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MARKETING OF OIL AND GAS FROM THE SAN JUAN BASIN

By Van Thompson
Southern Union Gas Company

General

The marketing of oil and gas in the San Juan Basin represents two separate problems because in this area oil and gas are not produced in association with each other as in many other regions. The existing oil wells produce no casing-head gas. The existing gas wells produce dry gas with small quantities of natural gasoline, butane, and propane.

Oil can be marketed in trucks, tank cars, pipe lines, buckets, cans, etc., and can be delivered to and from the refineries intermittently. The peak demand for oil is in the summer months when gasoline usage is heavy.

Natural gas can be marketed only by pipe lines, and deliveries must be continuously maintained. The actual market demand, however, will vary from a factor of, say, one in the summer to over three times as great in the winter months. Pipe lines are built to supply the winter demand and every attempt is made by the owner to utilize this excess capacity in the summer months by supplying gas to industrial customers who find it economical to use stand-by fuels in the winter.

This paper will treat the two subjects separately and in the case of oil, will deal primarily with existing refineries, their capacities being presently utilized and the excess capacity available, which is due to a lack of oil rather than to a lack of market demand.

Oil Refineries

There are four oil refineries in the area which refine and market the oil produced in the area. All the producing oil fields are old, having been discovered in the 1920's and 1930's, with the exception of the recent discovery at the Boundary Butte field. Inasmuch as these oil fields have been producing for a long time, they do not now produce enough oil to operate the refineries on a full-time basis.

The attached table shows the name, location, design, capacity, present operating capacity, source of oil, and other operating details regarding these refineries.

Market Price of Oil

The market price that is paid for the oil is generally the posted price for 42° gravity oil in the Group 3 district and in addition the refinery pays the pipe line or trucking costs from the field to the refinery. The demand for products from the refineries is much greater than the oil production at the present time, and large quantities of gasoline and fuel oil are shipped into the area from other sources.

Natural Gasoline Plants

For many years, Continental Oil Company has operated a small stabilization and LPG (Liquified Petroleum Gas) plant in connection with their operations in the Rattlesnake field. This plant produces about 2,000 gallons of LPG per day, all of which is marketed locally.

The first modern-design natural gasoline plant in the basin was put in operation by Southern Union Gas Company in May, 1949. It is a conventional absorption type with a present daily capacity of 20,000 MCF (thousand cubic feet) of gas through the absorber. The source of gas is the main pipe line to the Albuquerque-Santa Fe area, with the principal plant volumes originating in the Kutz Canyon-Fulcher Basin field. A total of about 17,000 gallons of products is produced daily, including some 7,000 gallons of 12# RVP gasoline; 4,000 gallons of butane, and 6,000 gallons of propane.

A new debutanizer and reboiler are being added to this plant and by October 1, 1950, it is expected that 40,000 MCF can be processed per day through the absorber and 3,000 gallons per day of additional gasoline can be produced.

Natural Gasoline

The natural gasoline is marketed as follows:

(a) The Aerex Refining Company at Bloomfield, New Mexico purchases approximately 20,000 gallons per month. They in turn blend this natural gasoline with the products from their refinery and market it in the area as white gasoline, which is sold principally for tractor fuel.

(b) The Petroleum Products Refining and Producing Company of Prewitt, New Mexico, purchases the balance of approximately 200,000 gallons per month.

A 2# naptha concentrated with tetraethyl lead is hauled by truck from Prewitt to the Southern Union Gas Company's natural gasoline plant at Bloomfield, where it is blended with the 12# RVP natural gasoline to produce a very good grade of "house brand" gasoline. The gasoline is then sold to one of the major oil companies, where it is distributed to various filling stations in the San Juan Basin for resale to the general public.

Butane and Propane

The butane and propane mixed product is sold to the Phillips Petroleum Company who distributes it in the San Juan Basin through their dealers in the area. At the present time a large quantity of this material is being used by the drilling contractors for fuel in the motors of drilling rigs in the basin.

Approximately one-third of the butane and propane product is not sold in the area due to a lack of market. This material is disposed of in one of two ways: (1) it is returned to the Pictured Cliffs formation in the Kutz Canyon field for possible future reclamation, or (2) it is vaporized and injected into the gas pipe line downstream of the natural gasoline plant.

Present Natural Gas Pipe Lines

In the spring of 1929, the Southern Union Gas Company completed a four-inch pipe line from the Kutz Canyon field to Farmington, New Mexico. At about the same time, Mr. F. M. Burt built a four-inch pipe line from the Blanco field to Aztec, New Mexico. Also in 1929, the Durango Natural Gas Company completed a six-inch pipe line from Ute Dome field to Durango, Colorado.

In the fall of 1930, the Southern Union Gas Company completed a ten-inch and a twelve-inch pipe line to Albuquerque, and an eight-inch pipe line to Santa Fe, New Mexico. In 1940 a five and one-half inch pipe line was extended from Albuquerque to Belen, New Mexico. Since that date this system has been extended and greatly enlarged.

In 1932, a six-inch pipe line was built from Kutz Canyon to Ute dome so that gas from Ute dome could be marketed in the Albuquerque area. With the discovery of gas at Barker Creek field, this line has been paralleled and enlarged.

All the above pipe lines are shown on the attached map of the area.

Local Markets for Gas

The local market for natural gas from the San Juan Basin grew to more than 12,000,000 MCF from 1929 to 1949 and is expected to increase at the rate of 2,000,000 MCF per year for the next few years. The daily peak demand grew to more than 80,000 MCF per day by the winter 1950-51. A graph of the gas purchases in the area by years is attached with an estimate of the projected demand in the next few years for the Albuquerque-Santa Fe-Durango area.

The problem of supplying this steadily expanding local market has had two significant results: first, it has necessitated relatively constant drilling activities, both developmental and exploratory; and second, until recently no commercial gas well in the area lacked a market outlet and connection. To illustrate, the Kutz Canyon-Fulcher Basin field has increased from the original seven Pictured Cliffs gas wells into a field of 105 producing gas wells covering an area of some 24 miles in length by approximately two miles in width. The stratigraphic nature of the field tended to retard development to a slow, cautious expansion, which is still continuing. The pipe-line company's task of gathering and compressing gas from these wells, which average less than 250 MCF per day, has required much effort and investment. Production has been long lived with the exception of the gas reserves in the Dakota formation at Ute and Barker domes which suffered early depletion.

The only large volume of gas developed to date is from the Paradox formation at Barker dome, first drilled in 1945. Inasmuch as this gas contains 1 per cent H_2S and 15 per cent CO_2, it is marketable only after appropriate treatment. A Girbotol-type plant with some 30,000 MCF of daily capacity has operated for four years and most of the gas that is treated goes directly into the pipe-line system. During the summer, however, large volumes are stored in the Dakota formation at Barker dome to meet subsequent peak-load demands in the markets.

At the present time natural gas is being marketed locally from the Fulcher-Kutz, Ute dome, Barker dome, and La Plata fields, and a twelve-inch gathering line is scheduled to be completed by November, 1950 to the Blanco field.

Field Price of Natural Gas

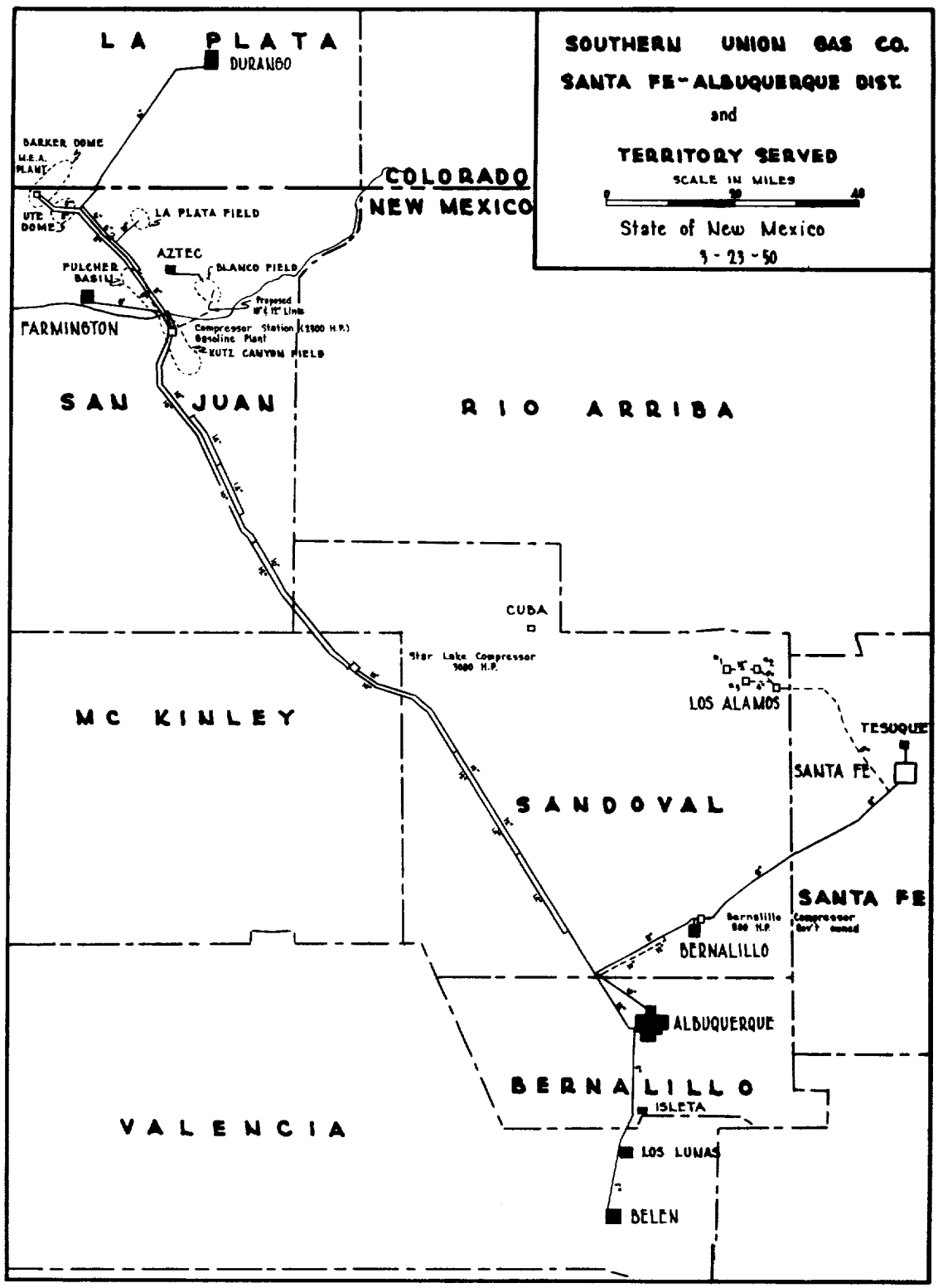
During the 20-odd years of production and marketing of natural gas in the San Juan Basin, the well-head prices have consistently equaled or exceeded the prices from time to time prevailing in the Mid-Continent area. The current prices range from six cents per MCF for Pictured Cliffs gas, taken at low pressures and small well volumes, to nine cents per MCF for Point Lookout gas taken at a line pressure of 650 pounds. Specific price increases in the future are already contracted, to become effective at five year intervals. Gas is sold under long-term contracts which now generally contain a "favored nations" clause to insure that any individual producer will receive the best price paid by the purchaser for gas of similar quality, pressure, and quantity.

Future Markets

In July, 1940, El Paso Natural Gas Company received a permit from the Federal Power Commission to construct a twenty-four inch pipe line, with a designed capacity of 168,000 MCF per day, from

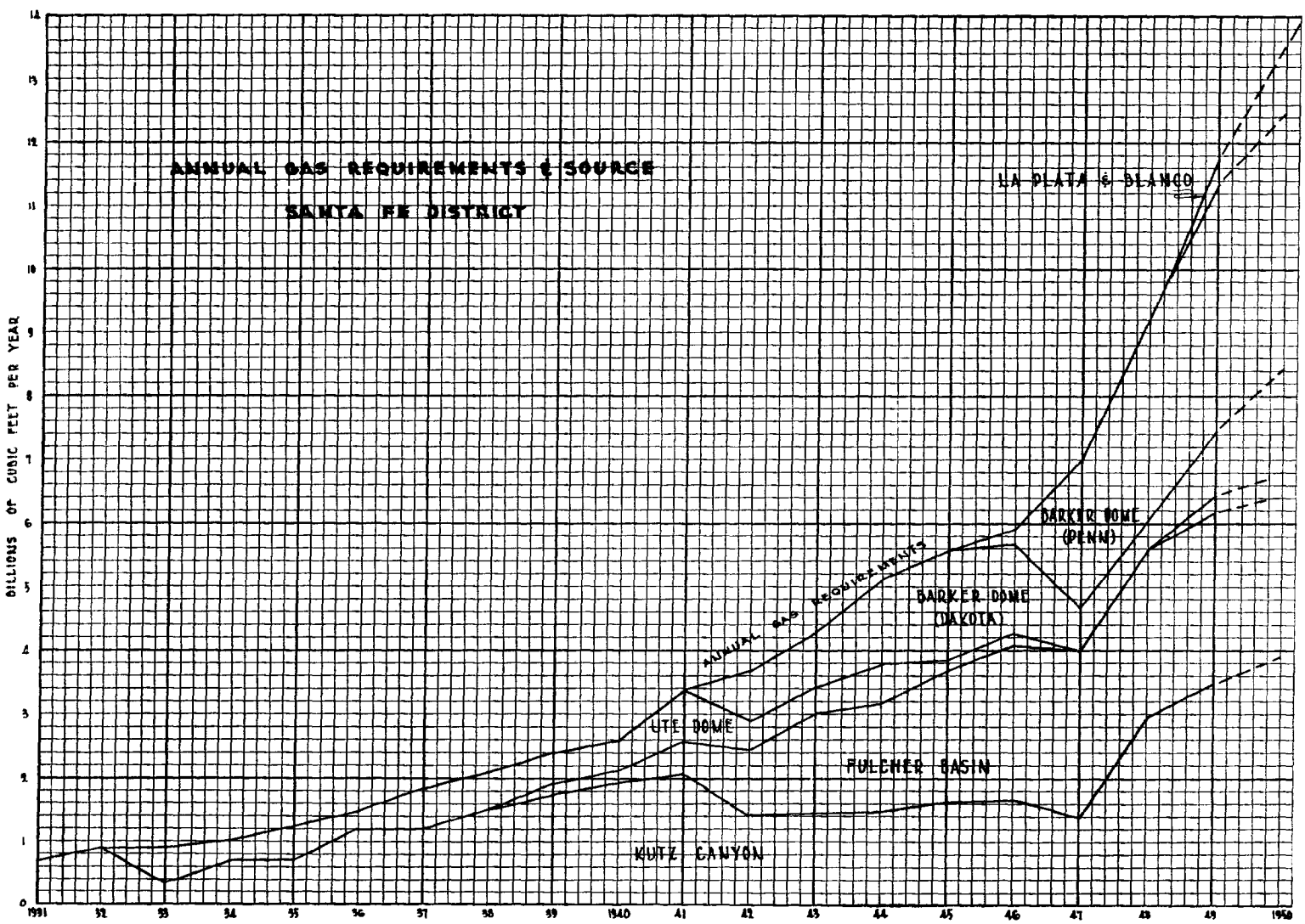
the San Juan Basin to California. According to their testimony before the FPC, this pipe line is planned to transport an average of 93,000 MCF per day, 60,000 MCF of which is planned to come from Barker dome. In connection with the pipe line, a natural gasoline plant with approximately 65,000 MCF per day capacity will be constructed. This pipe line and appurtenant equipment is scheduled to be completed in 1951.

The California-Arizona market and the New Mexico market will thus provide a demand of some 50 billion cubic feet of gas per year, with a peak daily demand of more than 250 million cubic feet. Furthermore, it can be expected to increase tremendously if the natural gas can be discovered and developed in the area.



OIL REFINERIES

OPERATOR	LOCATION	TYPE	CAPACITY	AVERAGE	SOURCE OF CRUDE	PRODUCTS
Oriental Ref. Co.	Alamosa, Colo.	Distillation - Crack	1000 Bbl.	1000 Bbl.	Price, & Chromo	Gasoline, Ethyl, Fuel Oil, Kerosene & Diesel
Petroleum Products Ref. & Producing Co.	Prewitt, N. M.	Distillation - Crack	4000 Bbl.	1400 Bbl.	Hospah, Boundary Butte, & Hargrave	Gasoline, Ethyl, Fuel Oil, Kerosene & Diesel
Conoco	Farmington, N. M.	Distillation	750 Bbl.	350 Bbl.	Hogback, Rattlesnake, Table Mesa	Gasoline and Fuel Oil
Aerex Refinery	Bloomfield, N. M.	Distillation	100 Bbl.	15 Bbl.	Bloomfield, Drip Gasoline	Gasoline, Kerosene, Fuel Oil



BARKER DOME GAS FIELD
Well History and Gross Production
From Beginning to and Including
December 31, 1949
All volumes shown in M.C.F. @ 15.025 Pressure Base

Company, Well and No.	Location	Elevation G.L.	Completion Date	Casing Size	Casing Depth	Tubing Size	Tubing Depth	Total Depth	Orig. Open Flow	Orig. Rock Pres.	Latest Rock Presssure
Dakota Series										Dakota-Pres.8/1/49	
Southern Union Production Co.											
Barker #1	NW NW 21-32N-14W	6300	1/9/42	7"	2378	1"	2486	2495	7650	557	560
Barker #2	NW NE 21-32N-14W	6444	5/10/42	6-5/8	2475	2	2590	2590	11000	688	570
Barker #3	NE SW 21-32N-14W	6179	10/11/42	5½	2238	-	-	2340	8220	658	520
Barker #4	C/NE 16-32N-14W	7108	9/1/42	5½	3188	1	3170	3345	3110	556	545- 8/1/48
Barker #6	SE SW 10-32N-14W	7093	12/14/43	5½	3153	1"	3236	3277	3100	635	Being used for fuel
Barker #7	NE SE 21-32N-14W	6201	4/10/44	5½	2252	2½	2200	2377	7260	577	570
Barker #8	NW NW 22-32N-14W	6277	6/15/44	6-5/8	2314	2	2453	2459	4200	605	575
Barker #10	NW SE 15-32N-14W	6878	12/14/44	5½	2950	2	2389	3019	6000	563	565
Barker #14	SE SW 16-32N-14W	6411	1/13/46	5½	2494	1	2566	2583	3000	475	550
Barker #15	SE NE 20-32N-14W	6147	12/2/45	5½	2261	2	2323	2325	5150	475	545
Barker #16	SE SE 20-32N-14W	6086	1/22/46	5½	2198	1	2267	2275	2000	549	570
Barker #20	SW NE 21-32N-14W	6249	1/4/50	5½	2284	2	2375	2400	6000	Not taken	
Barker #21	SW SW 15-32N-14W	6704	2/6/50	5½	2725	2	2741	2864	3500	485	
Barker #22	NW SE 21-32N-14W	6196	2/16/50	5½	2246	2½	2315	2341	9500	475	

PRODUCTION DATA

Barker Dakota Production 1942-1949 Inclusive

Year	Injections	Withdrawals
1942		931,968
1943		844,952
1944		1,395,026
1945		1,780,496
1946		1,518,099
1947	Injections started 9/24/47 - Total before	651,872 7,122,413
1947	64,048	
1948	981,275	474,129
1949	1,188,050	1,235,946
	2,233,373	8,832,488
		2,233,373
	Dakota Net Withdrawals - -	6,599,115 MCF

Pennsylvanian Series										Penn. Pres. October 1, 1949	1946	1947	1948	1949	Total
SUG Barker #9	SE NW 21-32N-14W	6239	3/18/45	7	8942	2½	8513	9466	42000	2975	2830	206,828	1,017,070	1,624,228	1,930,165	4,778,291
SUG Barker #11	NE SW 16 32N-14W	6421	9/6/45	7	9004	2½	8908	9002	27000	2940	2816		794,004	1,865,581	1,808,997	4,468,582
SUP Barker #13	NW NE 29 32N-14W	6138	2/23/46	7	8830	2½	8481	8830	46000	2975	2806		2,020,493	1,806,469	2,073,747	5,900,709
SUP Barker #17	NW NW 27 32N-14W	6096	10/30/46	7	8965	2½	8550	9387	30000	2700	-		28,196	-	-	28,196
SUG Barker #19	NW NE 21 32N-14W	6447	3/21/49	7	8917	2½	8866	8900	63000	2770	2783				693,076	693,076
										Penn. Gross Production - -		206,828	3,859,763	5,296,278	6,505,985	15,868,854

KUTZ CANYON WELL HISTORY
San Juan County, N. M.
12-31-49

Owner, Well Name and No.	Location	Elevation G. L.	Completion Date	Casing Size	Casing Depth	Tubing Size	Tubing Depth	Total Depth	Orig. Open Flow - MCF	Open Flow Jan. 1948	Orig. Rock Pressure #	Latest Rock Pressure # June, 1948	Cumulated Production (MCF) as of 12-31-49
Southern Union Production Co.													
Browning & Stewart #4	SW SE, 11-28N-11W	5688	11/27/30					1880	4050	917	555	309	2,239,700
S.U.P. #3	SW NW, 14-28N-11W	5531	6/24/30	7"	1591	1"	1643	1725	500	196	585	353	498,754
S.U.P. #4	NW NE, 14-28N-11W	5740	12/21/35	7"	1789			1942	4500	1540	517	308)	4,793,569
S.U.P. #5	NE NE, 14-28N-11W	5761	3/ 7/36	7"	1812	1"	1973½	1973	2500	943	500	296)	
S.U.P. #6	SE SE, 14-28N-11W	5819	12/17/39	5½	1830	1"	1873	1865	1580	768	495	333	980,420
Brink #2	NW NW, 19-28N-10W	5888	5/15/36	7"	1909			2065	880	340	575	402	878,118
Cain #1	SW SW, 15-28N-10W	5922	7/29/45	7"	1350	1"	1400	1406	1800		465	Plugged 10/30/47	54,220
Hanks #1	NW NW, 12-27N-10W	6039	6/ 2/49	5½	1950	1"	2000½	2235	700		582	582 9/ 7/49	23,854
Hanks #2	SW NW, 6-27N- 9W	6082	8/ 1/49	5½	2088	1"	2140	2210	450		619	619 "	-0-
Hanks #3	SW SW, 12-27N-10W	6055	9/19/49	5½	1932	1"	1980	1936	822		589	590 10/17/49	14,070
Hubbell #1	NW SE, 29-28N-10W	6024	3/31/49	5½	1990	1"	2045	2095	1930		535		151,074
Hertman #1	SW NW, 28-29N-11W	5412	2/28/47	5½	1533	1"	1615	1645	734	627	487	406	196,294
Lackey-Hubbell #1	NW NW, 29-28N-10W	6017	6/13/47	7	2000	1"	2080	2150	887	586	495	473	181,509
Lackey-Hubbell #2	NE NE, 29-28N-10W	6105	10/30/47	7	2090	1"	2155	2214	802	802	560	492	263,014
Mangum #1	NE SE, 29-29N-11W	5410	6/ 4/47	5½	1493	1"	1575	1597	2750	1710	492	430	268,734
Mangum #2	NE SW, 28-29N-11W	5438	7/20/47	5½	1540	1"	1612	1625	3500	3400	454	386	511,506
Mangum #3	NW SE, 28-29N-11W	5493	9/ 5/47	5½	1630	1"	1722	1748	987	998	440	368	165,463
Newman #3-B	NW NE, 30-28N-10W	5953	10/18/47	5½	1941	1"	2014½	2032	3250	2740	510	465	571,760
Newman #4	NW SW, 19-28N-10W	5974	12/ 9/47	5½	1975	1"	2044	2060	1710		434	413	390,920
Newman #5-B	NE NW, 30-28N-10W	5892	10/12/48	5½	1870	1"	1933	1945	1930		451		228,863
Newman #6-A	NW SE, 19-28N-10W	5959	1/ 2/49	5½	1957	1"	2039	2062	686		468		71,406
Angels Peak Oil Company													
Angels Peak #3	NE SE, 11-28N-11W	5731	3/20/30	6-5/8"	1830			1973	1470	606	550	311	1,377,150
Angels Peak #5	NE SW, 11-28N-11W	5689	10/20/30	6-5/8"	1784			1895	2069	685	555	321	1,855,138
Angels Peak #8	NE SW, 13-28N-11W	5837	11/16/39	5½	1875	1"	1944	1955	1800	734	513	337	1,070,395
Angels Peak #9-B	NE NW, 24-28N-11W	5812	3/ 6/40	5½	1812	1"	1560	1893	3150	1230	520	357)	3,086,083
Angels Peak #10-B	NW SE, 24-28N-11W	5858	4/11/40	5½	1849	1"	1939	2074	1580	887	545	389)	
Byrd-Frost, Inc.													
Davidson #1	NW NW, 28-28N-10W	6149	11/16/48	5½	2150	1"	2222	2244	368	396 Nov.1948	526		35,200
Davidson #1-B	SW NW, 28-28N-10W	6090	12/ 7/49	7"	1919	1"	2210	2216	587		529		2,678
Davidson #1-C	SW SW, 28-28N-10W	6090	12/11/48	5½	2079	1"	2150	2168	1170		547		148,822
Galt #1	SW SW, 1-27N-10W	6091	11/23/48	5½	2013	1"	2072	2109	810	802 Nov.1948	557		33,957
Hargraves #1	NE NW, 4-27N-10W	6149	11/14/47	7	6474			6735	1500	627	1840		193,218
Hargraves #1-B	SE SW, 4-27N-10W	6007	7/20/49	5½	1899	1"	1994	2002	917		563	563 7/26/49	5,437
Johnson #1	NE NE, 21-27N-10W	6078	10/25/48	7	1890	1"	1918	2805	500	310 Nov.1948	480	514 11/48	5,075
Hargraves #1-A	NW NE, 4-27N-10W	6213	11/25/49	5½	2142	1"	2202	2215	2690		578		26,175
Morris #1	NW NW, 10-27N-10W	6156	11/20/49	5½	2059	1"	2126	2135	1170		593		3,679
Four Corners Oil Co. (B-F)													
Morris #1	SW NE, 10-27N-10W	6242	11/11/49	5½	2135	1"	2195	2212	1179		603		6,996
Congress Oil Company													
Congress #1	SW NE, 34-29N-11W	5628	11/25/27	6-5/8		2"	1728	1910	600	228	585	364	775,601
Congress #2	NW SE, 34-29N-11W	5611	12/ /30	6-5/8	1714	2"	1723	1792	?	Disconnected '49	?	344	1,694,404
Congress-Lachman #2	SW NW, 18-28N-10W	5809	10/23/39	5½	1890	1"	1982	2015	439	240	569	426	385,958
Kutz Canyon Oil & Gas Co.													
Kutz Canyon #1	SW SW, 20-28N-10W	6003	?	4	3784			4400	-	250	560	480	587,688
Feasel #1-B	NE NE, 32-28N-10W	5992	11/27/47	5½	1950	1"	2029	2032	2240	1620	565	535	443,078
Summit Oil Company													
Summit Viles #1	SE SW, 34-29N-11W	5657	7/28/28	6-5/8	1747			2002	3500	560	585	334	1,637,743
Summit Viles #2	SE NW, 34-29N-11W	5620	12/ /30	6-5/8	1719			1860		486	585	358	1,290,199
Summit Viles #4	NE NE, 33-29N-11W	5541	1/29/47	5½	1651	1"	1733	1752	2400	1930	435	372	613,970
Summit Viles 5-B	SE NW, 33-29N-11W	5538	4/ 1/47	5½	1630	1"	1720	1721	1620	1500	448	388	344,773
Summit Viles 6-B	SE SE, 29-29N-11W	5431	3/15/49	4-3/4	1541	1"	1604	1626	150		380		12,101
													28,120,766 M

FULCHER BASIN WELL HISTORY
San Juan County, N. M.
12-31-49

Owner, Well Name and No.	Location	Elevation G. L.	Completion Date	Casing Size	Casing Depth	Tubing Size	Tubing Depth	Total Depth	Orig. Open Flow - MCF	Open Flow Jan. 1948	Orig. Rock Pressure #	Latest Rock Pressure # June, 1948		Cumulated Production (MCF) as of 12-31-49
Southern Union Production Co.														
Allen #1	SW NW, 1-29N-12W	5925	5/24/45	5½	2065			2185	310	Plugged 3/12/48	539			49,048
Beck #1	SW NE, 2-29N-12W	5892	5/14/48	5½	2016	1"	2082	2125	200		405	416		27,842
Cooper #1	NE NW, 18-29N-11W	5652	4/ 9/46	5½	1767	1"	1869	1893	1140	175	452	390		264,566
Cooper #2	SW SW, 7-29N-11W	5671	7/16/46	5½	1816	1"	1880	1938	560	295	405	371		97,421
Cooper #1-S	SE NW, 29-29N-11W	5389	2/27/48	5½	1474			1564	500		483	375		76,313
Cornell #3	SE SW, 12-29N-12W	5718	2/ 8/41	5½	1820	1"	1872	1886	1300	517	592	375	)	1,604,453
Cornell #4	NE SW, 12-29N-12W	5763	7/ 5/41	5	1835	1"	1900	1970	2300	1020	576	392	)	
Cornell #7	NW SW, 2-29N-12W	5872	10/ 7/44		1978	1"	2097	2107	890	768	523	395		400,181
Cozzens #1	SE SW, 18-29N-11W	5756	5/18/43	5½	1874	1"	1926	1957	1050	560	537	401		623,188
Cozzens #2	NW NE, 19-29N-11W	5685	2/20/46	5½	1816	1"	1870	1895	802	685	485	418		371,091
Cozzens #3	SW NE, 20-29N-11W	5700	5/30/46	7	1980	1"	1900	2165	310	362	476	411		174,082
Cozzens #4	SW NW, 20-29N-11W	5577	1/15/48	5½	1694	1"	1788	1792	606		446	444		168,410
Cozzens #5	NW SE, 19-29N-11W	5580	2/14/48	5½	1687	1"	1764	1792	280		449	455		47,714
Ballabetta #1	SE SW, 20-29N-11W	5409	12/ 1/46	5½	1534	1"	1610	1641	1000	802	503	445		365,233
Faverino #1	SE SE, 20-29N-11W	5416	5/13/47	5½	1537	1"	1600	1631	1310	280	478	442		112,691
Hart #1	NW SW, 11-29N-12W	5626	4/ 5/34	5-3/16	1681			1920	800	295	580	429		592,727
Holder #1	SE NW, 29-30N-12W	5569	11/13/46	5½	1655	1"	1691	1730	820	537	570	370	6/49	172,480
Hudson #1	SE NE, 34-30N-12W	5746	10/12/45	5½	1854	1"	1910	2015	437	280	530	445		113,053
Hudson #2	SE SE, 34-30N-12W	5841	8/25/46	5½	1961	1"	2040	2085	1085	560	459	393		189,956
Kattler #1	NE NW, 2-29N-12W	5849	3/ 9/45	5½	1960	1"	2020	2069	1750	887	513	415		274,171
McCarty #1	NE SE, 29-30N-12W	5521	9/28/46	5½	1609	1"	1670	1730	1400	810	576	369	6/49	290,089
McDaniel #1	NE NE, 19-29N-12W	5525	9/25/41	5½	1673	1"	1873	1820	1000	537	589	418		868,027
McGrath #1	NE SE, 2-29N-12W	5902	2/11/43	5½	2020	1"	2098	2136	768	416	554	416		415,518
McGrath #2	SE SW, 34-30N-12W	5788	12/14/44	5½	1891	1"	1960	1963	2210	1140	535	401		808,085
McGrath #3	NW SE, 3-29N-12W	5845	4/ 8/45	5½	1928			2040	600	396	529	414		180,989
Reid #1	SW SE, 13-29N-12W	5572	9/14/40	5½	1632	1"	1748	1766	496	260	584	363		228,000
Reid #2	SE NE, 13-29N-12W	5630	8/10/41	5½	1710	1"	1794	1802	4000	1210	583	372		1,356,655
Sammons #1	SW NE, 32-30N-12W	5423	1/ 8/47	5½	1495	1"	1560	1605	802	537	570	371	6/49	135,351
Setegna #1	SW SW, 21-29N-11W	5415	10/19/46	5½	1566	1"	1620	1703	439	280	527	442		120,209
Walker #1	C of NE, 3-29N-12W	5843	3/27/43	5½	1930	1"	2020	2050	1300	584	575	390		635,140
Walker #2	NW NW, 3-29N-12W	5790	9/15/45	5½	1884	1"	1954	1974	537	260	555	407		110,181
BWNS Company														
Brown #1	NE SE, 30-30N-12W	5576	5/16/47	5½	1646			1735	1070	768	492	362	6/49	115,721
Brown #2	SE SW, 29-30N-12W	5532	6/20/47	5½	1602			1660	1540	1050	501	361	"	155,825
Copp #1	SW NW, 29-30N-12W	5633	9/22/46	5½	1696			1745	1800	802	585	361	"	270,080
Copp #3	SW NE, 30-30N-12W	5633	10/28/47	5½	1698			1791	750	486	- Discon.	417		2,382
Waggoner #1	NE SW, 29-30N-12W	5542	6/ 3/46	5½	1619			1659	2200	493	565	362	6/49	272,604
Waggoner #2	NE NW, 32-30N-12W	5457	9/ 7/47	5½	1534			1623	537	362	500	365	"	63,516
Wyper #2	SW SE, 29-30N-12W	5480	1/11/47					1588	1700	1050	585	375	"	302,262
Byrd-Frost, Inc.														
Hudson #1	SE SE, 33-30N-12W	5729	8/11/46	7"	1805			1955	517	340	509	428		69,914
Dudley Cornell et al														
Carroll Cornell #1	SW NE, 11-29N-12W	5772	10/ 5/40	5-3/16	1903			1989	1100	560	576	399		793,440
Carroll Cornell #2	NW NW, 12-29N-12W	5804	4/23/41	5-3/16	1903			2035	1300	627	575	395		721,662
Carroll Cornell #5	NE NE, 13-29N-12W	5673	6/ 7/42	6-5/8	1780			1844	2500	917	536	366		906,038
Carroll Cornell #6	C of SE, 12-29N-12W	5680	3/29/44	7	1796			1902	1200	734	458	367		373,585
Carroll Cornell #8	SE NE, 12-29N-12W	5745	11/ /45	7					917	458	388	373		182,108
Claude Carroll, et al														
Carroll-Hannet #1	NW SW, 34-30N-12W	5736	1/25/45	7				1816	1700	768	525	409		313,016
Carroll-Hannet #2	NE SE, 33-30N-12W	5731	6/ /46	7				1936	1500	439	525	398		144,047
J. J. Dempsey, Trustee														
Hutchison #1	NE NE, 1-29N-13W	5455	? 1947						537	537	523	487	6/49	73,307
Hood #1	NE NW, 6-29N-12W	5442	5/20/48	5½	1466			1530	250	Disconnected '48	525			189
George H. Krause														
Krause Beck #1	NW SE, 10-29N-12W	5625	9/22/46		1685			1871	175	155	480	446		46,080
Lock-Taylor Drilling Co.														
Lock-Smith #1	NW SW, 27-30N-12W	5468	6/ /48	5½	1588	1"	1620	1660	260		470	437	6/49	23,062
MSBW Company														
Maddox-Hargis #1	SW NE, 33-30N-12W	5610	9/22/45	5½	1703			1808	1200	686	540	419		393,670
Maddox-Hargis #2	NW SE, 33-30N-12W	5558	8/20/46	5½	1644	1"	-	1750	627	396	525	434		144,134
Maddox-Montano #1	SE SW, 28-30N-12W	5438	11/20/46	5½	1530			1630	824		560	370	6/49	172,349
Maddox-Montgomery #1	NE SW, 28-30N-12W	5444	1/ 3/48	5½	1558			1610	2000	1860	540	371	"	182,365
Maddox-McCarty #1	SW SW, 28-30N-12W	5435	8/10/49	5½	1534			1615	1000			360	"	44,911
Maddox-McCoy #1	SW NE, 28-30N-12W	5452	3/25/48	5½	1572			1652	400	Disconnected '49	495	495		557
Maddox-Palmer #1	SW SE, 28-30N-12W	5444	3/20/47	7	1545			1620	3000	2310	540	359	6/49	275,833
Summit Oil Company														
Summit Viles #3-B	NW SE, 20-29N-11W	5532	11/14/41	5½	1690	1"	-	1825	800	517	573	416		675,972
														17,591,493

KUTZ CANYON GAS FIELD
PRODUCTION BY YEARS, SHOWN IN M.C.F.
December 31, 1949

Owner, Well Name and No.	From beginning to 1942 Inclusive	1943	1944	1945	1946	1947	1948	1949	Total Production through 12/31/49
Southern Union Production Co.									
Browning & Stewart #4	1,520,829	110,356	116,937	125,311	124,459	73,418	74,503	93,887	2,239,700
SUP #3	293,534	24,863	33,557	38,893	36,539	24,010	22,767	24,591	498,754
SUP #4 and #5	3,105,351	287,305	304,979	336,741	341,004	194,680	159,885	63,624	4,793,569
SUP #6	441,778	101,149	95,705	88,547	78,723	46,805	48,139	79,574	980,420
Brink #2	533,195	57,614	59,952	66,591	64,956	34,544	32,747	28,519	878,118
Cain #1	-	-	-	-	48,723	5,497	Plugged 5/10/47		54,220
Hanks #1	-	-	-	-	-	-	-	23,854	23,854
Hanks #2	-	-	-	-	-	-	-	-0-	-0-
Hanks #3	-	-	-	-	-	-	-	14,070	14,070
Hartman #1	-	-	-	-	-	70,788	78,298	47,208	196,294
Hubbell #1								151,074	151,074
Lackey-Hubbell #1	-	-	-	-	-	7,480	88,693	85,336	181,509
Lackey-Hubbell #2	-	-	-	-	-	6,956	131,073	124,985	263,014
Mangum #1	-	-	-	-	-	6,424	140,149	122,161	268,734
Mangum #2	-	-	-	-	-	32,622	279,510	199,374	511,506
Mangum #3	-	-	-	-	-	8,366	89,444	67,653	165,463
Newman #3-B	-	-	-	-	-	36,877	285,789	251,094	573,760
Newman #4-A	-	-	-	-	-	-	196,622	194,298	390,920
Newman #5-B	-	-	-	-	-	-	44,682	184,181	228,863
Newman #6-A	-	-	-	-	-	-	-	71,406	71,406
Angels Peak Oil Company									
Angels Peak #3	935,447	58,734	59,979	70,264	72,113	50,360	56,221	74,032	1,377,150
Angels Peak #5	1,228,110	85,107	94,189	114,496	112,695	68,063	69,818	82,660	1,855,138
Angels Peak #8	452,930	93,401	98,705	109,053	99,047	60,421	71,824	85,014	1,070,395
Angels Peak #9-B & 10-B	1,244,971	293,631	279,395	324,240	313,654	189,999	183,799	256,394	3,086,083
Byrd-Frost, Inc.									
Davidson #1	-	-	-	-	-	-	2,035	33,165	35,200
Davidson #1-B	-	-	-	-	-	-	-	2,678	2,678
Davidson #1-C	-	-	-	-	-	-	980	147,842	148,822
Galt #1	-	-	-	-	-	-	-	33,957	33,957
Hargraves #1	-	-	-	-	-	-	78,716	114,502	193,218
Hargraver #1-A	-	-	-	-	-	-	-	26,175	26,175
Hargraves #1-B	-	-	-	-	-	-	-	5,437	5,437
Johnson #1	-	-	-	-	-	-	-	5,075	5,075
Morris #1	-	-	-	-	-	-	-	3,679	3,679
Four Corners Oil Co.									
Morris #1	-	-	-	-	-	-	-	6,996	6,996
Congress Oil Company									
Congress #1	625,727	24,869	20,283	27,518	31,871	12,536	12,085	20,712	775,601
Congress #2	1,445,273	52,258	47,024	68,090	67,711	7,687	6,361	-	1,694,404
Congress-Lachman #2	147,232	34,797	41,620	44,837	35,091	28,375	30,258	23,748	385,958
Kutz Canyon Oil & Gas Co.									
Kutz Canyon #1	264,530	52,212	54,023	44,427	46,486	32,110	47,178	46,722	587,688
Feasel #1-B	-	-	-	-	-	9,770	242,389	190,919	443,078
Summit Oil Company									
Summit Viles #1	1,117,912	73,871	71,324	85,113	93,927	61,026	63,813	70,757	1,637,743
Summit Viles #2	789,251	74,118	78,418	90,953	93,776	54,577	52,633	56,473	1,290,199
Summit Viles #4	-	-	-	-	-	204,115	222,518	187,337	613,970
Summit Viles #5-B	-	-	-	-	-	63,444	147,028	134,301	344,773
Summit Viles #6-B	-	-	-	-	-	-	-	12,101	12,101
Total for Field	14,046,070	1,424,285	1,456,090	1,635,074	1,660,775	1,390,950	2,959,957	3,447,565	28,120,766

FULCHER BASIN GAS FIELD
PRODUCTION BY YEARS, SHOWN IN M.C.F.
December 31, 1949

Owner, Well Name and No.	From beginning to 1942 Inclusive	1943	1944	1945	1946	1947	1948	1949	Total Production through 12/31/49
Southern Union Production Co.									
Allen #1	-	-	-	18,558	21,907	8,583	Plugged 3/12/48		49,048
Beck #1	-	-	-	-	-	-	8,857	18,985	27,842
Cooper #1	-	-	-	-	86,683	57,792	53,627	66,464	264,566
Cooper #2	-	-	-	-	12,790	28,332	24,879	31,420	97,421
Cooper #1-S	-	-	-	-	-	-	32,223	44,090	76,313
Cornell #3 and #4	403,079	281,045	255,310	232,649	198,975	104,974	51,179	77,242	1,604,453
Cornell #7	-	-	16,017	84,793	74,433	78,875	68,928	77,135	400,181
Cozzens #1	-	83,197	159,346	127,036	92,100	54,738	50,329	56,442	623,188
Cozzens #2	-	-	-	7,655	99,336	97,004	79,840	87,256	371,091
Cozzens #3	-	-	-	-	39,650	56,083	43,936	34,413	174,082
Cozzens #4	-	-	-	-	-	-	63,598	104,812	168,410
Cozzens #5	-	-	-	-	-	-	17,015	30,699	47,714
Dallabetta #1	-	-	-	-	-	142,913	126,517	95,803	365,233
Faverino #1	-	-	-	-	-	-	46,892	65,799	112,691
Hart #1	251,997	55,161	62,264	58,357	52,752	39,179	35,063	37,954	592,727
Holder #1	-	-	-	-	11,105	78,102	45,213	38,060	172,480
Hudson #1	-	-	-	-	51,684	28,002	16,743	16,624	113,053
Hudson #2	-	-	-	-	25,669	60,515	49,648	54,124	189,956
Kattler #1	-	-	-	61,890	70,602	23,857	45,241	22,581	274,171
McCarty #1	-	-	-	-	31,000	125,875	78,017	55,197	290,089
McDaniel #1	149,559	141,873	138,092	123,605	104,483	73,028	67,964	69,423	868,027
McGrath #1	-	60,902	93,672	76,324	64,390	38,470	37,345	44,415	415,518
McGrath #2	-	-	-	302,851	220,700	113,376	81,108	90,050	808,085
McGrath #3	-	-	-	6,165	64,481	40,245	32,307	37,791	180,989
Reid #1	91,157	33,930	28,130	22,543	25,422	11,647	6,973	8,198	228,000
Reid #2	399,733	286,828	192,224	136,345	117,963	63,328	74,390	85,844	1,356,655
Sammons #1	-	-	-	-	-	45,137	45,555	44,659	135,351
Satigna	-	-	-	-	8,114	41,875	36,246	33,974	120,209
Walker #1	-	103,963	163,472	115,963	95,145	58,846	47,045	50,706	635,140
Walker #2	-	-	-	28,549	19,187	12,741	23,225	26,479	110,181
B.L.N.S. Company									
Brown #1	-	-	-	-	-	27,345	45,349	43,027	115,721
Brown #2	-	-	-	-	-	35,310	69,055	51,460	155,825
Copp #1	-	-	-	-	28,002	126,182	59,777	56,119	270,080
Copp #3	-	-	-	-	-	-	2,382	Discon. July '48	2,382
Waggoner #1	-	-	-	-	44,715	139,552	55,660	32,677	272,604
Waggoner #2	-	-	-	-	-	-	36,148	27,368	63,516
Wyper #2	-	-	-	-	-	129,910	97,703	74,649	302,262
Byrd-Frost, Inc.									
Hudson #1	-	-	-	-	-	20,997	23,553	25,364	69,914
Dudley Cornell, et al									
Carroll Cornell #1	258,483	103,265	121,571	92,246	62,842	55,064	46,402	53,567	793,440
Carroll Cornell #2	159,644	118,153	118,094	94,643	83,890	44,274	45,039	57,925	721,662
Carroll Cornell #5	21,803	196,623	180,130	159,183	124,876	72,535	65,973	84,915	906,038
Carroll Cornell #6	-	-	68,750	107,482	74,439	33,731	40,242	48,941	373,585
Carroll Cornell #8	-	-	-	10,728	58,617	34,719	34,916	43,128	182,108
Claude Carroll, et al									
Carroll-Hannet #1	-	-	-	-	127,849	56,062	66,419	62,686	313,016
Carroll-Hannet #2	-	-	-	-	26,278	42,037	22,517	53,215	144,047
J. J. Dempsey, Trustee									
Hutchinson #1	-	-	-	-	-	-	38,874	34,433	73,307
Hood #1	-	-	-	-	-	-	189	Discon. 1948	189
George H. Krause									
Krause-Beck #1	-	-	-	-	-	14,718	14,339	17,023	46,080
Lock-Taylor Drilling Co.									
Lock-Smith #1	-	-	-	-	-	-	-	23,062	23,062
M.S.B.W. Company									
Maddox-Hargis #1	-	-	-	19,372	141,419	98,325	71,515	63,039	393,670
Maddox-Hargis #2	-	-	-	-	10,911	56,467	40,807	35,949	144,134
Maddox-Montano #1	-	-	-	-	-	54,518	63,155	54,676	172,349
Maddox-Montgomery #1	-	-	-	-	-	-	99,470	82,895	182,365
Maddox-McCarty #1	-	-	-	-	-	-	9,460	35,451	44,911
Maddox-McCoy #1	-	-	-	-	-	-	557	Discon. 1949	557
Maddox-Palmer #1	-	-	-	-	-	25,675	155,869	94,289	275,833
Summit Oil Company									
Summit Viles #3-B	81,981	110,517	108,707	102,955	98,113	70,102	56,756	46,841	675,972
Total from Field	1,817,436	1,575,457	1,705,779	1,989,892	2,470,522	2,621,040	2,652,029	2,759,338	17,591,493