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Member
Audit Bureau of Circulations
Associated Business Papers



Service on Active Fields

NEWHALL-POTRERO, LOS ANGELES COUNTY, CALIFORNIA

Compiled by The Oil and Gas Journal

Geographic location

In Newhall-Castaic quadrangle, about 35 miles northwest of Los Angeles, 5 miles northwest of Newhall and 3 miles southwest of Castaic.

Location of supply houses

All supply houses and distributors maintain large stocks in Los Angeles. Branch stores have been opened at Castaic.

Trucking and hauling facilities

Field hauling and trucking facilities are ample.

DEVELOPMENT

Early development

Barnsdall Oil Co. 1 Rancho San Francisco in 26-4n-17w, the discovery well, was completed May 2, 1937, flowing 150 bbl. of clean 35.2°-gravity oil daily from the interval 6,160-6,472 ft. in the Modelo formation of Miocene age. Since then, two additional zones in the upper 1,000 ft. of Modelo have been proved and developed. In addition, there is believed to be at least another 5,000 ft. of Miocene sediments below present production with additional possibilities for oil and gas.

Subsequent development

A total of 23 wells have been drilled and completed in the field, all producers. Since completion of the discovery well, the field has been extended in southeasterly and northwesterly directions so that the proved area is now more than 1 mile in length. Production is at present limited to Sections 26 and 27-4n-17w of the San Bernardino Base and Meridian. There are two strings of tools in operation in the field and locations staked for two additional wells.

Production and proration

In the absence of compulsory regulation, all curtailment is on a voluntary basis to which most California operators adhere. Present production of the field is 3,140 bbl. per day and cumulative production of the field to August 31, 1941, is 1,892,133 bbl.

Spacing program

The field is being developed on 10-acre spacing.

OWNERS OF PRODUCING WELLS

The discoverer, Barnsdall Oil Co., has drilled and owns all wells completed on the structure to date. The Rancho San Francisco on which production has been developed is owned by the Newhall Land & Farming Co.

GEOLOGY

Method of discovery

Geological reconnaissance and field work supplemented by seismograph.

General geology of the field

The structure is anticlinal and only the northwest plunge has been developed up to the present time. Several small cross faults are present. Porosities and permeabilities of oil sands increase with penetration and depth and to date the third Modelo zone is the most favorable from a formation and productive standpoint.

The Modelo is marine in character and contains alternate shale and massive sand bodies. There are about 4,500 ft. of Modelo exposed in the general area. The lower Modelo has not been explored but is expected to contain oil and gas in commercial quantity.

FUTURE DRILLING

Proved area

Development has proved up about 400 acres but limits of production have not been determined by dry holes.

Undrilled locations in proved area

It has been the policy of Barnsdall to develop the field conservatively by drilling a few holes along the trend of the structure and then offsets in the most desirable directions. All locations selected and drilled resulted in production.

DRILLING CONDITIONS

Type of equipment used

All drilling is by the rotary method with gas-engine rigs using 136-ft. derricks. Two 350-hp. engines are connected to the draw works and two 225-hp. engines drive the 7¼ by 14-in. power pumps connected in parallel.

Water in the field

Water is available in the field for drilling mud and on treatment can be used in steam boilers. However, for reasons of economy gas-engine power is used rather than steam.

Casing program

It is the present practice to cement 13¾-in. surface casing at 300 ft. followed by a 7-in. water string over the producing horizon and a 5½-in. perforated liner. Production is flowed through 2½ in. tubing.

Drilling mud

Drilling mud of 75 lb. and 29 sec. viscosity is used. Ten to 15 sacks of mud are added each tower to keep the water loss down to 30 cc.

Type of bits used

Rock bits are used in drilling operations in this field. Approximately 65 rock bits are required to drill a well to a depth of 7,200 ft.

Drilling time

Approximately 45 days are required for drilling from spud to completion.

DRILLING PROBLEMS

Difficulty has been encountered with sticking drill pipe when pulling out of the hole. This trouble has been minimized by keeping the mud-water loss below 30 cc., by running stabilizers above the bit, and using bumper subs in the drilling string after trouble develops.

PRODUCING PRACTICES

All wells flow naturally to a central gathering plant consisting

of high and low-pressure separators, oil and gas meters and tank storage. Production is controlled at the well head. All production is clean so there are no dehydration or oil cleaning facilities.

PIPE-LINE OUTLET

Oil is pumped from the field storage about 4 miles by pipe line to two 37,500-bbl. tanks located on one of the major pipe-line systems from whence it is shipped via pipe line to Los Angeles and vicinity.

GAS-OIL RATIO

While the gas-oil ratios vary somewhat in the three productive zones they average approximately 950 cu. ft. of gas per barrel of oil.

SAMPLE FROM 2 RANCHO SAN FRANCISCO OF BARNSDALL OIL CO.

Specific gravity	0.862	Saybolt Universal viscosity at	
Sulfur, per cent	0.52	77° sec.	55
A.P.I. gravity, degrees	32.7	Saybolt Universal viscosity at	
Color	brownish black	100° sec.	48

Hempel Distillation

GASOLINE		Recovery	97
Gravity, °F.	56.9	Residue	1.0
I.B.P.	96	Doctor test	negative
10 per cent	170	Color	23
20 per cent	200	Octane No. (L-3 method)	60
30 per cent	223	BOTTOMS	
40 per cent	244	Per cent	64.5
50 per cent	260	Fire, °F.	270
60 per cent	284	Cold test, max., °F.	70
70 per cent	304	Gravity, degrees	22.9
80 per cent	329	Viscosity at 210°, sec.	48
90 per cent	359	Cold test, min., °F.	30
End point	400	Flash, °F.	235

SAMPLE FROM 4 RANCHO SAN FRANCISCO OF BARNSDALL OIL CO.

Gravity at 60°, A.P.I., deg.	36.6	Paraffin, per cent	2.03
Asphalt at 80°, per cent	20.76	Sulfur, per cent	0.38

Distillation

Tops, net at 500°F., 54.1° A.P.I., per cent	47
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COMMERCIAL PRODUCTS

U. S. Motor gasoline per cent	39.40
A.P.I. gravity	
Gasoline, 437 end point	57.1°
Kerosene stock	36.8°
Gas oil	34.2°
Residuum	18.5°
	Per cent
	39.40
	7.60
	11.48
	41.52

