

**Fiscal Year 2002 - Kansas Oil and Gas Production:
An Examination of the Importance of Stripper Production**

Kansas Geological Survey Open-File Report 2003-10

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Introduction

This Open-File report builds on previous open-file reports in an attempt to develop a perspective on the trends in the relative importance of stripper well production to Kansas oil and gas production (Carr, 1998; Carr and Gerlach, 1997). Stripper wells are economically marginal oil and gas wells that produce at relatively low rates. The definition of stripper wells varies. For oil, stripper production is usually defined as production rates of between 5 and 15 barrels of oil per day (BOPD). Stripper gas production would generally be anything less than 90 thousand cubic feet per day (MCFPD).

Wells that are producing at stripper well rates make up a significant portion of Kansas oil and gas production, and more importantly represent a very large portion of existing well bores. These well bores represent a very large capital investment that is at risk of being plugged and abandoned.

Procedure

We examined the production data from the Kansas Department of Revenue from the last state fiscal year of July 2001 through June 2002 (FY2002). This provides a twelve-month period to average production and to capture leases that report production only on an intermittent basis. All leases that produced any oil or gas during the five-month period were extracted from the oil and gas production database. Lease production was divided by the number of wells listed for each lease and then by 365 days to obtain an estimated average daily production per well.

Results: Oil Production

Oil production in FY2002 was reported from 14,804 leases with 41,713 wells (Table 1a). The number of leases is up from to 1998 data (13,998 as reported by Carr 1998). The number of oil wells is slightly higher in the present study (41,520 as reported by Carr 1998). This change in well number is interpreted as a result of improved prices.

Total oil production in FY2002 was 34,503,251 barrels of oil (Table 1a). This is an average monthly production of 2,875,271 barrels of oil. Average daily per well production in Kansas would be 2.27 barrels of oil.

The number of oil wells grouped by production rate shows that over 98% of the oil wells in Kansas average less than 15 BOPD (Table 1a). Approximately 41,120 wells producing 74.7% of the state's oil would be considered as stripper production. This represents a very large number of well bores and production that are at risk to abandonment due to changes in the oil prices and production costs. Comparing production rates and number of wells between 2002 and 1998 shows that there has been an increase in the number of low production rate wells. In part, this change probably reflects the recovery of oil price from the historically low Kansas oil prices of 1997 and 1998.

Results: Gas Production

Gas production in FY2002 was reported from 16,056 leases with 17,647 wells (Table 1b). Total production was 461.2 billion cubic feet. This is an average monthly production of 38.4 billion cubic feet. Average daily per well production would be 81 MCF. The reported in FY2002 gas

production represents annual decline, and reflects production declines in the gas fields of southwest Kansas.

The number of gas wells grouped by production rate shows that 65.8% of the gas wells in Kansas average less than 90 MCFPD (Table 1b). Approximately 11,611 wells producing 33.1% of the state's gas would be considered as stripper production, a significant increase in stripper gas production since the last report (Carr, 1998). This represents a very large number of well bores and production that are at risk to abandonment due to changes in the gas prices and production costs.

References Cited

Carr, Timothy R. 1998, Kansas oil and gas production: An examination of the importance of stripper production: Kansas Geological Survey Open-File Report 98-50, 4p.
http://www.kgs.ukans.edu/PRS/publication/OFR98_50/index.html

Carr, Timothy R. and Paul M. Gerlach, 1997, Kansas oil and gas production: An examination of the importance of stripper production: Kansas Geological Survey Open-File Report 97-64, 4p.
http://www.kgs.ukans.edu/PRS/publication/OFR97_64/index.html

Table 1a -- Kansas Oil Production from July 2001 through June 2002									
	Producing Leases			Producing Wells			Oil Production		
BOPD/Well	Number	% of Total	Cum %	Number	% of Total	Cum %	Barrels	% of Total	Cum %
0-5	12,518	84.6%	84.6%	38,118	91.4%	91.4%	17,557,737	50.9%	50.9%
5.01-10	1,453	9.8%	94.4%	2,549	6.1%	97.5%	6,226,906	18.0%	68.9%
10.01-15	325	2.2%	96.6%	453	1.1%	98.6%	1,986,623	5.8%	74.7%
15.01-20	163	1.1%	97.7%	193	0.5%	99.0%	1,226,619	3.6%	78.2%
20.01-30	153	1.0%	98.7%	181	0.4%	99.5%	1,602,214	4.6%	82.9%
30.01-50	107	0.7%	99.4%	133	0.3%	99.8%	1,783,562	5.2%	88.1%
50.01-75	37	0.2%	99.7%	37	0.1%	99.9%	819,094	2.4%	90.4%
75.01-100	16	0.1%	99.8%	17	0.0%	99.9%	526,946	1.5%	92.0%
>100	32	0.2%	100.0%	32	0.1%	100.0%	2,773,550	8.0%	100.0%
Totals	14,804	100%		41,713	100%		34,503,251	100%	

Table 1b -- Kansas Gas Production from July 2001 through June 2002									
	Producing Leases			Producing Wells			Gas Production		
MCF/Well	Number	% of Total	Cum %	Number	% of Total	Cum %	MCF	% of Total	Cum %
0-40	5,272	32.8%	32.8%	6,799	38.5%	38.5%	38,179,401	8.3%	8.3%
40.01-60	1,904	11.9%	44.7%	1,929	10.9%	49.5%	35,165,305	7.6%	15.9%
60.01-90	2,859	17.8%	62.5%	2,883	16.3%	65.8%	79,140,294	17.2%	33.1%
90.01-120	2,516	15.7%	78.2%	2,526	14.3%	80.1%	96,124,148	20.8%	53.9%
120.01-150	1,675	10.4%	88.6%	1,678	9.5%	89.6%	81,559,896	17.7%	71.6%
150.01-300	1,643	10.2%	98.8%	1,645	9.3%	98.9%	93,885,078	20.4%	91.9%
300.01-450	115	0.7%	99.6%	115	0.7%	99.6%	14,969,392	3.2%	95.2%
450.01-600	35	0.2%	99.8%	35	0.2%	99.8%	6,410,529	1.4%	96.6%
>600	37	0.2%	100.0%	37	0.2%	100.0%	15,784,446	3.4%	100.0%
Totals	16,056	100%		17,647	100%		461,218,489	100%	