

STATES EXPERIENCE WITH HYDRAULIC FRACTURING

A Survey of the Interstate Oil and Gas Compact Commission

July 2002

The Interstate Oil and Gas Compact Commission (IOGCC) has completed a survey of oil and natural gas producing states that provides an understanding of hydraulic fracturing and its role in the completion of oil and natural gas wells in the United States. The survey results are presented in the attached table.

Principal findings of this survey reveal that the technique has been in widespread, common use for nearly 60 years – the technique gained its current widespread popularity as a production technique in the 1940s. Approximately 35,000 wells are hydraulically fractured annually in this country with close to one million wells having been hydraulically fractured in the United States since the technique's inception with no documented harm to groundwater. Hydraulic fracturing has been regulated by the states since its inception. A principal focus of state oil and gas regulatory programs is on protecting ground and surface water resources. The survey reveals hydraulic fracturing of natural gas and oil wells is a process that is well understood and well regulated by the petroleum producing states.

Hydraulic fracturing is used in many geological formations in order to make oil and gas flow freely to the well bore. Williams and Meyers' Manual of Oil and Gas Terms defines hydraulic fracturing as "a mechanical method of increasing the permeability of rock, and thus increasing the amount of oil or [natural] gas produced from it. The method employs hydraulic pressure to fracture the rock." Under modern production techniques, hydraulic fracturing fluid (primarily water and sand) is injected under pressure into the rock through perforations in the well bore. The well is then allowed to flow back the injected fluid, leaving the sand to prop open the fractures in the rock. In a typical well, approximately eighty percent of the injected fluid is returned to the surface within a short period after fracturing, with an additional fifteen to twenty percent recovered through production. The injected sand material is left in the rock to create the pathway for the oil and/or natural gas to flow.

The IOGCC represents the governors of 37 states – 30 member and seven associate states – that produce virtually all the domestic oil and natural gas in the United States. The IOGCC's mission is to promote the conservation and efficient recovery of domestic oil and natural gas resources, while protecting health, safety and the environment.

SURVEY OF STATES RE: FRACTURING

STATE	YR STATE BEGAN REG.	FRACTURING DONE IN STATE?	HOW LONG FRACTURING ?	TYPE OF WELLS	APP. WELLS FRACTURED ANNUALLY	APP. WELLS FRACTURED IN STATE TOTAL	% OF WELLS FRACTURED	HARM ?
ALABAMA	1945	YES	1945	G,O,CSNG	285	5300	85%	NO
ALASKA	1958	YES	1981	G,O	55	1400	40%	NO
ARKANSAS	1939	YES	1980s	G,CSNG	150	N/A	75%	NO
CALIFORNIA	1915	YES	1970s	O,G	500	15,000	15%	NO
COLORADO	1951	YES	1980s	G,O,CSNG	1500	20,000	99%	NO
ILLINOIS	1939	YES	1950s	O	1,000	30 to 50,000	30%	NO
INDIANA	1947	YES	1950s	O,G	1,000	20,562	95%	NO
KANSAS	1933	YES	1960s	O,G,CSNG	900	50,000	40%	NO
KENTUCKY	1960	YES	1960s	G	1,000	30,000	50%	NO
LOUISIANA	1920s	YES	1960s	O,G	258	36,000	30%	NO
MICHIGAN	1927	YES	1970s	O,G	400	9,000	90%	NO
MISSISSIPPI	1939	YES	1960s	G	70	2 to 3,000	35%	NO
MONTANA	1954	YES	1950s	O,G	10	4,000	66%	NO
NEBRASKA	1959	YES	1950s	O,G	200	3,500	80%	NO
NEVADA	1954	YES	1980s	O	10	50	5%	NO
NEW MEXICO	1935	YES	1950s	O,G,CSNG	1,000	30,000	90%	NO
NEW YORK	1879	YES	1962	O,G	100	8,000	85%	NO
NORTH DAKOTA	1945	YES	1950s	O,G	15	290	10%	NO
OHIO	1965	YES	1950s	O,G	550	67,000	81%	NO
OKLAHOMA	1915	YES	1950s	O,G	1,150	58,000	60%	NO
PENNSYLVANIA	Pre-1900	YES	1950s	O,G,CSNG	2,000	118,000	99.9%	NO
SOUTH DAKOTA	1943	YES	1960s	O,G	10	195	90%	NO
TENNESSEE	1969	YES	1969	O,G	N/A	N/A	N/A	NO
TEXAS	1919	YES	1950s	O,G	20,220	361,000	50%	NO
UTAH	1955	YES	1970s	G,O	480	7,000	80%	NO
VIRGINIA	1950	YES	1970s	G,CSNG	300	3,000	100%	NO
WEST VIRGINIA	1929	YES	1960s	O,G,CSNG	1,000	25,000	95%	NO
WYOMING	1951	YES	1950s	O,G	500	25 to 30,000	66%	NO

TOTALS:	34,663	948,597	56.3%
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Types of wells: G=Natural Gas, O=Oil, CSNG=Natural gas from coal seams

N/A = Specific numbers not available