well" if the well type was AD, and "well stimulation; failure to protect USDW, failure to complete well integrity testing" if the well types was PB. Thus, for each description in the table, we show the well type as well as the OAC code.

[2] Email request for data made Sept. 16, 2011. Data received Oct. 4, 2011. Updated information received March 1, 2012. Beth Wilson, Public Information officer with Ohio DOGRM.

[3] State Review of Oil and Natural Gas Environmental Regulations (STRONGER), Inc. January 2011. *Ohio Hydraulic Fracturing State Review.* p. 6. http://www.dnr.state.oh.us/Portals/11/oil/pdf/stronger_review11.pdf

[4] Based on current listing of oil and gas field inspectors. Does not include supervisors, but does include back-up inspectors. (Accessed March 7, 2012). http://www.ohiodnr.com/mineral/inspectors/tabid/10355/Default.aspx

[5] RBDMS Database. (See endnote 1) Data updated and accessed March 7, 2012. To find oil and gas inspections for different years: Filtered tblInspection by dates: between 1/1/2011 and 12/31/2011 (similarly for other years). Then filtered to include only oil and gas well inspections – i.e., codes AD (annular disposal), CT (completion testing), DD (drill/deepe/reopen), FR (final restoration), OR (orphan), PB (plug/plug back), PL (preliminary restoration), PW (production well), SC (surface facility construction), UD (urban drill/deepen/reopen), UL (urban prelim. restoration), UP (urban production well) and WR (work over reconditioning). We included AD (annular disposal) because it is a type of waste disposal using an oil or gas well. It involves injection of drilling waste slurry through the space between two casing strings (known as the annulus). At the lower end of the outermost casing string, the slurry enters the formation. (Source: Veil, J. et al. 2003. "An Introduction to Slurry Injection Technology for Disposal of Drilling Wastes. p. 6. http://www.ead.anl.gov/pub/dsp_detail.cfm?PubID=1628) We included SC (surface facility construction) because construction of well pads can lead to erosion, which can pollute surface waters, or other problems. We excluded data on AM (administrative inspections), BH (brine hauler), ER (enhanced recovery), SM (solution mining projects), SO (storage wells) and SW (saltwater injection wells) because administrative inspections may occur at any type of well, and the other types of inspections relate to wells that are part of the oil and gas development process but are not used to produce oil or gas.

[6] Ohio Division of Mineral Resources Management. *Summary of Ohio Oil and Gas Activities.* 2005 to 2011 reports found at: http://www.ohiodnr.com/publications/tabid/10370/Default.aspx

[7] RBDMS Database. See endnote 1. To find number of oil and gas wells inspected: Filtered by dates: between 1/1/2011 and 12/31/2011 (similarly for other years). Then filtered to include only oil and gas well inspections – i.e., codes AD, CT, DD, FR, OR, PB, PL, PW, SC, UD, UL, UP and WR. Then filtered by API_WELLNO to include unique records only. (See endnote 5 for more information on rationale for our filtering choices)

[8] Equals "active wells" minus "active wells not inspected".

[9] RBDMS. See endnote 1. Data updated and accessed March 7, 2012. Downloaded "tblInspFail". Filtered by DT_MOD (1/1/2011 to 12/31/2011) and similarly for other years. Filtered TYP_INSP to remove inspections not related to oil and gas production wells (removed administrative inspections (AM), brine hauler (BH), enhanced recovery (ER), solution mining projects (SM), storage wells (SO) and saltwater injection wells (SW)). Column OAC (violations of Ohio Administrative Code) had 1,667 entries for 2011.

[10] RBDMS. See endnote 1. Data updated and accessed March 7, 2012. Downloaded "tblInspection." Filtered by DT_MOD (1/1/2011 to 12/31/2011) and similarly for other years. Sorted by VIOL (violation), looked for response "TRUE." Filtered TYP_INSP to remove inspections not related to oil and gas production wells (removed administrative inspections (AM), brine hauler (BH), enhanced recovery (ER), solution mining projects (SM), storage wells (SO) and saltwater injection wells (SW)). A total of 819 inspections found violations. To find number of wells, filtered API_WELLNO column to find unique records only. This returned 708 wells for 2011.

[11] Email request for data made Sept. 16, 2011. Data received Oct. 4, 2011. Updated information received March 1, 2012 from Beth Wilson, Public Information officer with Ohio DOGRM.

[12] ibid. Data on enforcement actions and penalties from DOGRM.

[13] ibid.

[14] See endnote 5.

[15] RBDMS data updated and accessed March 7, 2012. Inspections Finding Violations: Downloaded RBDMS "tblInspection." Filtered by DT_MOD (1/1/2011 to 12/31/2011). Sorted by VIOL (violation), looked for response "TRUE." There were 885 inspections that found violations. To find "oil and gas inspections with violations," filtered TYP_INSP to remove inspections not related to oil and gas production wells (e.g., removed administrative inspections (AM), brine hauler (BH), enhanced recovery (ER), solution mining projects (SM), storage wells (SO) and saltwater injection wells (SW)). There were a total of 819 oil and gas well inspections that found violations.
Violations data: Downloaded RBDMS "tblInspFail". Filtered by DT_MOD (1/1/2011 to 12/31/2011). Filtered TYP_INSP for each type of oil and gas well inspection (AD, CT, DD, FR, OR, PB, PL, PW, SC, UD, UL, UP, WR). Recorded the number of violations for each type of inspection.
(See endnote 5 for more information on rationale for our filtering choices)

Note: data from the PA DEP Oil and Gas Compliance System is updated frequently, and as a result data – even from previous years - changes from month to month. For example, data on the number of inspections conducted in 2010 were downloaded on February 28, 2012, and again in March 20, 2012. The February data showed 16,472 inspections, and the March data showed 15,368 inspections. Statistics shown in the following tables came from data downloaded in March 2012.

Table A6-1. Pennsylvania Inspections Data.

	Inspections[1]	Inspectors	Inspections per inspector	Active wells[2]	Active wells per inspector	Wells inspected[3]	Inspections that identified violations[4]
2008	10,057	No data	-	76,062	-	6,302	978
2009	13,199	No data	-	77,938	-	8,419	1,912
2010	15,368	65[5]	236	91,167	1,403	8,565	1,614
2011	22,670	84[6] or 88[7]	270 or 258	77,898	927 or 885	11,283	2,317

Table A6-2. Pennsylvania Well Data from DEP Oil and Gas Production Database.[8]

	All non-Marcellus wells	Active non-Marcellus wells[9]	Active non-Marcellus wells with production[10]	All Marcellus wells	Marcellus active wells[11]	Marcellus active wells with production[12]	Total active wells	Total active wells with production
2008	80,952	76,062	67,111	NA	NA	NA	76,062	67,111
2009	83,459	77,938	64,258	NA	NA	NA	77,938	64,258
2010	95,005	85,445	68,389	10,304	5,722	1,237	91,167	69,626
2011	70,093	69,682	53,615	15,012	8,216	2,197	77,898	55,812

Table A6-3. Pennsylvania Inspections and Violations.[13]

	Inspections	Violations (all wells)	Violations (Marcellus wells)
2002	7,236	1,153	
2003	7,288	1,573	
2004	7,591	1,044	
2005	8,001	915	
2006	7,647	1,342	8
2007	9,194	1,327	24
2008	10,057	1,515	232
2009	13,199	3,359	675
2010	15,368	2,861	1,273
2011	22,670	4,069	1,189

Table A6-4. Data for Chart on Rule 102.4 Violations.[14]

	2010	2011
Chesapeake Appalachia	25	35
Cabot Oil & Gas	7	22
Catalyst Energy	1	19
Williams Field Svc. Co.	0	17
Homeland Energy Vent.	1	15
US Energy Dev. Corp.	4	14
Chief Oil & Gas	13	12
NFG Midstream Trout Run	0	12
Ultra Resources	15	11
PVR Marcellus Gas Gath.	2	11
Snyder Bros.	2	10
Williams Prod. Appalachia	0	10
Appalachia Midstream	0	10
Allegheny Enterprises	11	2
East Resources	14	1

Table A6-5. Inspections Conducted in Response to Complaints (2007 - 2011).[15]

Result of complaint inspection	2007	2008	2009	2010	2011	Total
Complaint inspections with violations noted:						
De minimum violations noted			1		1	
Recurring violations		2		1		
Violations(s) and outstanding violations		1		1		
Outstanding violations – viols req'd		4			3	
Violations noted and immediately corrected	10	2	8	14	8	
Violations noted	113	93	170	119	152	
Total complaint inspections finding violations	**123**	**102**	**179**	**135**	**164**	**703**
Complaint inspections without violations noted:						
Pending		2	12	6	19	
Repairs or upgrade required	1	1				
Outstanding violations – no viols req'd	2	21	3	50	21	
Administratively closed	10					
No adverse event or action reported		1	1			
No Violations noted	217	373	390	499	559	
Total complaint inspections that did not find violations	**353**	**500**	**585**	**690**	**763**	**2,891**

Table A6-6. Pennsylvania Enforcement Data

	Violations[16]	Enforcement actions[17]	% of violations resulting in enforcement action[18]	Ratio of enforcement actions to violations[19]
2002	1,153	426	37	1 : 2.7
2003	1,573	426	27	1 : 3.7
2004	1,044	529	51	1 : 2.0
2005	915	371	41	1 : 2.5
2006	1,342	444	33	1 : 3.0
2007	1,327	533	40	1 : 2.5
2008	1,515	697	46	1 : 2.2
2009	3,359	781	23	1 : 4.3
2010	2,861	866	30	1 : 3.3
2011	4,069	976	24	1 : 4.2

Table A6-7. Pennsylvania Penalty Data

	Number of penalties[20]	Penalties assessed[21] ($)	Penalties collected[22] ($)
2008	101	1,045,191	1,042,941
2009	122	1,588,769	1,578,444
2010	130	3,989,991	3,952,306
2011	124	1,352,456	1,307,734

Table A6-8. Suggested inspections in DEP Oil and Gas Inspection Policy.[23]

Suggested Routine Inspections
At least once during siting a well
At least once during drilling a well
At least once during casing a well
At least once during cementing a well
At least once during completing a well
At least once during altering a well
At least once during stimulating a well.
At least once during, or within 3 months after, the time period in which the owner or operator is required to restore the site, after drilling the well
At least once prior to a well being granted inactive status.
At least once during well plugging
At least once during, or within 3 months after, the period in which the owner or operator is required to restore the site, after the well is plugged or abandoned.
At least once before the bond or other financial security is released.
At least once a year to determine whether compliance with the statutes administered by DEP has been achieved.

Table A6-8 (continued). Suggested inspections in DEP Oil and Gas Inspection Policy

Special Inspections
At least once prior to the issuance of a permit, if a waiver or exception is requested by the permit applicant.
At least once in verifying or resolving objections or determining the Department's response to objections, when objections are raised to a permit application.
At least once prior to the authorization to use an alternate method for plugging, casing or equipping the well
At least once during the periods that an alternative method for plugging, casing or equipping the well is being used or installed.
At least once when a well is being reconditioned or repaired or when casing is being replaced.
At least once a year, if there is onsite brine disposal or residual waste disposal subject to the statutes referenced in § 78.902 (relating to policy).
At least twice a year if the well is located in a gas storage reservoir or in a gas storage reservoir protective area.
If there is a violation, at least once to determine whether the violation has been corrected, or whether there is a continuing violation.
At least once, in response to a complaint.

ENDNOTE

[1] Pennsylvania Department of Environmental Protection. Oil and Gas Compliance Report system. Data accessed Feb. 28, 2012. http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance Search: 01/01/2008 to 12/31/2008, etc. Inspections with violations only: No. When data are downloaded into Excel, the spreadsheet has a statistic for "Inspections."

[2] See Table A6-2, "Total active wells."

[3] Pennsylvania DEP. Compliance Report system. See endnote 2. Searched: 01/01/2008 to 12/31/2008, etc. Inspections with violations only: No. Download data into Excel. Then filtered by Permit #, selecting "unique records" to find how many wells were inspected. (Removed blank cells)

[4] Pennsylvania DEP. Compliance Report system. See endnote 1. Searched: 01/01/2008 to 12/31/2008, etc. Inspections with violations only: No. When data are downloaded into Excel, the spreadsheet has a statistic for "Inspections with Violations."

[5] As of early 2011, DEP said they had 65 inspectors. So it is assumed that this is the number that were working in Pennsylvania in 2010. "The DEP's enforcement staff has increased nearly four-fold in the past two years, to about 130 people, 65 of whom are inspectors." (**Source:** Kusnetz, N. Feb. 3, 2011. "Many PA gas wells go unreported for months," *Propublica*. http://www.propublica.org/article/many-pa-gas-wells-go-unreported-for-months)

[6] "Today, 202 staff members are assigned to the program – 84 of whom are devoted exclusively to well site inspection." (Source: Governor's Marcellus Shale Advisory Commission. July 22, 2011. *Report.* p. 66. http://files.dep.state.pa.us/PublicParticipation/MarcellusShaleAdvisoryCommission/MarcellusShaleAdvisoryPortalFiles/MSAC_Final_Report.pdf)

[7] "Pennsylvania, whose natural gas production has rocketed in recent years thanks to drilling in its slice of the Marcellus, has 202 workers charged with oil and gas inspections for more than 22,000 wells. Eighty-eight of these staffers specialize in actual well inspection." (Source: McAllister, E. June 29, 2011. "Insight: NY water at risk from lack of natgas inspectors?" *Reuters*. http://www.reuters.com/article/2011/07/29/us-newyork-shale-drilling-idUSTRE76S5FA20110729)

[8] {rpdictopm database/

[9] Data from Pennsylvania DEP Oil and Gas Reporting web site. Statewide Data Downloads. Data accessed March 16, 2012. https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx Downloaded the Annual O&G without Marcellus spreadsheet for 2010, then filtered to select only Well Status: "Active".

[10] Data from Pennsylvania DEP Oil and Gas Reporting web site. Statewide Data Downloads. See endnote 9. Downloaded the Annual O&G without Marcellus spreadsheet for 2010, then filtered to select only Well Status: "Active" and then Production Indicator: "Y" to find wells that produced oil or gas during the year.

[11] Data from Pennsylvania DEP Oil and Gas Reporting web site. Statewide Data Downloads. See endnote 9. We had to download two spreadsheets for Marcellus wells (July 2009-June 2010 and June-Dec 2010). Combined the data into one spreadsheet. To find the number of active wells we filtered the data to select Well Status: "Active" and to avoid duplicates from the two datasets filtered by Well Permit # to find "unique records only."

[12] Data from Pennsylvania DEP Oil and Gas Reporting web site. Statewide Data Downloads. See endnote 9. We had to download two spreadsheets for Marcellus wells (July 2009-June 2010 and June-Dec 2010). Combined the data into one spreadsheet. To find the number of active wells we filtered the data to select Well Status: "Active" and to avoid duplicates from the two datasets filtered by Well Permit # to find "unique records only." Then filtered by Production Indicator: "Y" to find wells that produced oil or gas during the year.

[13] Pennsylvania DEP. Compliance Report system. (See endnote 1) Most data accessed Feb. 28, 2012. Data for 2008-2011 accessed March 20, 2012. Search: by year - 01/01/2008 to 12/31/2008, etc. Inspections with violations only: No. Download data into Excel. When data are downloaded into Excel, the spreadsheet has a statistic for number of inspections. and violations. For Marcellus wells, did the same thing but selected Marcellus Only: Yes during search.

[14] Pennsylvania DEP. Oil and Gas Compliance Report system. (See endnote 1) Data accessed Jan. 26, 2012. Search Inspections in 2010 and 2011. Sort the data by "Violation Code,"and then by Rule 104 and operator to determine which companies frequently violated the rule.

[15] Pennsylvania Department of Environmental Protection. eFACTS database. Inspection Search: Inspection Type = Complaint Inspection; Program = Oil and Gas. Data downloaded into Excel. Separated data into years, filtered by code to find number of each type of complaint result. Data accessed April 18, 2012. http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria_inspection.aspx

[16] Pennsylvania DEP. Compliance Report system. See endnote 1. Most data accessed Feb. 28, 2012. Data for 2008-2011 accessed March 20, 2012. Searched: by year - 01/01/2008 to 12/31/2008, etc. Inspections with violations only: Yes. Download data into Excel. When data are downloaded into Excel, the spreadsheet has a statistic for Violations.

[17] ibid. The spreadsheet has a statistic for Enforcement Actions.

[18] Calculated by dividing the number of enforcement actions by the number of violations, multiplied by 100.

[19] Calculated by dividing the number of enforcement actions and the number of violations by the number of enforcement actions.

[20] Number of distinct enforcement actions (i.e., Enforcement IDs) that resulted in a penalty.

[21] Pennsylvania DEP. Compliance Report system. Data accessed March 20, 2012. See endnote 1. Searched: by year - 01/01/2008 to 12/31/2008, etc. Inspections with violations only: Yes. Data downloaded into Excel spreadsheet. There are columns for penalties assessed and penalties collected. But when DEP negotiates a Consent Assessment of Civil Penalties (CACP) with an operator, the negotiated penalty amount shows up beside each individual violation. This erroneously suggests that a certain penalty, e.g., $5,000, was paid per violation, when in reality a lump sum of $5,000 was paid for all violations negotiated in the CACP. The annual penalty amounts shown in the chart were derived by removing redundant penalties from the data, i.e., penalty amounts were only counted once for each distinct CACP (as identified by a specific Enforcement ID number).

[22] ibid.

[23] Pennsylvania Code. Title 25 §78.901-906. "Inspection Policy Regarding Oil and Gas Wells." http://www.pacode.com/secure/data/025/chapter78/subchapXtoc.html

Table A7-1. Texas Railroad Commission inspection and well data (producing wells)

	Inspectors	Inspections[1]	Inspections per Inspector	Wells Drilled[2]	Active oil and gas wells[3]	Active wells per inspector
1993	117	115,000	983	9,969	237,136	2,027
2002		106,462		9,877	221,551	
2003	81.5[4]	115,474	1,417	10,420	221,949	2,723
2004		110,624		11,587	223,442	
2005		115,393		12,664	227,796	
2006	87[5]	118,109	1,358	13,854	235,050	2,701
2007		119,131		20,619	241,534	
2008	83[6]	120,866	1,456	22,615	253,090	3,049
2009	87[7]	128,270	1,474	20,956	258,904	2,976
2010	88[8]	121,123	1,376	9,477	260,104	2,956
2011	97[9]	114,878[10]	1,184	8,391	270,233	2,786

Table A7-2. Oil and gas violations and inspections by state (2010).

State	Violations	Inspections	Violations per inspection
Ohio[11]	1,094	10,472	0.104
Pennsylvania[12]	2,861	15,368	0.186
Texas[13]	71,646	121,123	0.591

Table A7-3. Violations and Enforcement Data.

	Violations	Number of Enforcement Referrals for Legal Action[14]	% of violations referred for enforcement	Enforcement referrals per violation
2003		520		
2004		295		
2005		439		
2006	90,000+[15]	498	0.55	1 per 181 violations
2007	84,170[16]	484	0.58	1 per 174 violations
2008	81,620[17]	535	0.66	1 per 153 violations
2009	80,384[18]	549	0.68	1 per 146 violations
2010	71,646[19]	447[20]	0.62	1 per 160 violations
2011	No data	549	0.68	1 per 146 violations
2012*	40,575	820	2.02	1 per 49

* first three quarters of fiscal year

Table A7-4. Average penalty per enforcement action.[21]

	FY 2006	FY 2009	FY 2012 (first three quarters)
Penalties	$1.4 million	$2 million +	$856,868
Enforcement referrals	498	549	802
Avg. penalty	**$2,811**	**$3,643**	**$1,070**

Severances and Seals Data

The RRC maintains a "Severance" database that includes information on oil and gas leases that have been severed or sealed, but the database may not be complete. We found cases where data in the severance database were not consistent with media reports of wells being sealed. For example, an injection well that was sealed during an April 2002 field inspection was missing from the database.[22] Similarly, in November 2008, a newspaper report described an injection well in Aledo that was shut in and sealed by the RRC.[23] A query of the RRC severance database did not show a severance/seal in 2008 for this injection well, although it did show a severance in 2011.[24]

The Severance Query database offers the option of looking at severances and seals by "Current" or "Historical" or "Both" (Current and Historical). It is assumed that Current refers to severances that took place in that particular year, and that Current and Historical includes severances that took place prior to that year but were outstanding at some point during that year. But this is simply a guess. The web site does not provide an explanation for the difference between Current and Historical, nor was the Information Technology Services Help Desk able to provide an explanation.[25] So the table below show severances/seals for both Current and Current and Historical searches.

As seen from the table, the % of severances and seals resolved during the various years is not very different in the Current or Current and Historical searches.

Table A7-5. Severances and seals by year and type (outstanding vs. resolved).[26]

	CURRENT				CURRENT AND HISTORICAL			
	Outstanding	Resolved	Outstanding and Resolved	% Resolved	Outstanding	Resolved	Outstanding and Resolved	% Resolved
2000	1,248	4,858	6,106	80	1,419	7,034	8,453	83
2001	1,221	6,111	7,332	83	1,576	9,629	11,205	86
2002	1,186	5,760	6,946	83	1,388	7,827	9,215	85
2003	975	5,153	6,128	84	1,304	6,747	8,051	84
2004	849	4,144	4,993	83	1,173	5,362	6,535	82
2005	756	3,978	4,734	84	1,022	4,818	5,840	83
2006	1,894	4,065	5,959	68	2,340	5,051	7,391	68
2007	1,546	4,696	6,242	75	1,852	5,433	7,285	75
2008	2,229	5,611	7,840	72	2,750	6,193	8,943	69
2009	2,418	4,763	7,181	66	2,817	5,197	8,014	65
2010	2,922	3,881	6,803	57	3,202	4,171	7,373	57
2011	4,189	4,296	8,485	51	4,455	4,566	9,021	51

Table A7-6. Oil severances and gas seals by year and yype (outstanding vs. resolved).[27]

	OIL SEVERANCES				GAS SEALS			
	Outstanding	Resolved	Outstanding and Resolved	% Resolved	Outstanding	Resolved	Outstanding and Resolved	% Resolved
2001	990	4,692	5,682	83	231	1,416	1,647	86
2002	1,013	4,507	5,520	82	173	1,252	1,425	88
2003	801	4,051	4,852	83	174	1,102	1,276	86
2004	704	3,335	4,039	83	144	809	953	85
2005	569	3,162	3,731	85	186	815	1,001	81
2006	1,447	3,169	4,616	69	447	896	1,343	67
2007	1,205	3,537	4,742	75	340	1,159	1,499	77
2008	1,743	3,711	5,454	68	485	1,901	2,386	80
2009	1,740	3,488	5,228	67	675	1,277	1,952	65
2010	1,888	2,901	4,789	61	1,020	994	2,014	49
2011	2,481	2,938	5,419	54	1,686	1,377	3,063	45

Table A7-7. Operators with the most severances and seals for delinquent H-15s on gas leases.[28]

	Severances/seals for delinquent H-15s (2010 and 2011)
Devon Energy	100
Pioneer Natural Res.	82
Hilcorp Energy	35
XTO Energy	23
K&S Oil and Gas	19
Braka Operating	19
Petrolia Group	18
Square One Energy	16
Momentum Prod.	16
Oxy USA	15
Mantle Oil and Gas	15
KD Energy	15
Chesapeake Operating	15

Table A7-8. Data for severances and seals issued for field rule violations, oil and gas leases.[29]

Year	Severances/Seals for Field Rule Violations
2000	1,324
2001	1,262
2002	1,083
2003	950
2004	892
2005	821
2006	761
2007	705
2008	720
2009	813
2010	776
2011	563

Table A7-9. Operators with oil/gas product spills from equipment failures at tank batteries.[30]

	2006	2007	2008	2009	2010	2011	Total
Chesapeake Operating	4	8	1	5	5	7	30
Anadarko E&P/Petroleum	7	5	2	4	3	10	31
Devon Energy	5	2	11	6	11	1	36
XTO Energy	7	8	13	7	7	7	49
Apache Corporation	8	20	17	18	15	17	95
Pioneer Natural Resources	16	10	16	19	20	29	110

ENDNOTES

[1] Statistics from 2002 – 2006 from: State Auditor's Office, Texas. August 2007. *An Audit Report on Inspections and Enforcement Activities in the Field Operations Section of the Railroad Commission.* SAO Report No. 07-046. p. 1. http://www.sao.state.tx.us/Reports/report.cfm/report/07-046 Statistics from 2007 – 2011 from: Texas Legislative Budget Board. Agency Budget and Performance Measures for Fiscal Years 2007-2011. Search: "Railroad Commission." http://bapm.lbb.state.tx.us/main.aspx?FiscalYear=2011

[2] Railroad Commission of Texas (**hereafter RRC**) web site: "Texas Drilling Statistics." Accessed May 23, 2012. http://www.rrc.state.tx.us/data/drilling/txdrillingstat.pdf

[3] Texas has data for active wells, (see RRC Well Distribution Tables http://www.rrc.state.tx.us/data/wells/welldistribution/index.php) but the number includes wells not used for oil and gas extraction (e.g., hydrocarbon storage, withdrawal, brine mining, injection disposal and other. So we used the number of producing oil and natural wells to represent active oil and gas wells(Source: RRC "Natural Gas Production and Well Counts (1935-2011)" and "Oil Production and Well Counts (1935-2011)" found at: http://www.rrc.state.tx.us/data/production/index.php)

[4] State Review of Oil and Natural Gas Environmental Regulations, Inc. August 2003. *Texas State Review.* p. 28. http://www.strongerinc.org/documents/Texas%20Follow-up%20Review%208-2003.pdf

[5] State Auditor's Office. August 2007. p. i. See endnote 1.

[6] RRC Oct. 14, 2008. Oil and Gas Division Presentation. p. 4. http://www.fortworthgov.org/uploadedFiles/Gas_Wells/RRC%20-%20Oil%20and%20Gas%20Division.pdf

[7] Sunset Commission. January 2011. Sunset Commission Decision - Railroad Commission of Texas. p. 12. http://www.sunset.state.tx.us/82ndreports/rct/rct_dec.pdf

[8] RRC presentation. July 2011. Slide 8. http://www.dallascityhall.com/pdf/GasDrilling/RRC_July2011.pdf

[9] A January 2012 press release from the Railroad Commission said that "As a result of an increased appropriation from the 82nd Legislature, the Commission increased the number of oil and gas inspectors from 88 to 153." (Source: RRC. Jan. 18, 2012. "2011: Year of Railroad Commission Accomplishments." News Release. http://www.rrc.state.tx.us/pressreleases/2012/011812.php) An email from RRC clarified that RRC "provided for an additional 21+ full time inspector positions in the past year." And that the RRC has "97 Full-time inspectors" but that lead techs, state pluggers, and cleanup coordinators "also spend a relatively large percentage of their time in the field." When the latter positions are added in, there are 153 employees who carry out some inspection duties. (Source: Email from Leslie Savage, Railroad Commission of Texas to Bruce Baizel, Earthworks. April 10, 2012.)

[10] ibid.

[11] See Appendix 5 in this report.

[12] See Appendix 6 in this report.

[13] See Tables A7-1 and A7-3 in this Appendix for data sources.

[14] Data in this column come from Propublica, unless otherwise noted. (According to ProPublica, "Enforcement actions provided by the Texas Railroad Commission." Texas statistics in "Buried secrets – gas drilling's environmental impact," Propublica. http://projects.propublica.org/gas-drilling-regulatory-staffing/states/TX). 2012 data from: Rider 17 Third Quarter report. http://www.rrc.state.tx.us/compliance/complaints/Rider17_3rdQTR_FY12.pdf

[15] State Auditor's Office, Texas. August 2007. p. i. See endnote 1.

[16] See endnote 6.

[17] RRC. Sept. 2009. *Self-Evaluation Report*. Submitted to Texas Sunset Commission. p. 91. http://www.rrc.state.tx.us/about/divisions/RRCSelfEvaluationReport2009.pdf

[18] RRC. Dec. 21, 2010. Letter from Michael Williams, RRC Commissioner to Glenn Hegar, Chairman, Sunset Advisory Commission. p.3. http://www.sunset.state.tx.us/82ndreports/rct/responses/135.pdf

[19] RRC presentation. July 2011. Slide 51. http://www.dallascityhall.com/pdf/GasDrilling/RRC_July2011.pdf

[20] ibid.

[21] Penalty Data: 2006 data from: State Auditor's Office (Texas). p.i. See endnote 1. 2009 data from: Sunset Advisory Commission. July 2011. *Final Report - Railroad Commission of Texas*. p. 8. 2012 data from: Rider 17 Third Quarter report. http://www.rrc.state.tx.us/compliance/complaints/Rider17_3rdQTR_FY12.pdf Enforcement data: see Table A7-3 in this Appendix. Average Penalty: calculated by dividing total penalties by number of enforcement referrals.

[22] RRC Online System. Severance Query. Severance records for the Savage lease (Severance query for lease 27005: http://webapps2.rrc.state.tx.us/EWA/severanceQueryAction.do) do not indicate that the well was sealed during an inspection on April 25, 2002, as reported in TX RRC Oil and Gas Docket 08-0231748 (www.rrc.state.tx.us/meetings/ogpfd/8-31748-DEF.pdf).

[23] Huffman, D. Nov. 3, 2008. "Injection well capped," *Weatherford Democrat.* http://weatherforddemocrat.com/local/x1155988924/Injection-well-capped

[24] RRC. Severance Query. Search operator: CES SWD Texas Inc. http://webapps2.rrc.state.tx.us/EWA/severanceQueryAction.do

[25] Contacted Railroad Commission of Texas Information Technology Services (1-512-463-7229) on April 6, 2012.

[26] RRC Online System, Oil and Gas Data Query, Severance Query. Data accessed April 8, 2012. http://webapps2.rrc.state.tx.us/EWA/severanceQueryAction.do Searched for oil and gas severances/seals. Did not specify a district, field, operator, who the letter was issued by, or reason for the issuance. Searched for severance/seal letter date by year – e.g., 01/01/2011 to 12/31/2011. Did this for years 2000 through 2011. To determine Outstanding and Resolved: 1) Searched Severance/Seal Category: Outstanding and Resolved (which provides – a list of all leases on which an issue ever existed, regardless of its current status). Did this for years 2000 through 2011. 2) Selected only "Current" records. To determine Outstanding: 1) Searched Severance/Seal Category: Outstanding. 2) Selected only "Current" records. Calculated Resolved by subtracting the number of Outstanding from the number of Outstanding and Resolved severances/seals in each year. Converted the number of Outstanding and number of Resolved into percentages.

[27] ibid. Data accessed April 9, 2012. Searched for oil severances. Did not specify a district, field, operator, who the letter was issued by, or reason for the issuance. Searched for severance/seal letter date by year – e.g., 01/01/2011 to 12/31/2011. Did this for years 2000 through 2011. To determine Outstanding and Resolved**:** 1) Searched Severance/Seal Category: Outstanding and Resolved (which provides – a list of all leases on which an issue ever existed, regardless of its current status). Did this for years 2000 through 2011. 2) Selected only "Current" records. To determine Outstanding: 1) Searched Severance/Seal Category: Outstanding. 2) Selected only "Current" records. Calculated Resolved by subtracting the number of Outstanding from the number of Outstanding and Resolved severances/seals in each year. Converted the number of Outstanding and number of Resolved into percentages. Repeated all previous steps for gas seals.

[28] ibid. Search Criteria – Well Type: Gas, Severance/Seal Cert. Ltr. Reason: Delinquent H-15. Severance/Seal Letter Date: 01/01/2010 to 12/31/2011. Current records. Data accessed Feb. 29, 2012.
[29] ibid. Search for Oil and Gas Wells, Severance/Seal Cert. Ltr. Reason: Field Rule Violation, Severance/Seal Letter Date for each year (e.g., between 01/01/2011 and 12/31/2011), Outstanding and Resolved, Current. Data
[30] RRC web site: Data from Crude Oil, Gas Well Liquids or Associated Products (H-8) Loss Reports. Copied data for each month/year into spreadsheet. Filtered by Facility = "tank battery." Filtered by Cause of Loss = "equipment failure." Counted number of occurrences for each of the operators in Table. http://www.rrc.state.tx.us/environmental/spills/h8s/index.php

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