

Attribute	Texas	Louisiana	Arkansas	Oklahoma	Pennsylvania
Shale Gas Production in 2010 (billion cu-ft)¹	2,218	1,232	794	403	396
Venting and Flaring of Methane	<p>"Except as otherwise provided in subsections (d), (f)(1)(B) and (C), (g)(2), or an exception granted under subsection (h) of this section, all gas releases of greater than 24 hours duration authorized under the provisions of this section shall be burned in a flare if the gas can be burned safely. All gas releases of 24 hours' duration or less authorized under the provisions of this section may be vented to the air if flaring is not required for safety reasons or by other regulation and the gas can be safely vented." 16 Tex. Admin. Code § 3.32(e)(1) (2012).</p> <p>The exemptions mentioned include "gas released at a wellsite during drilling operations" <i>id.</i> at § 3.32(d)(1)(F), and "gas released at a wellsite during initial completion, recompletion in another field, or workover operations in the same field" <i>id.</i> at § 3.32(d)(1)(G). The Texas Railroad Commission may soon update its flaring rules, however.²</p>	<p>1. Releases of methane less than 2.5 million cubic feet require no controls. 2. Releases of natural gas greater than or equal to 2.5 million cubic feet shall be controlled by flaring. La. Admin. Code tit. 33.III, § 307B (2012).³</p>	<p>No specific requirements found.</p>	<p>Permits required for flaring and venting of methane if daily basis gas volumes are in excess of 50 mcf/d. Okla. Admin. Code § 165:10-3-15 (Westlaw 2012).⁴</p>	<p>"The venting of gas to the atmosphere from a well is prohibited when the venting produces a hazard to the public health and safety." 25 Pa. Code § 78.74 (2012).</p> <p>"Excess gas encountered during drilling, completion or stimulation shall be flared, captured or diverted away from the drilling rig in a manner that does not create a hazard to the public health or safety" 25 Pa. Code § 78.73e (2012).</p>
Other Emissions	<p>No other relevant emissions requirements found.</p>	<p>Other requirements for VOCs, <i>id.</i> at § 2107, § 2115; and glycol dehydrators, <i>id.</i> at § 2116.</p> <p>Exhaust from internal combustion engines or compressors must have an</p>	<p>Vapor recovery units required for H2S fumes. 178.00 Ark. Admin. Code § 1-B-41 (Westlaw 2012).</p>	<p>Hydrogen sulfide standards and alarm systems, requirements for oxides of sulfur. Okla. Admin. Code § 252:100-31-26 (Westlaw 2012).</p>	<p>Oil and gas exploration and production facilities are exempted from the Pennsylvania Department of Environmental Protection's (DEP) permitting requirement. Pa. Department of</p>

¹ US Energy Information Administration, Shale Gas Production, http://www.eia.gov/dnav/ng/ng_prod_shalegas_s1_a.htm (last visited Nov. 30, 2012).

² Press Release, Railroad Commission of Texas, Commissioner David Porter Launches Initiative to Modernize Commission Flaring Rules Flaring as Option of Last Resort (May 23, 2012), *available at* <http://www.rrc.state.tx.us/commissioners/porter/press/052312.php>.

³ This provision appears to limit emissions over the entire testing period. It applies to individual wells, rather than to a larger drilling unit (e.g., a well pad with multiple wells).

⁴ An Oklahoma DEQ official explained that if there are multiple operators at a large drilling site, then the different operators will have different permits for each well. However, if one operator owns the entire drill site, then that operator will probably have only one permit with one aggregate emissions limit for all the wells contained in that site.

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		<p>exhaust muffler or an exhaust box. La. Office of Conservation, Order no. U-HS-3-E (May 21, 2009), http://dnr.louisiana.gov/assets/OC/eng_div/20090806-U-HS.pdf.</p>			<p>Environmental Protection, Air Quality Permit Exemptions 275-2101-003 (July 26, 2003), http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-80104/275-2101-003.pdf. Exempt sources, including drilling rigs, wellheads, and some glycol dehydrators, must apply to be evaluated on a case by case basis under the Plan Approval and Operating Permit process. 25 Pa. Code, § 127.B (relating to plan approval requirements) and/or § 127.F (relating to operating permit requirements).</p> <p>Other sources, such as internal combustion (IC) engines are generally not exempt and must receive a general operating permit from the DEP, which contains a number of restrictions on emissions. Pa. Department of Environmental Protection, General Plan Approval And/Or General Operating Permit: BAQ-GPA/GP-5, 13 (March 17, 2011), http://www.dep.state.pa.us/dep/deputate/airwaste/aq/permits/gp/Final_GP-5_Amendments_Approved.pdf.</p> <p>To complicate matters, applicants seeking to install IC engines of less than 1,500 horsepower (HP) may use DEP's general permit, but applicants seeking to install IC engines greater than 1,500HP must seek approval from DEP and conform with best available technology requirements. Governor's Marcellus Shale Advisory Commission, Report 72 (2011).</p>

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Emissions Monitoring	No emissions monitoring requirements found, but TCEQ is monitoring emissions in the Barnett Shale Area. So far they have found no harmful emissions. ⁵	Recordkeeping for flaring and venting of natural gas, La. Admin. Code tit. 33.III, § 307F (2012); VOCs, <i>id.</i> at §2107D, §2115K-L; and glycol dehydrators, <i>id.</i> at §2116F.	No emissions monitoring requirements found, but the Arkansas Department of Environmental Quality conducted a survey of emissions for 2008. ⁶	No specific requirements found	<p>Sources not exempt from DEP's general permit must conform to its monitoring, recordkeeping, and reporting requirements, along with its performance testing requirements. Pa. Department of Environmental Protection, General Plan Approval And/Or General Operating Permit: BAQ-GPA/GP-5, 17, 16 (March 17, 2011), http://www.dep.state.pa.us/dep/deputate/airwaste/airwaste/permits/gp/Final_GP-5_Amendments_Approved.pdf.</p> <p>The DEP has also completed short-term emissions monitoring studies,⁷ and in July 2012, it began conducting a one-year ambient air monitoring project focused on shale gas emissions. The study will include ozone, carbon monoxide, methane, and over 60 other pollutants.⁸</p>

⁵ Texas Commission on Environmental Quality, A Commitment to Air Quality in the Barnett Shale, <http://www.tceq.texas.gov/publications/pd/020/10-04/a-commitment-to-air-quality-in-the-barnett-shale> (last visited Nov. 30, 2012).

⁶ Arkansas Department of Environmental Quality, Emissions Inventory and Air Monitoring of Natural Gas Production in the Fayetteville Shale Region (2011), *available at* http://www.adeq.state.ar.us/air/pdfs/fayetteville_shale_air_quality_report.pdf.

⁷ *See, e.g.*, Penn. DEP, Northeastern Pennsylvania Marcellus Shale: Short-Term Ambient Air Sampling Report (2011), *available at* http://www.dep.state.pa.us/dep/deputate/airwaste/airwaste/aqm/docs/Marcellus_NE_01-12-11.pdf.

⁸ Penn. DEP, Long-Term Ambient Air Monitoring Project near Permanent Marcellus Shale Gas Facilities Protocol (2012), *available at* http://www.dep.state.pa.us/dep/deputate/airwaste/airwaste/aqm/docs/Long-Term_Marcellus_Ambient_Air_Monitoring_Project-Protocol_for_Web_2012-07-23.pdf.