



# Risky Business: An Analysis of Marcellus Shale Gas Drilling Violations in Pennsylvania 2008-2011

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Marcellus Shale gas drilling is expanding rapidly across Pennsylvania. With it, drilling companies regularly continue to violate Pennsylvania's cornerstone environmental laws – laws that aim to protect the Commonwealth's natural heritage and the public's health.

In the worst scenarios, such as a 2011 Chesapeake Appalachia liquid storage tank explosion in Avella, Washington County<sup>1</sup> or a 2011 Chesapeake Energy well blowout in Bradford County, these violations threaten the surrounding environment and can put human health and safety at risk.<sup>2</sup> Others put surrounding ecosystems at risk, such as a 2010 Anadarko E&P Company LP drilling mud spill at a drilling site in Sproul State Forest.<sup>3</sup>

Using records obtained by the Pennsylvania Department of Environmental Protection (PADEP), the PennEnvironment Research and Policy Center identified a total of **3,355 violations of environmental laws** by 64 different Marcellus Shale gas drilling companies between January 1, 2008 and December 31, 2011. Of these violations, the PennEnvironment Research and Policy Center identified **2,392 violations that likely posed a direct threat to our environment and were not reporting or paperwork violations.**

Moreover, the PennEnvironment Research and Policy Center believes these numbers offer a conservative view of environmental violations taking place across the Commonwealth by Marcellus Shale gas drilling companies. This data only includes violations discovered by PADEP's enforcement staff. Yet based upon the number of wells drilled and limited PADEP enforcement staff, further violations that have gone undetected are likely.

Our analysis of data collected and reported by PADEP between 2008 and 2011 found the following:

- The greatest numbers of environmental violations were related to improper erosion and sedimentation plans: 625 (26% of all violations likely to impact the environment). The

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second greatest number involved faulty pollution prevention techniques: 550 (23% of violations likely to impact the environment).

- The top five operators for total number of violations were, in order, Cabot Oil and Gas Corp. with 412; Chesapeake Appalachia, LLC with 393; Chief Oil and Gas, LLC with 313; Talisman Energy USA, Inc. with 303; and East Resources, Inc. with 170.
- The top five operators for average number of violations per well drilled were, in order, Guardian Exploration, LLC with an average of 11 violations per well drilled; AB Resources PA, LLC with 9; JW Operating Co. with 5.3; Flatirons Development, LLC with 4.67 and Novus Operating, LLC with 4.63.
- Between 2008 and 2011, on average, Pennsylvania saw more than two violations per day uncovered by PADEP, roughly 1.5 of which had the greatest potential to impact the environment.

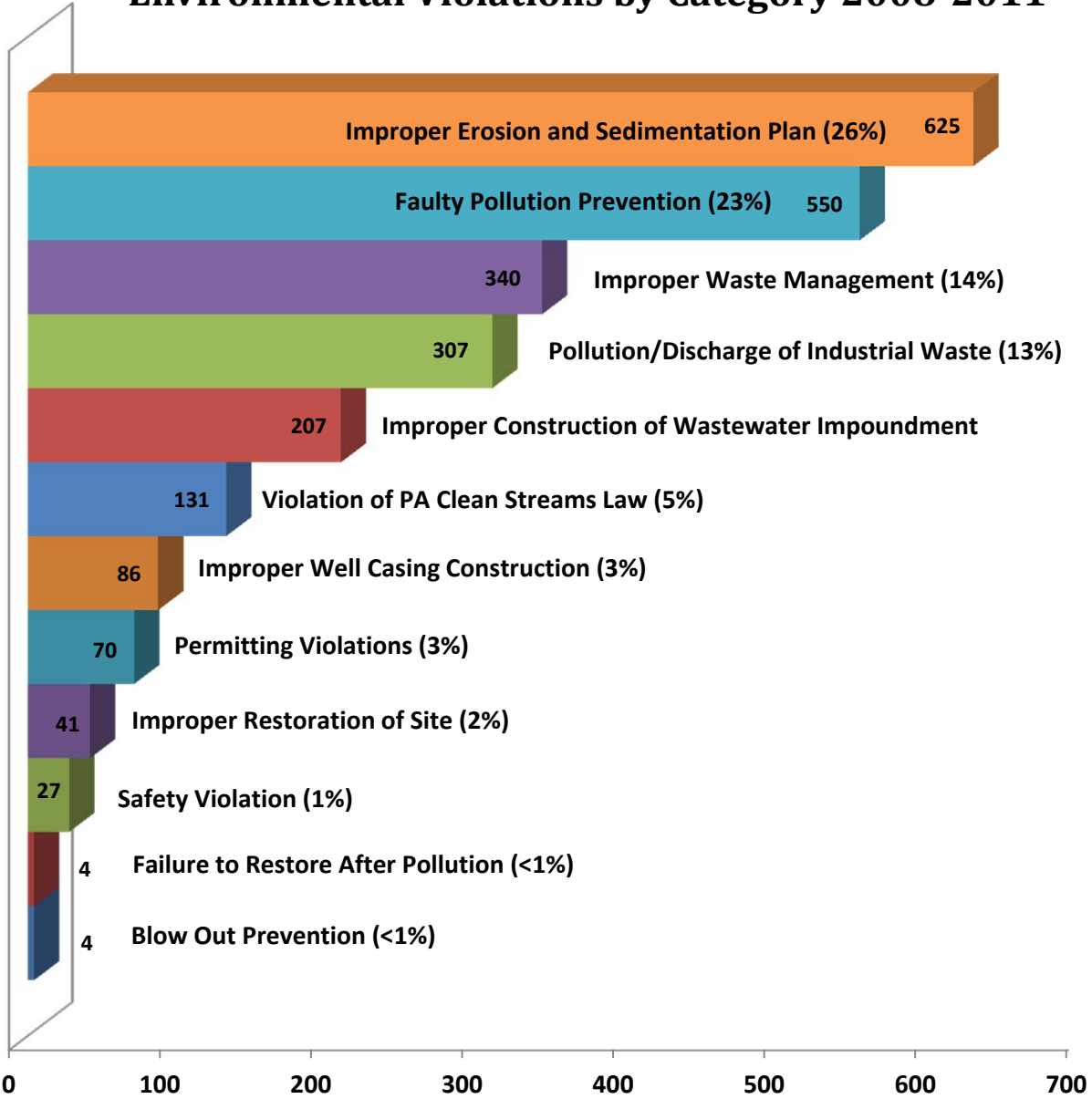
PennEnvironment Research and Policy Center identified 963 violations (29% of all violations) that seemed less likely to directly endanger the environment or the safety of communities. This report focuses on the violations that have the greatest potential for directly impacting the Commonwealth's environment.

This analysis demonstrates that Marcellus Shale gas drilling companies are either unable or unwilling to comply with basic environmental laws that have been put in place to protect the health and environment of Pennsylvanians. This points to a need for state leaders to halt additional shale gas extraction through all legally viable means until and unless gas operators can prove the practice is safe for the environment and public health. Until that happens, PennEnvironment Research and Policy Center believes the following policy handles must be implemented in order to stop the rampant rate of environmental violations that drilling companies commit in Pennsylvania each year.

- Increase mandatory minimum penalties for polluters that violate our environmental laws. There must be stronger incentives to protect our environment and the public's health.
- Update and increase the bonding requirements for gas drilling companies in order to cover the full cost of completing a gas well. This must include preparing for worst case scenarios and accidents as well as the potential long-term environmental effects from Marcellus Shale gas drilling. Pennsylvania's taxpayers should not be left footing the bill for an expensive BP-like disaster related to gas drilling in the Commonwealth, or an expensive legacy of pollution similar to that left by coal mining.
- Put areas that supply our drinking water, critical wildlife habitat and ecosystems, and our state forests and other public lands completely off limits to drilling.
- All private well owners within a half-mile of a drilling site should be notified prior to the submittal of a drilling permit application. Every private well owner should be given the opportunity to have their well water tested—at the expense of the industry, not the land owner or taxpayers, prior to application.
- Increase funding to PADEP and other state agencies to ensure they can properly enforce our environmental and public health laws. This enforcement should include:
  - Implementing more regular inspection of all drilling sites, especially at critical times (when wells are being sealed, for example); and
  - An inspection of erosion and sedimentation controls and plans prior to the start of any drilling.

Figure 1

## Environmental Violations by Category 2008-2011



## Pennsylvania Violations by Operator and Year 2008-2011

Table 1

Operator	2008	2009	2010	2011	Marcellus Wells Drilled	Violations
CABOT OIL & GAS CORP	61	75	115	161	213	412
CHESAPEAKE APPALACHIA LLC	7	113	134	139	576	393
CHIEF OIL & GAS LLC	11	33	176	93	132	313
TALISMAN ENERGY USA INC	7	112	154	30	590	303
EAST RESOURCES INC	18	95	57		0	170
RANGE RESOURCES APPALACHIA LLC	34	11	40	78	479	163
XTO ENERGY INC		15	66	78	53	159
ANADARKO E&P CO LP	1	8	80	64	289	153
ULTRA RESOURCES INC		19	47	67	53	133
SENECA RESOURCES CORP		21	45	34	122	100
PA GEN ENERGY CO LLC	4	16	41	24	80	85
WILLIAMS PRODUCTION APPALACHIA LLC			8	65	115	73
EOG RESOURCES INC	12	16	24	14	164	66
ATLAS RESOURCES LLC	7	33	18	3	283	61
J W OPERATING CO	3	27	22	1	10	53
SOUTHWESTERN ENERGY PROD CO	8		13	32	71	53
CARRIZO (MARCELLUS) LLC				44	57	44
EXCO RESOURCES PA INC	1	2	17	21	47	41
EQT PRODUCTION CO		1	19	19	144	39
CITRUS ENERGY CORP		5	27	6	20	38
SWEPI LP			1	37	119	38
NOVUS OPERATING LLC		2	17	18	8	37
ENERGY CORP OF AMER	4	13	13	5	67	35
EXCO RESOURCES PA LLC				33	44	33
EAST RESOURCES MGMT LLC			22	8	300	30
ALTA OPR CO LLC		7	22		0	29
RICE DRILLING B LLC		1	7	19	19	27
PHILLIPS EXPLORATION INC	6	8	3	5	28	22
REX ENERGY OPERATING CORPORATION		3	12	3	62	18
TURM OIL INC	15	2			0	17
STONE ENERGY CORP	7	3	5		7	15
PENN VIRGINIA OIL & GAS CORP			8	7	8	15

<b>MDS ENERGY LTD</b>		6	6	3	18	15
<b>FLATIRONS DEVELOPMENT LLC</b>			1	13	3	14
<b>CHEVRON APPALACHIA LLC</b>				14	96	14
<b>TRIANA ENERGY LLC</b>				13	19	13
<b>GUARDIAN EXPLORATION LLC</b>	4		7		1	11
<b>CNX GAS CO LLC</b>		1	5	5	99	11
<b>TANGLEWOOD EXPL LLC</b>		3	4	3	12	10
<b>AB RESOURCES PA LLC</b>	5	4			1	9
<b>ANTERO RESOURCES APPALACHIAN CORP</b>			7	1	3	8
<b>HESS CORP</b>			6	2	3	8
<b>SAMSON RES CO</b>		6	2		3	8
<b>BLX INC</b>		1	2	4	16	7
<b>ATLAS RESOURCES INC</b>	7				0	7
<b>BURKLAND WILLIAM S</b>		6			0	6
<b>ENERPLUS RES (USA) CORP</b>			5		3	5
<b>SM ENERGY CO</b>		1	1	3	3	5
<b>SNYDER BROS INC</b>		1	3	1	57	5
<b>CARRIZO OIL &amp; GAS INC</b>			2	1	1	3
<b>BURNETT OIL CO INC</b>			3		4	3
<b>ALPHA SHALE RES LP</b>				3	10	3
<b>CONSOL GAS CO</b>	3				57	3
<b>BAKER GAS INC</b>			3		0	3
<b>BELDEN &amp; BLAKE CORP</b>		2			1	2
<b>GREAT PLAINS OPER LLC DBA GREAT MTN</b>				2	1	2
<b>PATRIOT EXPLORATION CORP</b>				2	1	2
<b>VICTORY ENERGY CORP</b>	2				0	2
<b>ANSCHUTZ EXPLORATION CORP</b>		2			0	2
<b>WILLIAM MCINTIRE COAL OIL &amp; GAS</b>			1		1	1
<b>LONGFELLOW ENERGY LP</b>			1		2	1
<b>VISTA OPR INC</b>	1				2	1
<b>DL RESOURCES INC</b>	1				0	1
<b>POWER GAS MKT &amp; TRANS INC</b>	1				0	1
<b>(UNKNOWN)</b>			1		0	1
<b>AMER OIL AND GAS LLC</b>					1	0
<b>ENCANA OIL AND GAS USA INC</b>					2	0
<b>HUNT MARCELLUS OPERATING CO LLC</b>					7	0
<b>MARATHON OIL CO</b>					2	0
<b>MTN V OIL &amp; GAS CORP</b>					1	0

NORTHEAST NATURAL ENERGY LLC					3	0
PDC MOUNTAINER LLC					1	0
TRUE OIL LLC					2	0
TOTAL	230	674	1,273	1,178	4,596	3,355

## Pennsylvania Violations per Well Drilled 2008-2011

Table 2

Operator	Marcellus Wells Drilled	Violations	Violations/ Well Drilled
GUARDIAN EXPLORATION LLC	1	11	11.00
AB RESOURCES PA LLC	1	9	9.00
J W OPERATING CO	10	53	5.30
FLATIRONS DEVELOPMENT LLC	3	14	4.67
NOVUS OPERATING LLC	8	37	4.63
CARRIZO OIL & GAS INC	1	3	3.00
XTO ENERGY INC	53	159	3.00
ANTERO RESOURCES APPALACHIAN CORP	3	8	2.67
HESS CORP	3	8	2.67
SAMSON RES CO	3	8	2.67
ULTRA RESOURCES INC	53	133	2.51
CHIEF OIL & GAS LLC	132	313	2.37
STONE ENERGY CORP	7	15	2.14
BELDEN & BLAKE CORP	1	2	2.00
GREAT PLAINS OPER LLC DBA GREAT MTN	1	2	2.00
PATRIOT EXPLORATION CORP	1	2	2.00
CABOT OIL & GAS CORP	213	412	1.93
CITRUS ENERGY CORP	20	38	1.90
PENN VIRGINIA OIL & GAS CORP	8	15	1.88
ENERPLUS RES (USA) CORP	3	5	1.67
SM ENERGY CO	3	5	1.67
RICE DRILLING B LLC	19	27	1.42
PA GEN ENERGY CO LLC	80	85	1.06
WILLIAM MCINTIRE COAL OIL & GAS	1	1	1.00
EXCO RESOURCES PA INC	47	41	0.87
MDS ENERGY LTD	18	15	0.83
TANGLEWOOD EXPL LLC	12	10	0.83

SENECA RESOURCES CORP	122	100	0.82
PHILLIPS EXPLORATION INC	28	22	0.79
CARRIZO (MARCELLUS) LLC	57	44	0.77
BURNETT OIL CO INC	4	3	0.75
EXCO RESOURCES PA LLC	44	33	0.75
SOUTHWESTERN ENERGY PROD CO	71	53	0.75
TRIANA ENERGY LLC	19	13	0.68
CHESAPEAKE APPALACHIA LLC	576	393	0.68
WILLIAMS PRODUCTION APPALACHIA LLC	115	73	0.63
ANADARKO E&P CO LP	289	153	0.53
ENERGY CORP OF AMER	67	35	0.52
TALISMAN ENERGY USA INC	590	303	0.51
LONGFELLOW ENERGY LP	2	1	0.50
VISTA OPR INC	2	1	0.50
BLX INC	16	7	0.44
EOG RESOURCES INC	164	66	0.40
RANGE RESOURCES APPALACHIA LLC	479	163	0.34
SWEPI LP	119	38	0.32
ALPHA SHALE RES LP	10	3	0.30
REX ENERGY OPERATING CORPORATION	62	18	0.29
EQT PRODUCTION CO	144	39	0.27
ATLAS RESOURCES LLC	283	61	0.22
CHEVRON APPALACHIA LLC	96	14	0.15
CNX GAS CO LLC	99	11	0.11
EAST RESOURCES MGMT LLC	300	30	0.10
SNYDER BROS INC	57	5	0.09
CONSOL GAS CO	57	3	0.05
AMER OIL AND GAS LLC	1	0	0.00
ENCANA OIL AND GAS USA INC	2	0	0.00
HUNT MARCELLUS OPERATING CO LLC	7	0	0.00
MARATHON OIL CO	2	0	0.00
MTN V OIL & GAS CORP	1	0	0.00
NORTHEAST NATURAL ENERGY LLC	3	0	0.00
PDC MOUNTAINER LLC	1	0	0.00
TRUE OIL LLC	2	0	0.00
EAST RESOURCES INC	0	170	
ALTA OPR CO LLC	0	29	
TURM OIL INC	0	17	
ATLAS RESOURCES INC	0	7	
BURKLAND WILLIAM S	0	6	

<b>BAKER GAS INC</b>	0	3	
<b>VICTORY ENERGY CORP</b>	0	2	
<b>ANSCHUTZ EXPLORATION CORP</b>	0	2	
<b>DL RESOURCES INC</b>	0	1	
<b>POWER GAS MKT &amp; TRANS INC</b>	0	1	
<b>(UNKNOWN)</b>	0	1	
<b>TOTAL</b>	<b>4,596</b>	<b>3,355</b>	