

REVIEW AND HIGHLIGHTS
OF NATURAL GAS
DRILLING ACTIVITIES
IN
NORTHERN CALIFORNIA'S
SACRAMENTO VALLEY DURING
2012

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to the

SACRAMENTO PETROLEUM ASSOCIATION

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HIGHLIGHTS OF NATURAL GAS DRILLING
ACTIVITIES IN NORTHERN CALIFORNIA'S
SACRAMENTO VALLEY

2012

Record lows were established in four (4) major categories in the Sacramento Basin during 2012: number of holes drilled, number of gas-well completions, number of Operators, and volume of gas produced.

<u>Number of holes drilled</u>	<u>12</u>
<u>Number of completions</u>	<u>11</u>
<u>Number of Operators</u>	<u>3</u>
<u>Volume of gas produced</u>	<u>49 Bcf</u>

Two key factors stand out as reasons for last year's dismal record — the high prices of oil and the low price of gas, the latter a result of the strong supplies of gas in the U.S. Only those Operators with lease obligations would drill a half million- to million-dollar well with the expectancy of recovering that investment in a timely manner from today's well-head prices. **The average annual well-head price for 2012 was #2.89 (PG&E formula).**

The three (3) Operators in 2012 were: **Royale Energy, Venoco, Inc. and Vintage Production of California.** Royale drilled 2 holes, completed 1 and abandoned 1. Venoco drilled 3 holes and completed the 3. Vintage drilled 6 and completed each as gas wells.

Vintage's drilling, all at Rio Vista, is noteworthy in that each of its 6 holes had total depths greater than 10,000 feet, two of the holes having bottomed below 12,000 feet.

The notable surprise for the year was Venoco's virtual absence. Venoco has been the drilling force in the Valley in recent years as evidenced by the five-year period — 2007 – 2011. During this period Venoco averaged 88 holes a year (126 holes in 2007).

Regardless of the fact that high oil prices have drawn many Operators away from this gas province a recent, significant transaction is certain to result in a major change in the drilling tempo in the Valley. Oyx's purchase of Venoco's properties in the Valley predictably should have far-reaching implications. It's logical to predict the impact this will

have as illustrated by the following: In 2010 Venoco accounted for 83% of all drilling along with 89% of all completions. During 2007 and 2011, Venoco drilled 72% of all holes and completed 76% of all gas wells in 2007 and 75% in 2011. It's difficult to envision most Operators drilling 10 to 20 acres spacing in gas country as Venoco has done in the Grimes area.

Oxy's ownership of Vintage, last year's top Operator, and its taking over Venoco's properties conceivably could lead to its expanding its presence in the Valley although Vintage's primary drilling focus has been in the Rio Vista field. On the other hand, the on-going low well-head price for gas could negate this.

Commensurate with the major drop in drilling activities was the drop in projects for the Drilling Contractors. Those contractors that operated in the Valley last year were Enign (3 holes), Paul Graham (3 holes) and Helmerich & Payne (6 holes).

The fact that last year's drilling projects were strongly on the low-risk side is borne out by the well classifications. Ten (10) of the 12 holes were drilled as Development holes. Only two of the holes were granted Confidential Status, one (1) an Outpost hole, another a New Pool attempt. Again, at today's prices it's logical that Operators will continue drilling low-risk plays — assuming that any level of drilling actually occurs in the near term.

Last year's average price of **\$2.89** is the lowest in over a dozen years. The average for 2011 was \$4.06. 2013 opened with slight increases in prices for the first two months: The gas price for January was \$3.50 versus \$3.18 a year ago, and for February, \$3.44 against 2011's \$2.81.

Venoco continued as the top producer of gas in 2012. Its 587 wells produced 26,666,050 Mcf, with Vintage in second place at 13,598,592 Mcf. Currently there are fifty (50) producers in the Valley (DOGGR's District 6).

Not surprisingly, Venoco filed the most Permits in 2012: 234 Reworks 8 Abandonments, and 44 Supplementary (changes to existing permits).

The Valley's **1240 gas wells produced 49 Bcf** of gas last year. This compares with 67 Bcf produced by 1331 wells in 2011. Another decrease was registered in the estimated **Remaining Reserves of 733 Bcf**. This compares with the 791 for 2011.

One can only wonder about well-head prices in 2013 and, accordingly, what drilling plans the industry might have, if any. Without question, it will be a very different year with Venoco out of the picture.

2012

SACRAMENTO VALLEY DRILLING ACTIVITIES

	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
NUMBER OF HOLES DRILLED	11*	60	109	94	191
HOLES COMPLETED AS GAS WELLS	10	40	76	75	144
SUCCESS PERCENTAGE	91%	67%	70%	80%	75%
NUMBER OF OPERATORS	3	9	9	14	28
* Plus 1 gas-storage Operator [PG&E — 1/1 Pleasant Creek Gas Storage Field]					
OPERATORS FINDING GAS	3 (100%)	7 (78%)	6 (67%)	7(50%)	22(79%)
OPERATORS DRILLING 1 HOLE	—	5(56%)	4 (44%)	8(57%)	12(43%)
OPERATORS DRILLING 2 HOLES	1 (1%)	1 (11%)	2 (22%)	1 (7%)	6 (21%)
OPERATORS DRILLING 3 HOLES	1 (1%)	—	—	2 (14%)	3(11%)
OPERATORS DRILLING 4 HOLES	—	1 (11%)	1 (11%)	1(7%)	1(4%)
MOST ACTIVE OPERATORS (5 Plus Holes))	—	2 (22%)	2(22%)	2(14%)	6(21%)
	NUMBER DRILLED	GAS WELLS	2011 DRL'D / CPL'D		
VINTAGE PROD. CALIF.	6	6	4 / 4		

[Vintage drilled 55% of all holes — accounted for 60% of all gas wells]

ACTIVITY BY OPERATOR — 2012

<u>OPERATOR</u>	<u>HOLES DRILLED</u>	<u>GAS WELLS</u>	<u>No. Aban.</u>	<u>2011 RECORD</u>
Royale Energy	2	1	1	6/1— 3 Abd — 2 ?
Venoco, Inc.	3	3		43/30 —11Abd - 2?
Vintage Prod. Calif.	6	6		4/4
	<u>11</u>	<u>10</u>		

VENOCO'S IMPACT ON DRILLING ACTIVITIES

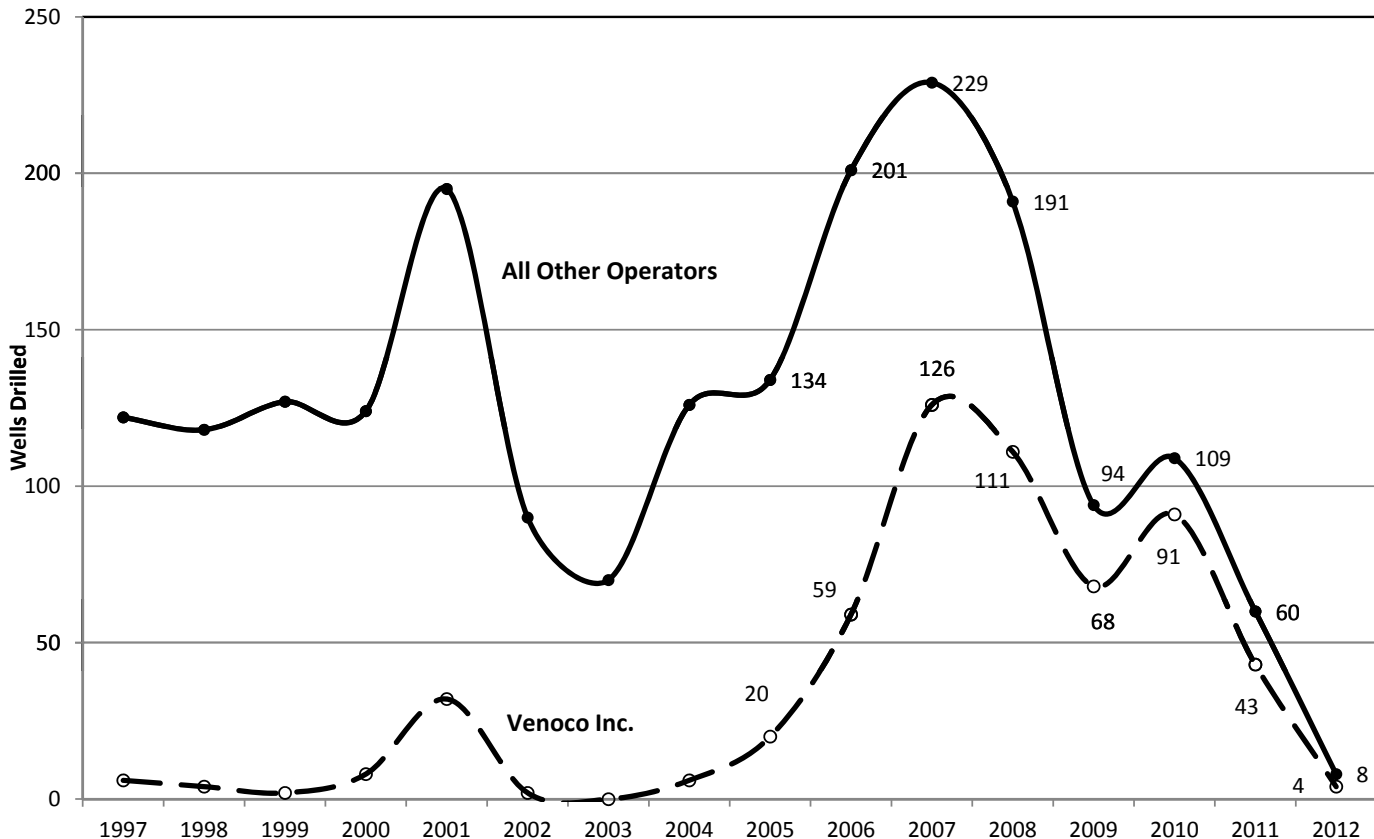
Year	Number Drilled	Percent of Total	Number of Gas	Percent of Total
2012	3	3%	3	30%
2011	43	72%	30	75%
2010	91	83%	66	89%
2009	68	72%	57	76%
2008	111	58%	86	60%
2007	126	55%	101	60%
2006	59	29%	50	30%
2005	20	15%	18	2%
2004	6	5%	6	7%
2003	0	0%	0	0%
2002	2	2%	1	2%
2001	32	16%	25	19%
2000	8	6%	5	7%
1999	2	2%	2	3%
1998	4	3%	4	6%
1997	6	5%	5	7%
Drilled 581		Completed 459		Percentage Success 79%

VENOCO'S PERCENTAGE OF INDUSTRY'S DRILLING — 1997* - 2012

16 YEARS = 29% — 10 YEARS = 43% — 5 YEARS = 68%

* Venoco's first year to drill in Sacramento Valley

WELLS DRILLED BY VENOCO AND INDUSTRY - 1997-2012



DRILLING RECORD OF ALL OPERATORS PAST 5 YEARS

<u>OPERATOR</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>NUMBER DRILLED</u>	<u>GAS WELLS</u>
ABA ENERGY	10/9	1/-	1/-	1/-	—	13	9
ASPEN EXPL.	3/3	—	—	—	—	3	3
ATLANTIC OIL	1/1	—	—	—	—	1	1
BRIGHT DOT O&G	—	—	—	—	1/1	1	1
CAPITOL OIL	2/2	3/3	—	1/1	—	6	6
CASTLE MIN'S	2/1	1/-	—	—	—	3	1
CLEARY PET.	—	—	1/1	—	—	1	1
CONCORDIA RES	1/1	—	—	—	—	1	1
CREST ENERGY	1/-	—	—	—	—	1	-
FOOTHILL EN.	2/1	6/6	—	—	—	8	7
HEXADYNE EN.	3/-	—	—	—	—	3	-
GIBSON EXPL.	1/1	—	—	—	—	1	1
JCD INVESTORS	—	—	—	1/-	—	1	-
KELPETRO OPER.	1/1	—	—	—	—	1	1
LARIO O & G	8/3	1/-	1/1	—	—	10	4
LONGBOW	1/-	2/-	—	—	—	3	-
NAHABEDIAN EX.	1/-	—	1/1	—	—	2	1
NANA O&G	2/2	—	—	—	—	2	2
NAVITAS O&G	2/2	—	—	—	—	2	2
NORTHWEST PET.	1/1	1/1	—	—	—	2	2
PETROGULF CORP.	1/1	—	—	—	—	1	1
PIONEER EXPL.	3/3	—	—	—	—	3	3
ROSETTA RES.	13/12	1/1	—	—	—	14	13
ROYALE ENERGY	4/3	4/3	6/4	6/1	2/1	22	12
SIGNAL HILL PET.	1/-	1/-	—	—	—	2	-
SLAWSON, D.C.	2/1	—	—	—	—	2	1
SOURCE ENERGY	—	—	2/-	1/1	—	3	1
STREAM ENERGY	1/-	—	—	—	—	1	-
SULLIVAN DRILG	—	—	—	1/?	—	1	-
SUNSET EXPL.	—	1/-	—	—	—	1	-
THE TERMO CO.	1/1	1/-	—	—	—	2	1
TOWNE, E.B.	6/5	3/3	4/3	—	—	13	11
VENOCO, INC	111/86	68/57	91/74	43/32	3/3	316*	252* (80%)
VINTAGE PROD'N	6/4	—	—	4/4	6/6	16	14
TOTALS	191/144	94/74	107/84	58/39	12/11	462	352

*** VENOCO DRILLED 68% OF THE HOLES AND
COMPLETED 72% OF THE GAS WELLS DURING PAST 5 YEARS**

MOST ACTIVE OPERATORS PAST 5 YEARS

<u>OPERATOR</u>	<u>HOLES DRILLED</u>	<u>GAS WELLS</u>
VENOCO	316	252
ROYALE	22	12
VINTAGE	16	14
ROSETTA	14	13
TOWNE	13	11
LARIO	10	4

ACTIVITY BY DRILLING RIGS — 2012

	<u>No.</u> <u>Drilled</u>	<u>Gas</u> <u>Wells</u>	<u>No.</u> <u>Aband.</u>	<u>DAYS</u>	<u>FOOTAGE</u>	<u>2011</u> <u>HOLES /</u> <u>FOOTAGE</u>
<u>ENSIGN</u>						
RIG 579	1	1		?	?	—
582	2	2		?	?	21 / 110,138
	3	3		59	27,744 ft	44 / 33,795*
						*One rig Confid.
<u>PAUL GRAHAM</u>						
RIG 4	1	1		?	?	3 / Confid'l
6	1	1 (Gas Storage)		?	?	6 / Confid'l
7	1	—	1	?	?	15 / 49,272
	3	2	1	45	14,762 ft.	24 / 49,272+
<u>HELMERICH & PAYNE</u>						
RIG 440	6	6		149	68,783 ft.	1 / 6,870

<u>ENSIGN</u>	<u>PAUL GRAHAM</u>	<u>HELMERICH & PAYNE</u>
<u>Venoco</u> 3	<u>Royale</u> 2	<u>Vintage</u> 6
	<u>PG&E</u> 1	

NUMBER OF HOLES DIRECTIONALLY DRILLED (Percent of Total)

<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
6 (55%)	35(58%)	93(85%)	64(68%)	95(50%)

NUMBER OF HOLES DRILLED UNDER CONFIDENTIAL STATUS

<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>
2	9 (15%)	8 (7%)	8 (9%)	17 (9%)	37 (16%)	41(20%)

2012

RANGES IN TOTAL DEPTHS

	<u>NO. HOLES IN DEPTH RANGE</u>				<u>NO. GAS WELLS (% OF CPLNS)</u>		<u>PERCENT OF HOLES IN DEPTH RANGE</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2012</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>
LESS THAN 2999 FT.	0	10	3	2	0	0	14%	3%	21%
3000 — 3999 “	1	5	3	5	1 (10%)	9%	7%	3%	5%
4000 — 4999 “	1	4	2	2	0	9%	5%	2%	2%
5000 — 5999 “	0	9	16	7	0	0	12%	14%	7%
6000 — 6999 “	1	14	45	46	1 (10%)	9%	19%	40%	49%
7000 — 7999 “	0	14	21	17	0	0	19%	19%	8%
8000 — 8999 “	1	10	17	18	1 (10%)	9%	14%	15%	19%
9000 — 9999 “	2	4	2	0	2 (20%)	18%	5%	2%	0
10,000 — 10,999 “	2	3	1	0	2 (20%)	18%	4%	1%	0
> 11,000 “	4	0	2	2	4 (40%)	36%	0	2%	2%

<u>TOTAL FOOTAGE</u>	<u>NO. HOLES</u>
<u>2012 = 112,149 ft.</u>	<u>11</u>
<u>2011 = 457,513 ft.</u>	<u>60</u>
<u>2010 = 763,935 ft.</u>	<u>109</u>
<u>2009 = 674,732 ft.</u>	<u>94</u>
<u>2008 = 1,367,864 ft.</u>	<u>191</u>

AVERAGE TOTAL DEPTHS

<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>
8,627'	6,267'	6,821'	6,815'	7,048'	7,106'	6871'	6509'

2012

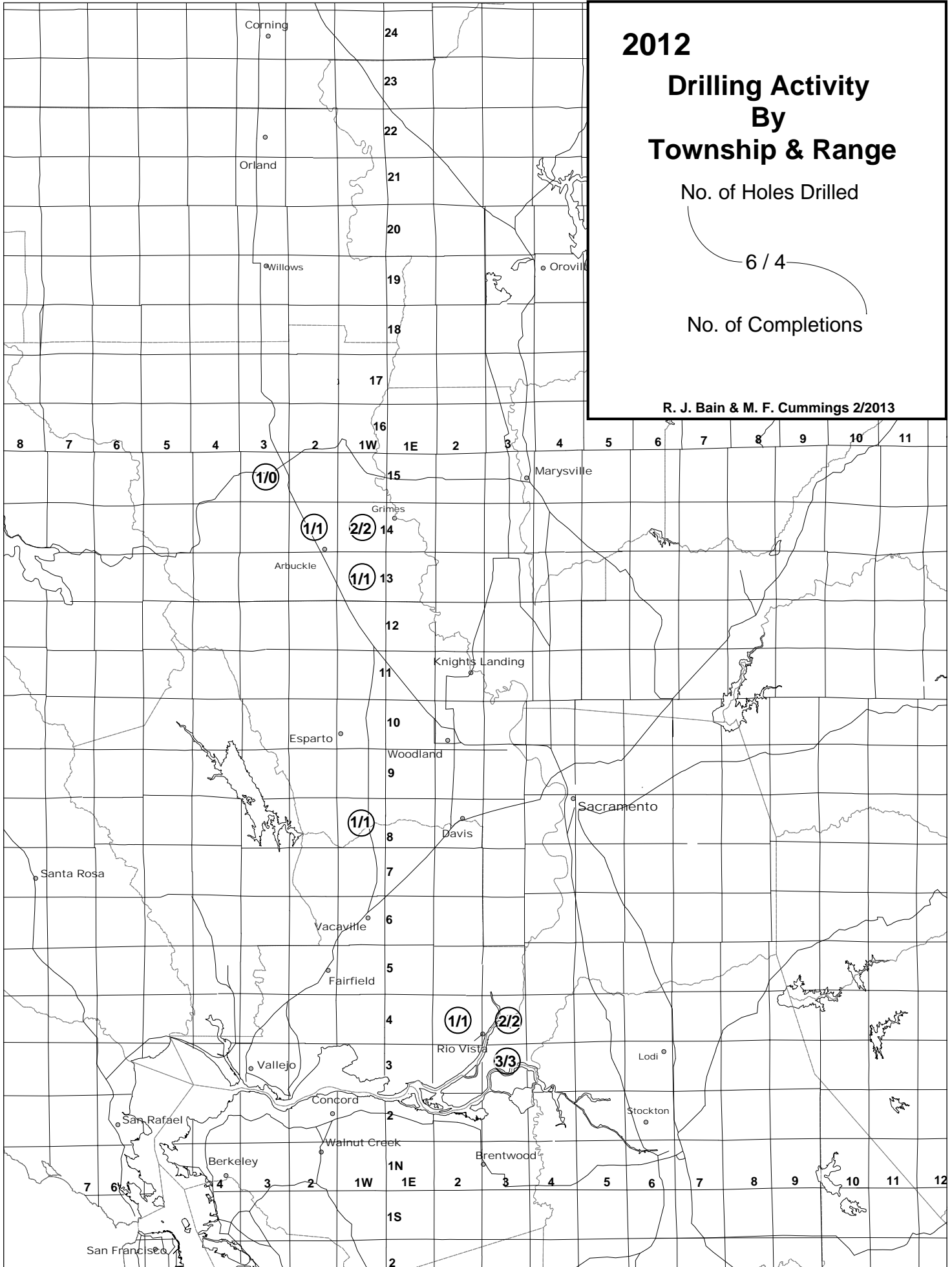
Drilling Activity By Township & Range

No. of Holes Drilled

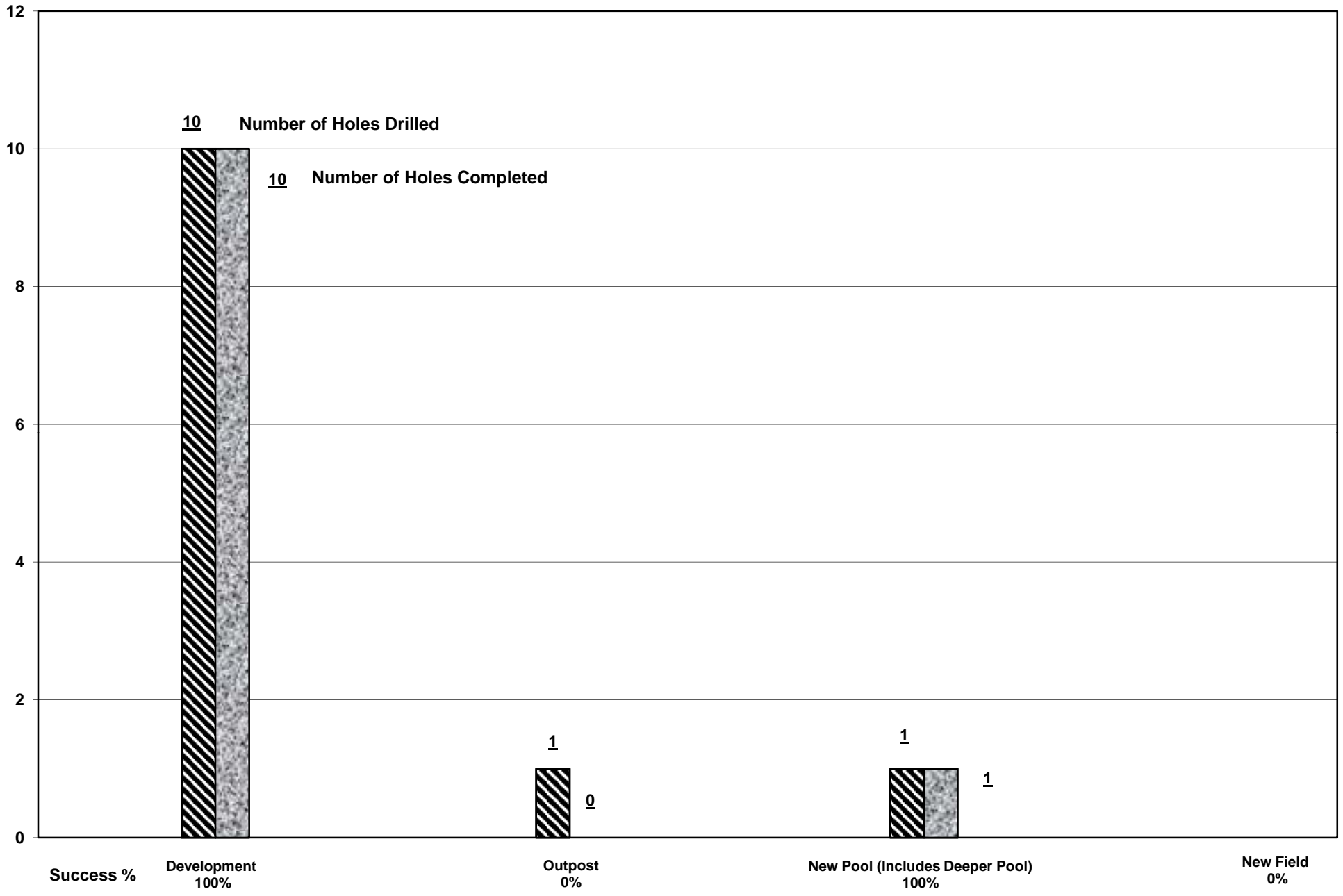
6 / 4

No. of Completions

R. J. Bain & M. F. Cummings 2/2013



Success Record Based on DOGGR Classification of Wells --- 2012



2012**MONTHLY WELL-HEAD PRICES
FOR SACRAMENTO VALLEY GAS WELLS**

(PG&E FORMULA)

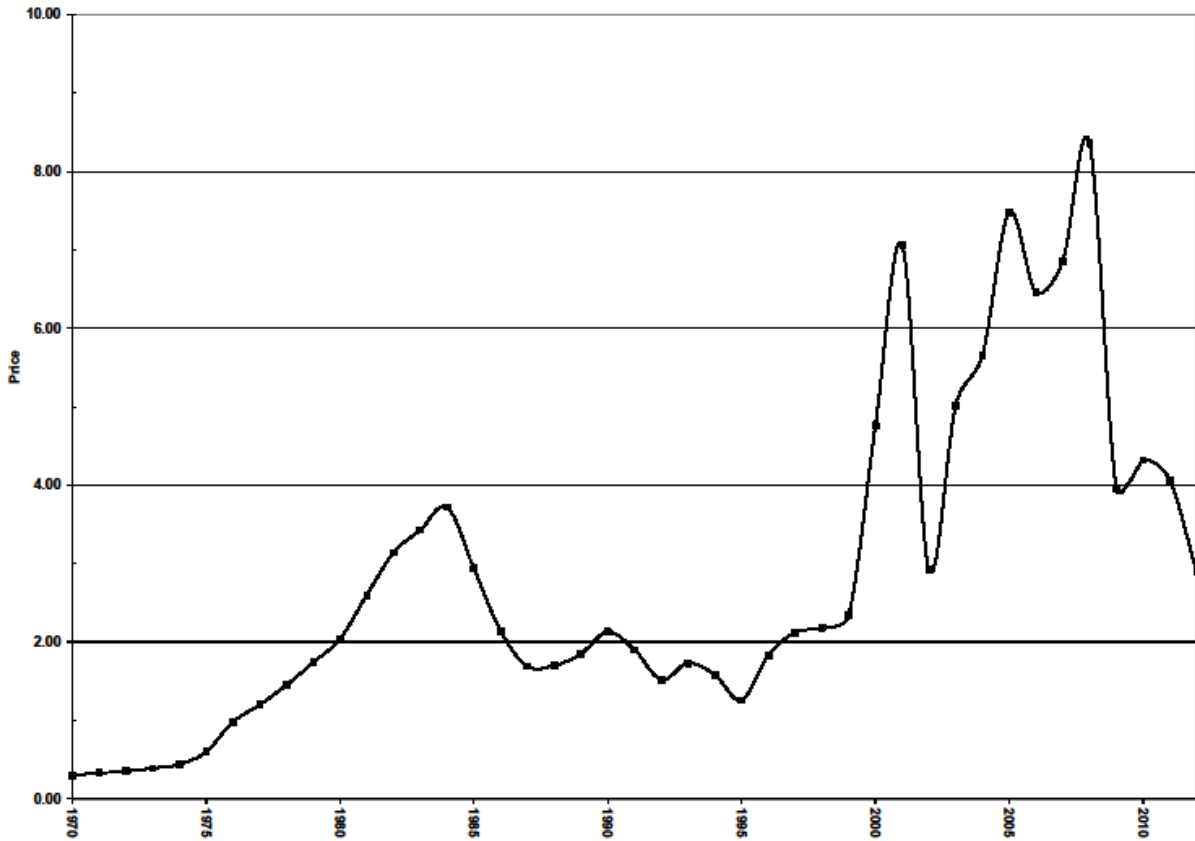
<u>MONTH</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
JAN	\$9.70	\$6.20	\$6.86	\$5.77	\$4.90	\$4.03	\$3.18	\$3.50
FEB	7.05	6.91	7.73	4.55	5.47	4.11	2.81	3.44
MAR	6.53	7.31	8.73	3.98	4.90	3.85	2.61	
APR	6.03	6.83	9.05	3.78	4.22	4.30	2.28	
MAY	6.16	7.18	10.54	3.02	4.28	4.23	2.12	
JUN	5.20	7.24	11.01	3.20	4.05	4.33	2.59	
JUL	5.44	6.62	12.25	3.22	4.41	4.37	2.78	
AUG	6.52	5.60	8.42	3.41	4.20	4.31	2.89	
SEP	6.52	5.14	7.47	2.73	3.40	3.96	2.68	
OCT	4.02	5.90	6.21	3.86	3.85	3.92	3.23	
NOV	7.01	7.06	5.83	5.07	3.72	3.63	3.66	
DEC	7.30	7.40	6.18	4.89	4.40	3.64	3.85	

Record Price = \$14.32; January, 2001

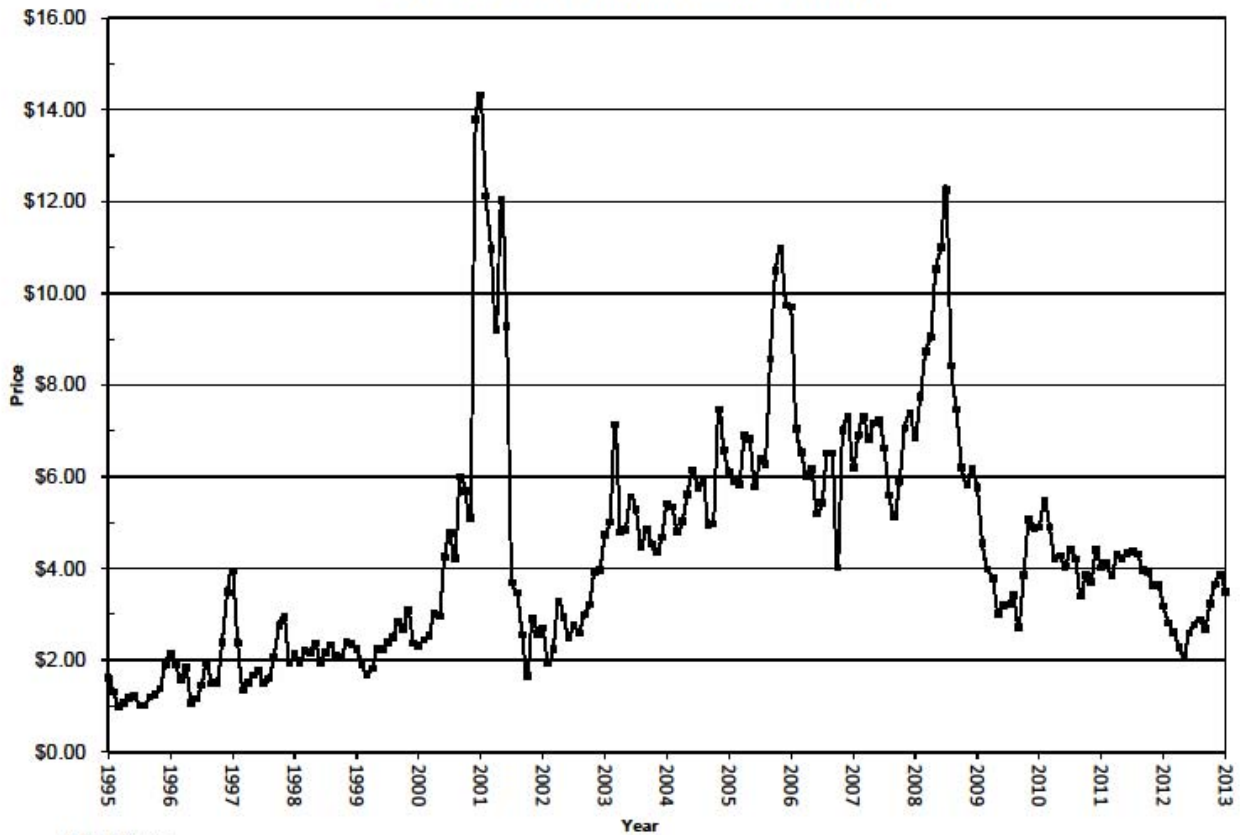
<u>AVE. ANNUAL PRICES</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
	\$6.46	\$6.62	\$8.36	\$3.96	\$4.32	\$4.06	\$2.89	

<u>AVE. PRICE FIRST 2 MONTHS</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
	\$8.38	\$6.56	\$5.16	\$5.19	\$5.19	\$4.07	\$3.00	\$3.47

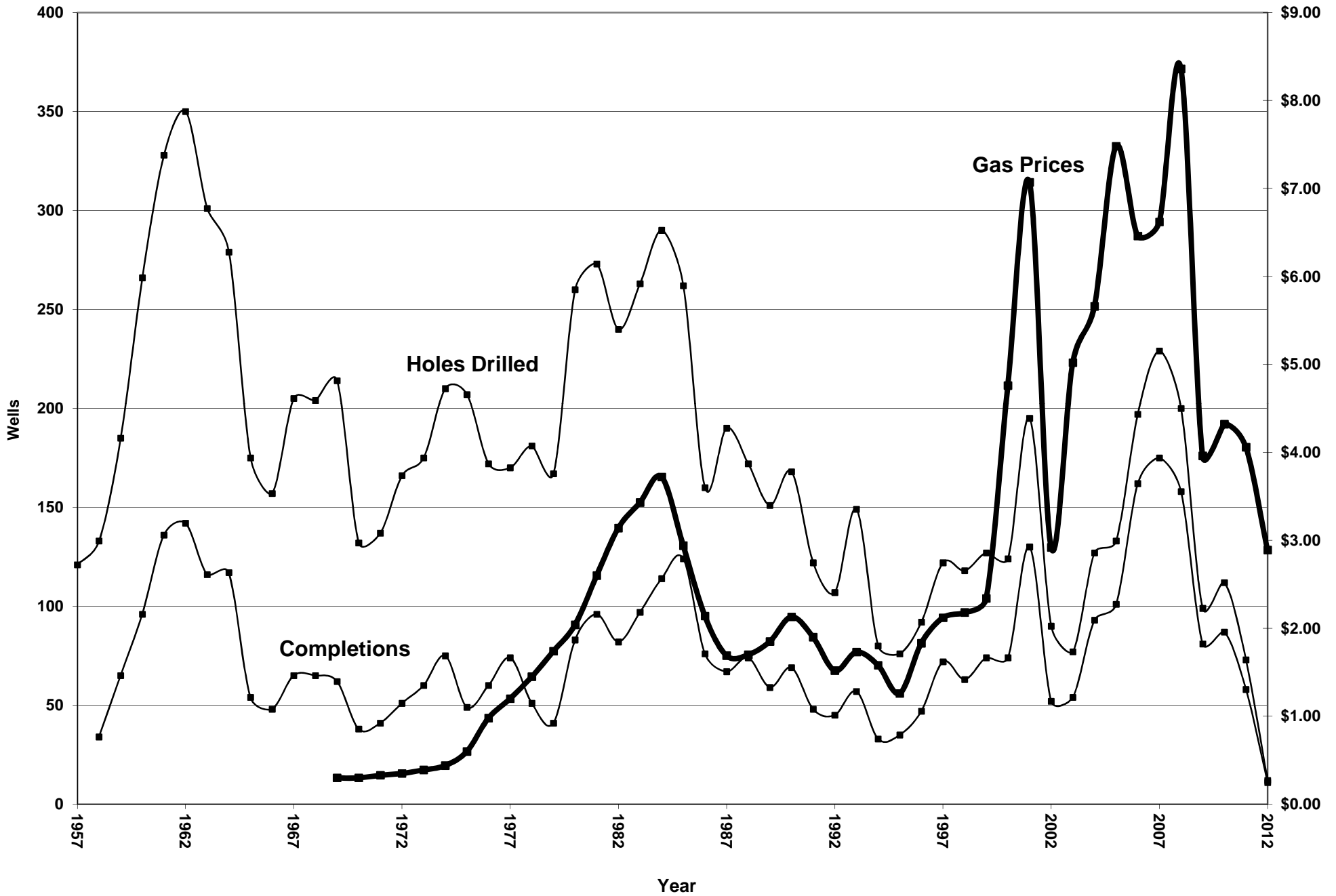
2012
Average Annual Gas Price



2012
Monthly Wellhead Prices For Sacramento Valley Gas Wells
(PG&E Fair Market Gas Price)



2012
Impact of Price on Drilling Activity
Sacramento Valley



DRILLING ACTIVITIES BY COUNTY — 2012

	<u>NO. HOLES DRILLED</u>	<u>GAS WELLS</u>	<u>ABAND.</u>
<u>Sacramento</u>	<u>5</u>	<u>5</u>	
<u>Colusa</u>	<u>5</u>	<u>4</u>	<u>1</u>
<u>Solano</u>	<u>1</u>	<u>1</u>	
<u>Yolo</u>	<u>1</u>	<u>1</u>	

GAS PRODUCTION BY COUNTY — 2012

<u>County</u>	<u>No. of Wells</u>	<u>Gas Production (Bcf)</u>	<u>Est'd Gross Annual Income* (Ave. Annual Price)</u>	<u>2011 Est'd Income*</u>
<u>SUTTER</u>	<u>432</u>	<u>10.44</u>	<u>\$30,182,579</u>	<u>\$53,409,653</u>
<u>COLUSA</u>	<u>354</u>	<u>9.88</u>	<u>\$28,565,162</u>	<u>\$48,050,774</u>
<u>SACRAMENTO</u>	<u>211</u>	<u>8.66</u>	<u>\$25,565,162</u>	<u>\$33,894,764</u>
<u>GLENN</u>	<u>324</u>	<u>8.51</u>	<u>\$24,595,943</u>	<u>\$40,393,943</u>
<u>SOLANO</u>	<u>251</u>	<u>4.76</u>	<u>\$13,746,048</u>	<u>\$28,285,951</u>
<u>SAN JOAQUIN</u>	<u>145</u>	<u>2.97</u>	<u>\$ 8,587,707</u>	<u>\$12,964,266</u>
<u>TEHAMA</u>	<u>152</u>	<u>1.69</u>	<u>\$ 4,875,179</u>	<u>\$ 9,714,764</u>
<u>CONTRA COSTA</u>	<u>43</u>	<u>0.74</u>	<u>\$ 2,143,663</u>	<u>\$ 4,273,507</u>
<u>YOLO</u>	<u>76</u>	<u>0.23</u>	<u>\$ 664,295</u>	<u>\$ 1,544,448</u>
<u>BUTTE</u>	<u>10</u>	<u>0.52</u>	<u>\$ 149,815</u>	<u>\$ 155,392</u>
<u>YUBA</u>	<u>1</u>	<u>0.001</u>	<u>\$ 2,907**</u>	<u>\$ 6,853</u>

* Using Annual Average for of \$2.89 for 2012.

** Actual gas sales are based on Propane equivalent = \$12,676

2012 ---- Current Sacramento Valley Gas Producers (50)

13

Operator	No. of Wells	Gas Produced
Venoco Inc.	587	26,666,050
Vintage Prod California LLC	231	13,598,592
Royale Energy Inc.	45	1,308,540
ABA Energy Corp.	29	954,858
Towne Exploration Co.	33	753,903
Foothill Energy LLC	42	651,417
D. C. Slawson Expl. Co. Inc.	19	583,710
The Termo Co.	21	344,480
Pioneer Exploration, LLC	45	332,476
Capitol Oil Corp.	5	326,994
Signal Hill Petroleum, Inc.	3	311,437
Concordia Resources Inc.	8	305,590
Peoco, LLC	7	279,936
Petersen Prod. Co. LLC	9	245,777
Atlantic Oil Co.	21	212,853
Maranatha Petroleum Inc	17	199,092
RMS Monte Christo, LLC	7	106,452
Anacapa Oil Corp.	7	92,691
Western Metals Corporation	2	74,163
Romara Energy Inc.	2	64,794
Robert A. Cohan	2	52,309
Petrogulf Corp.	2	49,280
The Nahabedian Expl Grp, LLC	1	38,887
Sunset Exploration Inc.	3	36,530
Armstrong Petroleum Corp.	2	35,322
Sacramento Valley, LLC	1	33,453
Todd Jamison Ballantyne	2	32,724
Tri-Valley Oil & Gas Co.	3	30,486
Alanmar Energy	5	28,831
Diversified Resources, LLC	1	27,106
Enerfin Resources NLP	1	20,534
Kaiser-Francis Oil Co.	1	19,861
Island Energy Prtnrs, LLC	2	16,516
Drilling Expl & Oper Co Inc.	4	16,055
Longbow, LLC	1	15,673
Aristata Exploration Co.	1	11,036
Gibson Exploration, LLC	1	9,509
KC Resources Inc.	2	7,701
Delta Sierra Oil & Gas LLC	1	7,563
Summit Explor. (Calif.), LLC	3	6,033
California Hydrocarbons Corp.	1	4,716
Princeton Natural Gas, LLC	2	4,630
Lario Oil & Gas Co.	1	4,477
William H. Fisk	1	4,299
AA Production Services Inc.	1	4,039
Crain Orchards, Inc.	1	1,767
Dos Rios Inc.	1	1,113
Gasch & Associates	1	1,006
Mentren Corp.	3	36
Quadren Cryogenic Proc Ltd.	3	36

TOP TEN GAS PRODUCERS — 2012

<u>Operator</u>	<u>No. of Wells</u>	<u>No. of Fields</u>	<u>Gas Production</u> Bcf	<u>2011 Production</u> Bcf
Venoco, Inc	587	27	26.666	31.935
Vintage Prod, Calif.	254	20	14.233	13.830
Royale Energy	45	11	1.309	2.456
ABA Energy Corp.	29	5	0.955	1.191
Towne Exploration Corp.	33	6	0.754	1.319
Foothill Energy	42	7	0.651	?
Donald C. Slawson Expl.	19	8	0.584	0.708
The Termo Company	21	6	0.344	?
Pioneer Exploration	45	1	0.332	?
Capitol Oil Corp.	5	3	0.327	0.363

TOP TEN GAS WELLS

<u>Field</u>	<u>Operator</u>	<u>Well</u>	<u>STR</u>	<u>Days</u>	<u>Gas Production</u> (Mcf)	<u>Gas Mcf/Day</u>
Rio Vista	Vintage Prod'n	Wilcox 19	29/4N/3E	362	1,289,876	3,563
Rio Vista	Vintage Prod'n	Wilcox 20	32/4N/3E	362	1,216,200	3,360
Grimes, West	Venoco, Inc.	Strain 35-2	35/14N/1W	366	953,751	2606
Rio Vista	Vintage Prod'n	Wilcox 18	32/4N/3E	356	882,191	2,478
Van Sickle Isl.	Venoco	Roar'g Riv. 20-4	20/3N/1E	365	723,381	1,976
Rio Vista	Vintage Prod'n	Welch 13	32/4N/3E	365	624,739	1,735
Grimes	Venoco, Inc.	GOU 7-23	7/14N/1E	363	617,024	1,700
Grimes, West	Venoco, Inc.	Strain 2-1	35/14N/1W	365	475,426	1,299
Rio Vista	Vintage Prod'n	Wilcox 21	31/4N/3E	274	436,901	1,595
Grimes	Venoco, Inc.	Strain 35-1	35/14N/1W	365	413,833	1,131

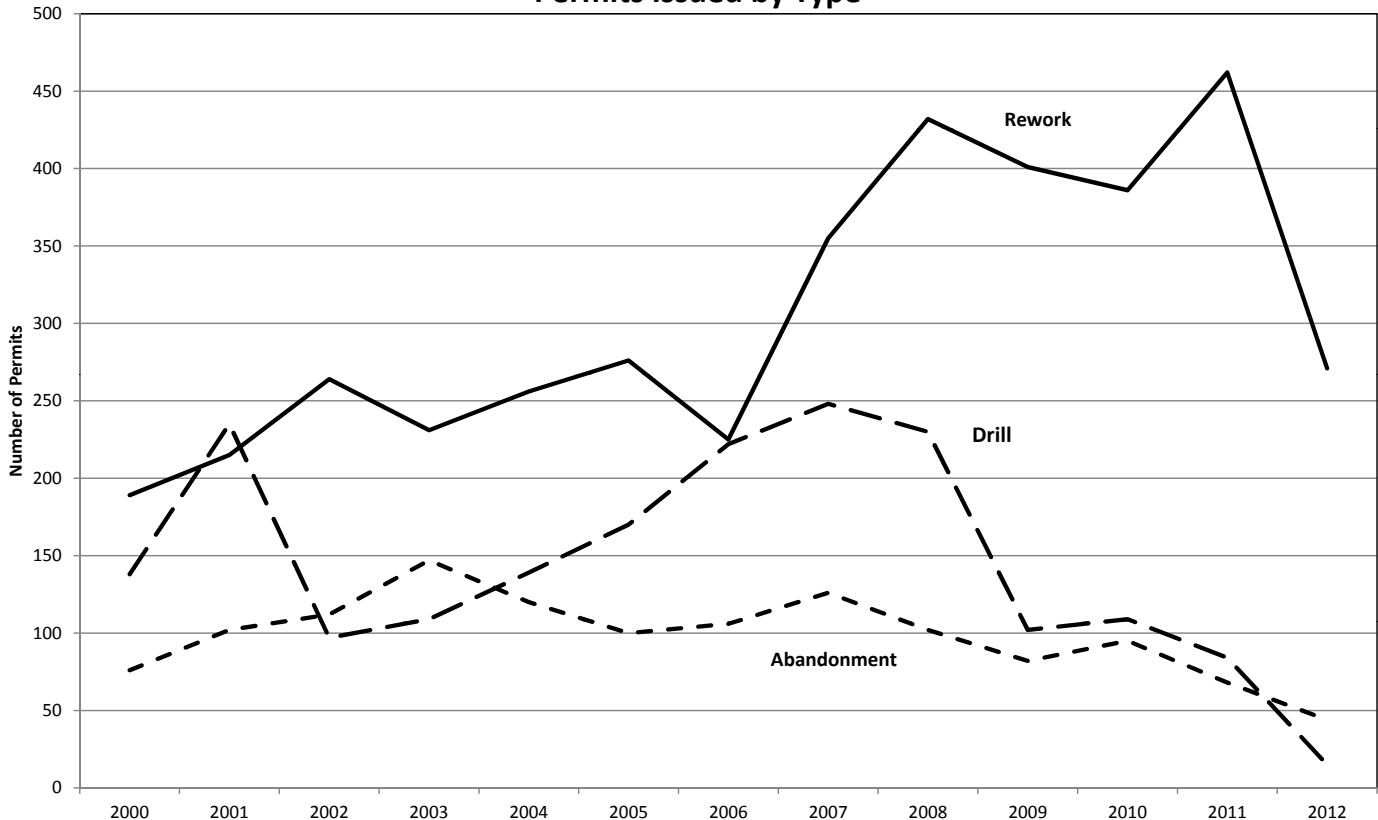
TOP TEN GAS FIELDS

<u>FIELD</u>	<u>No. of Wells</u>	<u>Gas Produced</u> Bcf	<u>Ave. Mcf Per Day</u>
Rio Vista	148	10.6	226
Grimes	218	8.04	120
Willows-Beehive Bend	219	7.74	108
Sutter Buttes	94	4.1	142
Grimes, West	31	2.36	350
Sycamore	44	1.89	151
French Camp	16	1.32	263
Van Sickle Island	8	1.14	755
Lindsey Slough	38	1.08	110
Malton-Black Buttes	48	1.01	62

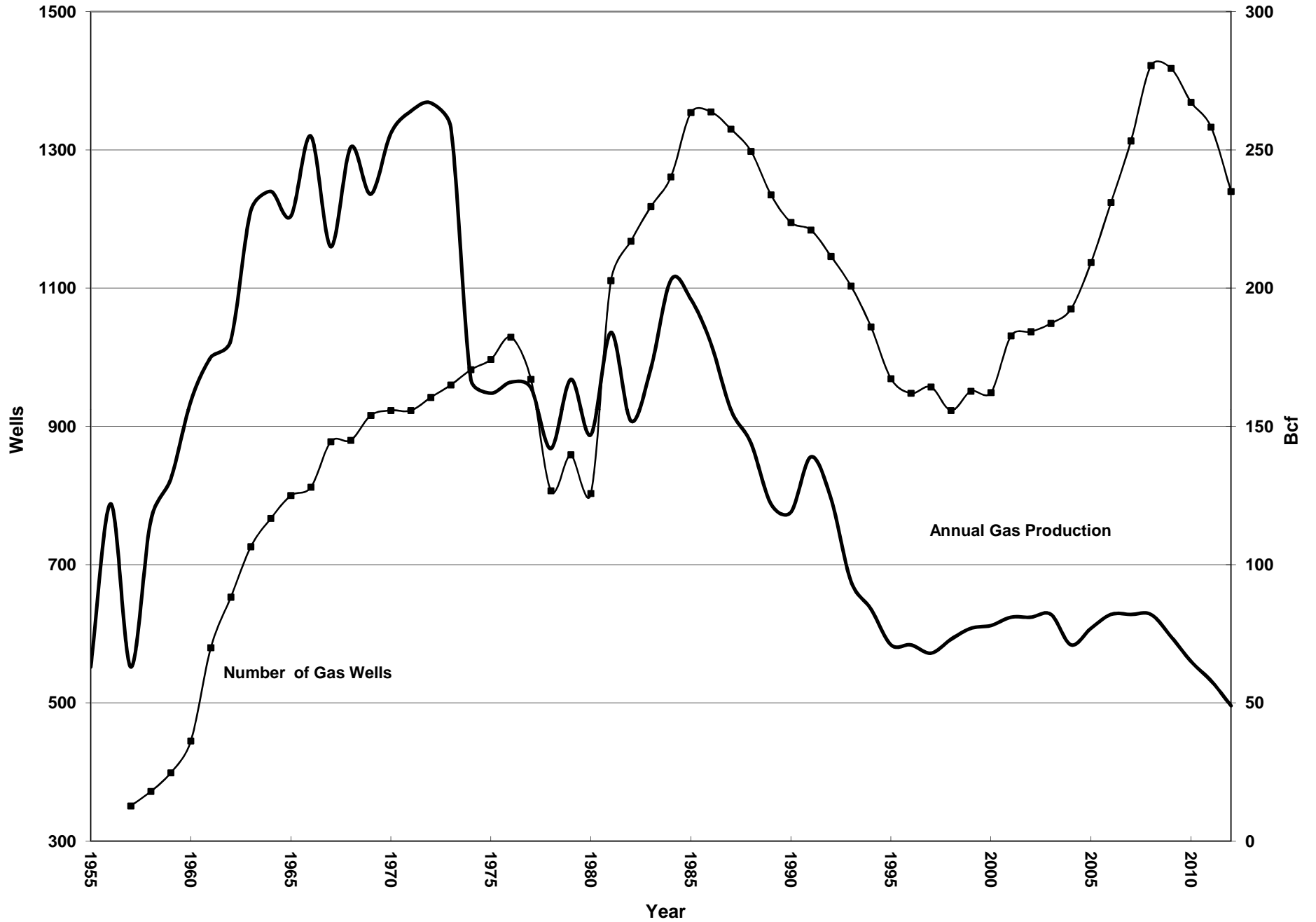
Filings for Various Permits by Operator in 2012

Operator	Abandon	Drill	Rework	Supplementary
ABA Energy Corp.	2		1	1
Anacapa Oil Corporation	1			
Armstrong Petroleum Corp.	2			
Capitol Oil Corporation	3		1	
Central Valley Gas Strg				1
D. C. Slawson Expl. Co. Inc.	1			
Drilling, Exploration & Operating Co., Inc.			1	
E & B Natural Resources Management Corp.			1	
Foothill Energy LLC				6
KC Resources Inc.			1	
Lario Oil & Gas Co.	1			
Lodi Gas Storage, LLC.			2	
Longbow, LLC	1			
Nana Oil & Gas Inc.	3			
Natural Gas Corp. of Calif.	1			
Pacific Gas & Electric Co.		4	5	3
Petersen Prod. Co. LLC	6		1	
Petrogulf Corporation			1	
Princeton Natural Gas, LLC		1		
Romara Energy Inc.	1			
Royale Energy, Inc.	2	2	1	3
Solano Exploration, LLC			1	
Source Energy Corporation	4			1
Summit Exploration (California), LLC				3
The Nahabedian Exploration Group, LLC			1	
Towne Exploration Company	3		4	1
Tri-Valley Oil & Gas Company	1			
Venoco, Inc.	8	4	234	44
Vintage Production California LLC	4	4	16	9

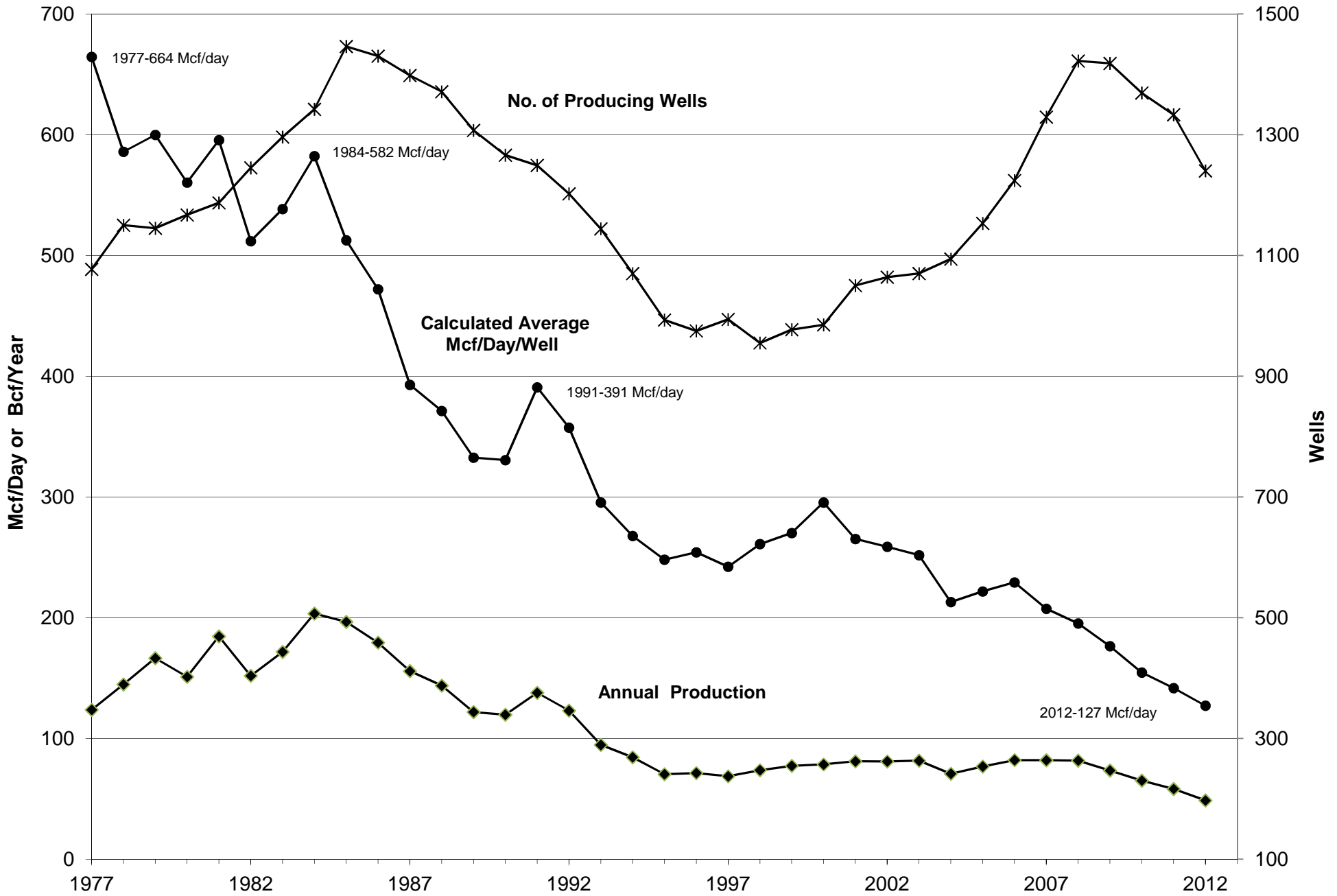
Permits Issued by Type



Number of Gas Wells & Annual Gas Production

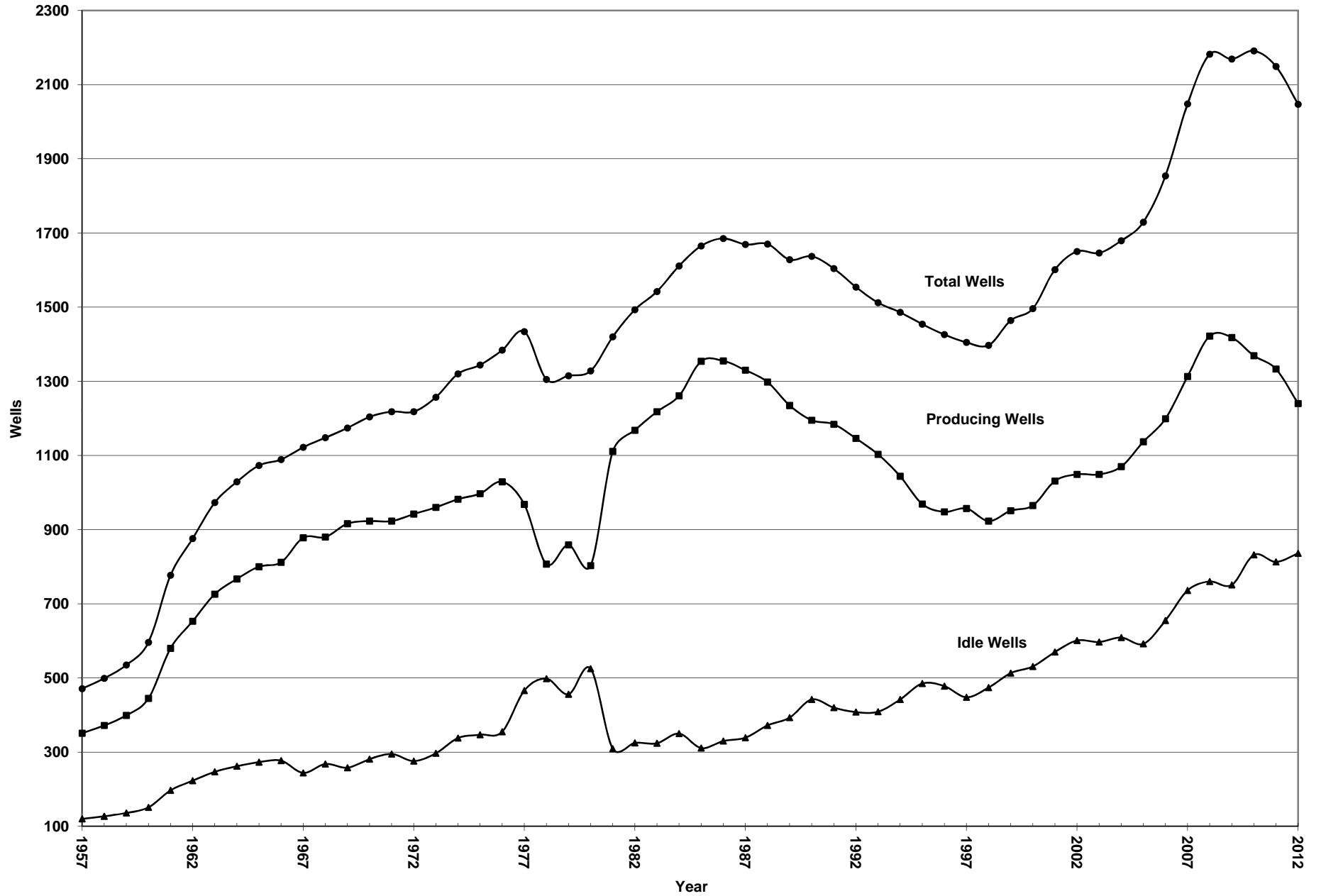


District 6 - Average Annual Mcf/Day



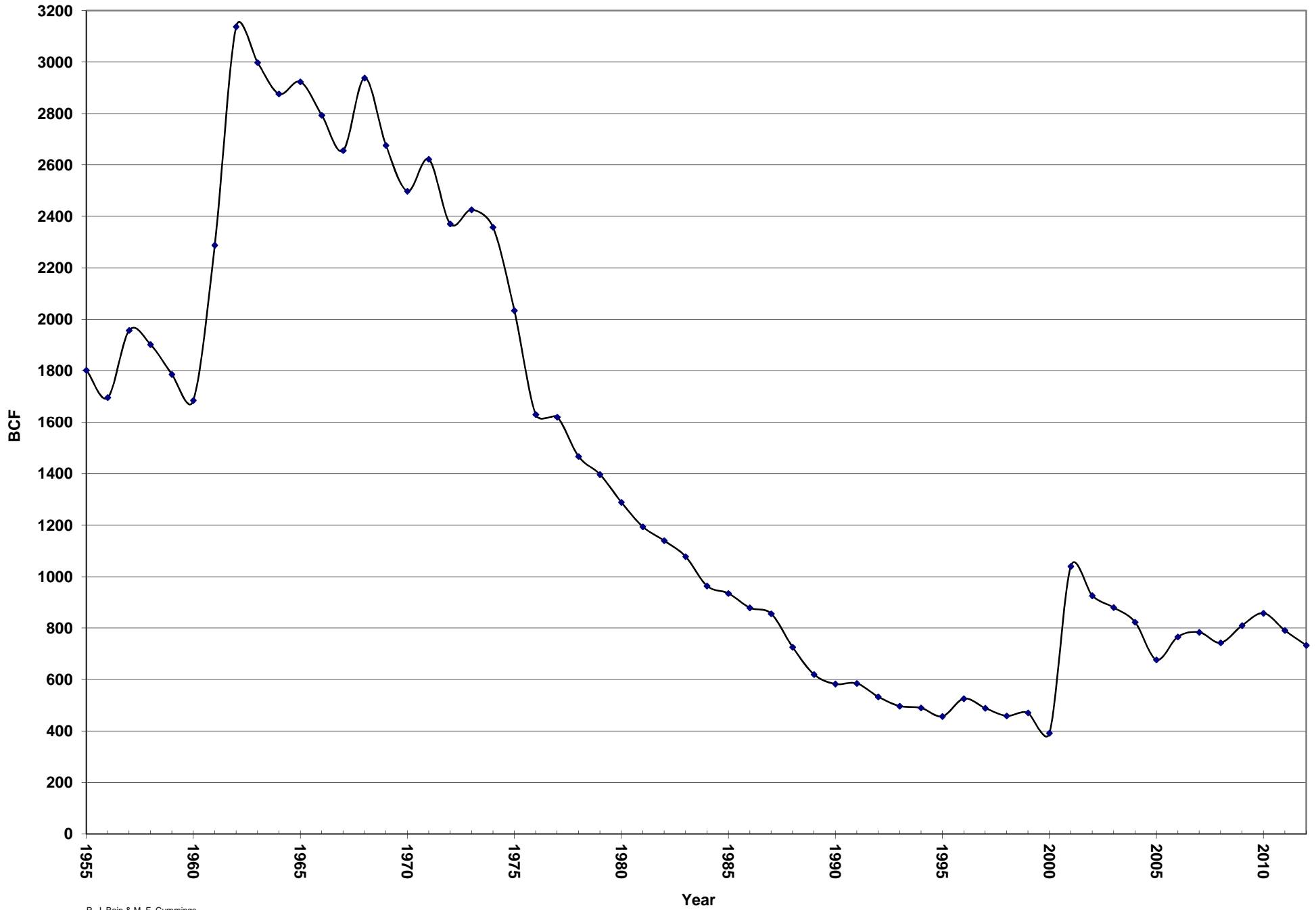
2012

Total Wells/Producing Wells/Idle Wells



2012

Remaining Reserves



SUMMARY OF DRILLING ACTIVITIES IN THE SACRAMENTO VALLEY

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Number of Holes Drilled	154~	178	192	191	122	126	141	155	180	164	153	155	163	156	228	238	214	234
Number of Redrills	3	27	12	23	10	11	25	20	30	43	19	1~	18	11	32	35	26	29
Total Number of Holes	157	205	204	214~	132	137	166	175	210	207	172	170	181	167	260	273	240	263
Holes Completed as Gas Wells	4-8	65	65	62	38	41	51	60	75	49	60	74	51	41	83	96	82	97
Success Percentage	31%	32%	32%	29%	29%	30%	31%	34%	36%	24%	34%	43%	31%	25%	31%	35%	38%	37%
Number of Operators	59	59	59	57	42	47	48	47	41	44	44	56	56	53	63	56	68	58
Wells drilled below 10K'					5	7	15	12	3	8	13	4	5	19	24	20	23	21
Deepest Hole K'					11.3	16.4~	15.2	18.3	11.3	12.4	11.1	12.0	11.8	12.9	19.7	12.8	14.1	13.2
Number of Gas Wells	812	878	880	916	923	923	942	960	982	997	1029	968	807	859	803	1111	1168	1218
Total Gas Produced District 6 (Million MCF)	255	215	251	234	256	264	267	258	167	162	142	163	142	168	146	184	151	175
Remaining Reserves District 6 (Million MCF)	2793	2656	2938	2676	2498	2622	2371	2426	2358	2358	2034	1630	1467	1397	1289	1194	1140	1078
Wellhead Price (PG&E Ave.)				\$0.30	\$0.30	\$0.33	\$0.35	\$0.39	\$0.44	\$0.60	\$0.98	\$1.20	\$1.45	\$1.74	\$2.04	\$2.60	\$3.14	\$3.43

SUMMARY OF DRILLING ACTIVITIES IN THE SACRAMENTO VALLEY (Continued)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Number of Holes Drilled	270	241	148	174	1.59	141	156	115	95	130	80	76	92	122	118	127	124	195
Number of Redrills	20	21	12	16	13	10	12	7	12	19								
Total Number of Holes	290	262	160	190	172	151	168	122	107	149	80	76	92	122	118	127	124	195
Holes Completed as Gas Wells	114	124	76	67	74	59	69	48	45	57	33	35	47	72	63	74	74	130
Success Percentage	39%	46%	48%	35%	43%	39%	41%	39%	42%	38%	44%	46%	51%	59%	53%	58%	60%	67%
Number of Operators	65	72	46	56	41	51	47	38	36	36	36	27	24	30	32	29	32	31
Wells drilled below 10K'	15	12	8	14	11	2	3	1	4	7	1	6	10	6	7	8	20	16
Deepest Hole K'	11.8	12.2	16.8	12.2	10.9	10.3	11.4	10.3	12+	11+								
Number of Gas Wells	1261	1354	1355	1330	1298	1235	1195	1184	1146	1103	1044	969	948	957	928	951	949	1031
Total Gas Produced District 6 (Million MCF)	207	199	191	155	143	122	119	139	121	94	84	71	73	69	73	76	79	81
Remaining Reserves District 6 (Million MCF)	964	935	879	856	726	620	583	585	531		491	457	526	489	459	471	392	1040
Wellhead Price (PG&E Ave.)	\$3.72	\$2.92	\$2.14	\$1.69	\$1.70	\$1.85	\$2.13	\$1.90	\$1.52	\$1.73	\$1.58	\$1.26	\$1.83	\$2.21	\$2.18	\$2.34	\$4.76	\$7.07

SUMMARY OF DRILLING ACTIVITIES IN THE SACRAMENTO VALLEY

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of Holes Drilled	90	77	126	134	201	229	191	94	109	60	11							
Holes Completed as Gas Wells	52	54	91	84	158	168	142	74	76	40	10							
Success Percentage	58%	70%	72%	63%	79%	73%	74%	79%	70%	67%	91%							
Number of Operators	25	24	29	28	28	28	28	16	9	9	3							
Wells drilled below 10K'	7	5	7	3	3	0	3	2	2	3	6							
Number of Gas Wells	1,049	1,049	1,070	1121	1199	1313	1422	1408	1353	1331	1240							
Total Gas Produced District 6 (Million MCF)	81	82	71	77	82	82	81	75	67	67	49							
Remaining Reserves District 6 (Million MCF)	926	880	823	677	766	784	743	810	858	791	733							
Wellhead Price (PG&E Average)	\$2.92	\$5.02	\$5.38	\$7.48	\$6.46	\$6.62	\$8.36	\$3.96	\$4.32	\$4.06	\$2.89							

Sacramento Valley- Wells Drilled 2012

API #	Conf	Operator	Well	S/T/R	Field	Spud Date	Rrdate	ABD date	Comp Date	TD	Rig #	Dir	Class	Map
11321279		Pacific Gas & Electric Co.	"Pleasant Creek Unit 3" 5	8/8N/1W MD	Pleasant Creek Gas	4/20/2012	5/10/2012		5/10/2012	3762	PG 6	*	GS	616
01120943	C	Royale Energy Inc.	"Dorset" 1	3/14N/2W MD	Arbuckle Gas	12/21/2012	1/3/2013			-1	PG 4		CEOP	W6-2
01120944	C	Royale Energy Inc.	"Garnet" 1	1/15N/3W MD		11/23/2012	12/3/2012	12/3/2012		-1	PG 7		CENP	618
01120937		Venoco Inc.	"Balsdon" 4-35	35/14N/1W MD	West Grimes Gas	10/11/2012	11/7/2012		11/29/2012	9742	Ensign 579		OG	618
01120931		Venoco Inc.	"Harlan" 2-24	24/14N/1W MD	West Grimes Gas	1/1/2012	1/15/2012		2/7/2012	9031	Ensign 582		OG	618
01120929		Venoco Inc.	"Strain" 13-1	13/13N/1W MD	Buckeye Gas	2/11/2012	2/27/2012		3/19/2012	8971	Ensign 582	*	OG	618
06720520		Vintage Prod California LLC	"Brownie" 1	33/4N/3E MD	Rio Vista Gas	3/1/2012	3/18/2012		4/5/2012	11226	HP 440	*	OG	610
09521328		Vintage Prod California LLC	"Serpa" 5	22/4N/2E MD	Rio Vista Gas	9/28/2012	10/22/2012		12/21/2012	12627	HP 440		OG	610
06720518		Vintage Prod California LLC	"Welch" 20	5/3N/3E MD	Rio Vista Gas	2/12/2012	2/26/2012		3/20/2012	10500	HP 440	*	OG	610
06720522		Vintage Prod California LLC	"Welch" 23	5/3N/3E MD	Rio Vista Gas	7/29/2012	8/22/2012		9/10/2012	10930	HP 440	*	OG	610
06720523		Vintage Prod California LLC	"Welch" 24	5/3N/3E MD	Rio Vista Gas	8/24/2012	9/22/2012		9/26/2012	11300	HP 440	*	OG	610
06720516		Vintage Prod California LLC	"Wilcox" 21	31/4N/3E MD	Rio Vista Gas	12/30/2011	2/7/2012		3/30/2012	12200	HP 440	*	OG	610

2012 Drilling Activity By Township & Range

No. of Holes Drilled

6 / 4

No. of Completions

R. J. Bain & M. F. Cummings 2/2013

