

Chapter 22

Federal Regulation of Hydraulic Fracturing: A Conversational Introduction

L. Poe Leggette
Jennifer Cadena
Kristopher C. Kleiner
Fulbright & Jaworski L.L.P.
Denver, Colorado

Synopsis

§ 22.01. Introduction.....	797
[1] — State Regulation of Hydraulic Fracturing	797
[2] — Demand for Federal Regulation of Hydraulic Fracturing	797
[3] — Short Definition of Hydraulic Fracturing	798
§ 22.02. Problems Raised by Hydraulic Fracturing	799
[1] — Perception	799
[2] — Water Well Contamination?	800
[3] — Water Management.....	800
[4] — Use of Diesel Fuel	800
§ 22.03. How Natural Gas Forms and “Migrates”.....	800
[1] — Shales	801
[2] — Production of Oil or Gas from Shale	802
[3] — Natural Fracturing of Shale.....	802
§ 22.04. Methane and Water Wells	802
[1] — Common Constituents of Groundwater	803
[2] — Study of Public-Supply Water Wells Vulnerable to Contamination	804
[a] — High Plains Aquifer, Nebraska	804
[b] — Private Water Wells in Pennsylvania.....	804
§ 22.05. Scientists’ Analyses of Well Water.....	805
[1] — Determination that Gas Drilling Not the Cause	806
[2] — Chemical Composition Analysis — Biogenic Gas/ Thermogenic Gas	807
[3] — Chemical Composition Analysis — Source of Gas	807
[4] — Isotope Ratio Analysis.....	808
§ 22.06. Designing and Controlling Oil and Gas Wells	810
§ 22.07. Well Design	810
[1] — Aquifer Formation Consideration	810

§ 22.08.	Drilling Process	810
	[1] — Drilling and Casing the Wellbore	811
	[2] — Determining Pressure Needed to Fracture the Rock	813
	[3] — Perforation Process.....	813
	[4] — Pumping of Fracturing Fluids.....	813
	[5] — Monitoring Frack Operation Downhole	814
§22.09.	Fracking Fluid	815
	[1] — Frack Fluid Composition.....	815
	[2] — Changing Composition of Fracking Fluid	816
	[3] — Disclosure of Chemicals in Completion Fluid.....	816
§ 22.10.	Water Management	816
	[1] — Loss of Water in Fracking	817
	[2] — Flowback.....	818
§ 22.11.	Use of Diesel	819
§ 22.12.	Federal Regulation	820
§ 22.13.	EPA’s Efforts	821
	[1] — Study and Report to Congress.....	821
	[2] — Use of CERCLA to Investigate Alleged Aquifer Contamination.....	821
	[3] — Use of Response Authority Under Safe Drinking Water Act.....	822
	[4] — Regulation of Chemicals Used in Hydraulic Fracturing Under the Toxic Substances Control Act	823
	[5] — Regulation of the Use of Diesel Fuels in Hydraulic Fracturing	824
§ 22.14.	EPA Draft Guidance on Diesel in Hydraulic Fracturing	829
	[1] — Chemical Disclosure.....	830
	[2] — Integrity Testing	831
	[3] — Formation Integrity	831
	[4] — Water Management	832
§ 22.15.	BLM Proposed Regulation of Hydraulic Fracturing	832
	[1] — Chemical Disclosure.....	832
	[2] — Well Integrity	833
	[3] — Formation Integrity	833
	[4] — Water Management.....	834
§ 22.16.	U.S. Forest Service Attempts to Delay Hydraulic Fracturing on Private Mineral Estates	835
§ 22.17.	Appendix A: Additional Information on Chemical and Isotopic Analysis	837
§ 22.18.	Appendix B	846

§ 22.01. Introduction

Over the objections of state regulatory agencies, federal agencies are pursuing the regulation of hydraulic fracturing in oil and gas operations. Both the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission have expressed concern that additional federal regulation is redundant of regulations the states already have in place, and that federal procedural requirements will increase the workload of state officials already fully engaged in the protection of ground water supplies.

[1] — State Regulation of Hydraulic Fracturing.

All states regulate oil and gas operations. All states regulate hydraulic fracturing operations. Some regulate it with greater specificity than others, but all regulate it.¹ Additionally, since 1935, 38 states [including member and associate states] have coordinated their regulation of oil and gas activities under the auspices of a constitutionally sanctioned compact.²

[2] — Demand for Federal Regulation of Hydraulic Fracturing.

Opponents of the expanded use of hydraulic fracturing deem those state efforts, individually and collectively, to be inadequate; they demand additional regulation by the federal government. Most prominent of the critics of state regulation is Secretary of the Interior Kenneth Salazar, who defends his decision to propose expansive new regulations through the Bureau of Land Management by saying, “As we continue to offer millions of acres of America’s public lands for oil and gas development, it is critical that the public have full confidence that the right safety and environmental protections are in place. The proposed rule will modernize our management of well stimulation activities — including hydraulic fracturing”³

¹ A comprehensive list of state regulations can be found through the Interstate Oil & Gas Compact Commission, *available at* <http://groundwork.iogcc.org/topics-index/hydraulic-fracturing/hydraulic-fracturing-regulations>.

² “Member States,” Interstate Oil & Gas Compact Commission, *available at* <http://www.iogcc.state.ok.us/member-states>.

³ U.S. Department of the Interior, “Interior Releases Draft Rule Requiring Public Disclosure of Chemicals Used in Hydraulic Fracturing on Public and Indian Lands,” (Bureau