

UNITED STATES DEPARTMENT OF LABOR

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BUREAU OF LABOR STATISTICS

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Wages in Petroleum Drilling and Production in the Southwest

April 1944



Bulletin No. 810

[Reprinted from the MONTHLY LABOR REVIEW, February 1945]

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., February 13, 1945.

THE SECRETARY OF LABOR:

I have the honor to transmit herewith a report on wages in petroleum drilling and production in the Southwest, April 1944. This report was prepared in the Bureau's Division of Wage Analysis by Walter T. Watson, Regional Wage Analyst for the Dallas Region, with the assistance of Gladys D. Meisel.

A. F. HINRICHS, *Acting Commissioner.*

HON. FRANCES PERKINS,
Secretary of Labor.



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United States Bureau of Labor Statistics

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**Wages in Petroleum Drilling and Production in the
Southwest, April 1944**

Summary

In April 1944, straight-time average hourly earnings for 22,907 male workers, employed by 355 companies engaged in petroleum production and the drilling of oil and gas wells, in Oklahoma, Texas, and Louisiana, reached \$1.07. This average is higher by 5 cents an hour than the \$1.02 average recorded in 1943 and probably exceeds all previous average hourly earnings established in the petroleum industry in the Southwest.

Bureau of Labor Statistics studies in 1943 and 1944 reveal that 67 percent of the workers covered in 1944 were employed in jobs paying \$1.00 or more per hour, as compared with 58 percent in 1943. In these 2 years 10 and 8 percent, respectively, of the men were in jobs paying \$1.25 or more per hour.

Comparison of hourly earnings, by States, for 1944 shows that petroleum workers averaged \$1.09 in Louisiana, \$1.07 in Texas, and \$1.04 in Oklahoma. The highest average hourly wage (\$1.12) was paid in the Louisiana Gulf Coast area and the lowest (\$1.03) in north Texas. The wages paid by large companies were consistently higher than those paid by the small ones. Companies operating under bargaining agreements with unions—generally the larger companies—paid higher wages than those without such agreements.

Among the 15 individual key occupations studied, that of rotary driller showed the highest average wage, \$1.57 per hour. Cable drillers averaged only \$1.20, ranking below class A maintenance men (\$1.21), and equaled the rate for gang pushers (\$1.20). Other averages of \$1.00 or more were received by derrickmen (\$1.09), rotary firemen (\$1.07), tool dressers (\$1.03), rotary floormen (\$1.02), pumpers and switchers (\$1.01), and truck drivers, 2½ tons and over (\$1.00). Watchmen (70 cents) earned the lowest wages.

Scope and Method of Study

This study of wages in petroleum production and drilling in 1944, paralleling a similar study by the Bureau of Labor Statistics in 1943,¹ was undertaken to provide data for use by the War Labor Board in the administration of the wage-stabilization program. The material has

¹ See Earnings in Oil-Well Drilling and Crude-Petroleum Production in the Southwest, April 1943, by Joe E. Brown in Monthly Labor Review, February 1944. For comparison with the data here presented, some of the 1943 tabulations have been modified slightly.

also been of use to other administrative agencies and to the industry itself. The present study not only provides the latest available information on wage rates in the industry in the Southwest, but also permits the measurement of wage trends in that region during a critical war year.

In scope and method the 1943 and 1944 studies were closely similar. The earlier study was based on a sample of 401 companies employing 27,310 workers, of whom 21,805 were included in the key jobs selected for study.² The 1944 study covered 355 companies employing 27,901 workers, of whom 22,907 were in the selected key jobs. Both samples are believed to be representative of the industry in the Southwest region for the years in which they were selected. Analysis of the samples for the respective years reveals a slight gain in the proportion of medium-sized companies at the expense of small ones, and a slight increase in the importance of the Texas industry at the expense of that in Louisiana.

As is characteristic of the oil industry, many of the companies were engaged in multiple operations.³ The number of such operations studied was 730 in 1943 and 601 in 1944. Of the total operations in 1944, 443 were in Texas, 104 in Oklahoma, and 54 in Louisiana.

The wage data used in this report were taken directly from payroll records by trained agents of the Bureau. Care was taken to insure comparability of occupation from company to company through the use of standard job descriptions, each employee being classified according to the duties he performed rather than by his occupational title.

In the current survey average hourly earnings, exclusive of premium overtime payments and shift differentials, were obtained for 15 key occupations. Five classifications (carpenters, class A and class B, electricians, class A and class B, and machinists, class A), comprising half of 1 percent of the total force in 1943, were excluded from the 1944 survey. One occupation (maintenance men) was divided into skill classes A and B.

Several criteria were used in the selection of these occupations: (1) Definiteness and clarity of the occupational classification; (2) numerical importance; (3) critical importance to the war effort; (4) importance from the standpoint of collective bargaining; and (5) representativeness of skill and range of rates. It is apparent that all these requirements are not equally satisfied by the occupations selected. Considered as a whole, however, they are believed to present an adequate picture of the wage structure of the industry. The numbers of workers studied are shown in table 1.

² These data have been revised slightly, to increase their comparability with the 1944 information.

³ An "operation" is considered to include all the drilling and/or production activities of a company which are within any one of the areas designated for purposes of this study. For example, there are six such areas in Texas, and this would be the maximum number of operations which any one company could have in this State. The area subdivisions used are those accepted by the industry itself. They are determined primarily by geological factors and consequent similarity in production problems encountered within the area; they do not necessarily represent areas characterized by different labor-market conditions.

TABLE 1.—Male Workers in Selected Occupations in Oil-Well Drilling and Crude-Petroleum Production in the Southwest, by State, April 1943 and April 1944

Occupation	Southwest, total		Texas		Louisiana		Oklahoma	
	1943	1944	1943	1944	1943	1944	1943	1944
All selected occupations.....	21,805	22,907	14,262	15,384	2,456	2,197	5,087	5,326
Derrickmen.....	1,012	1,651	683	1,136	172	234	157	281
Drillers, cable.....	198	213	144	141	4	—	50	72
Drillers, rotary.....	1,363	1,895	943	1,323	195	245	215	327
Drillers' helpers, rotary, not otherwise classified.....	1,539	949	1,277	736	93	42	169	171
Firemen, rotary.....	785	930	551	666	151	163	83	101
Floormen, rotary.....	1,836	3,287	1,186	2,304	372	540	278	443
Gang pushers.....	947	851	620	579	91	83	236	189
Maintenance men (class A and class B).....	167	287	77	166	44	15	46	106
Pumpers and switchers.....	7,945	7,669	5,151	5,021	715	444	2,079	2,204
Roustabouts.....	5,271	4,427	3,104	2,821	530	359	1,637	1,247
Tool dressers.....	(²)	172	(²)	113	(²)	—	(²)	59
Truck drivers, under 2½ tons.....	284	339	183	222	54	52	47	65
Truck drivers, 2½ tons and over.....	196	157	122	101	7	13	67	43
Watchmen.....	148	80	123	55	14	7	11	18

¹ The figures for all selected occupations for 1943 include carpenters, classes A and B, electricians, classes A and B, and machinists, class A. These were distributed as follows: Texas, 98; Louisiana, 14; Oklahoma, 12; total Southwest, 124.

² Data not available.

Characteristics of the Industry

Production in the Southwest.—Approximately 37 percent ⁴ of the estimated total world production of oil in 1943 was pumped from wells in the three southwestern States covered in the present study. Sixty-seven percent of the world output came from the United States alone and, within this country, Texas, Oklahoma, and Louisiana contributed 835,468,000 barrels or 55 percent of the national yield.

Texas, in first place, supplied 589,129,000 barrels or 39 percent of the United States output. California (284,286,000 barrels), Louisiana (125,780,000 barrels), and Oklahoma (120,559,000 barrels) followed with percentages of 19, 8, and 8. Thanks largely to a substantial gain in the output of Texas wells, national production surpassed all previous records in 1943. It is of interest to note that increased output of proved fields rather than gains from new discoveries account, in the main, for the record set.

Drilling operations in the United States, unlike production, declined both in 1942 and in 1943. The explanation of the decrease apparently lies in a complex set of conditions which include progressive exhaustion of the opportunities for exploration, rising costs, scarcity of materials, and a fixed price for the product. The number of wells drilled fell 39 percent in the earlier year, less than 2 percent in the latter. In the 3-State area the 1943 drop was greater—7 percent. While this total decline in the Southwestern States was small, it applied primarily to drilling in proved fields. The number of "wildcat" or exploratory wells drilled during the year increased 40 percent in Oklahoma, 17 percent in Texas, and 10 percent in Louisiana. Nearly half (48 percent) of all such wells drilled in the United States during 1943 were in

⁴ Production and drilling statistics used in this discussion are those reported in the Annual Number of the Oil and Gas Journal, January 27, 1944.

these States. The decline in drilling in proved fields was due in part to the "spacing" regulations of the Petroleum Administration for War, prompted by wartime shortages in steel and other materials.

Both in production and in drilling the Southwest registered substantial gains between early 1943 and early 1944, the periods covered in the Bureau's wage studies.

Accommodation to labor shortage.—The requirements of war have made it necessary to protect, as far as possible, the labor supply vital to increased production. Relatively high wages, active recruitment, and the policy of local draft boards have generally prevented manpower crises in Texas, Oklahoma, and Louisiana. For example, no instance of the abandonment of pumping operations because of inability to obtain workers was reported by the Bureau's representatives during their more than 350 visits to oil companies.

Labor shortages have, however, brought about numerous changes in policy and in scope or method of operation. Perhaps the major labor adjustment between April 1943 and 1944 was an increase in the number of hours in the average workweek. There was also evidence of a considerable amount of upgrading of labor. Other accommodations to labor shortages repeatedly mentioned in field reports were (1) idleness of rotary rigs, especially in west Texas and the Texas Panhandle, (2) operation of two tours (shifts), and sometimes only one, instead of the customary three, by entire drilling crews, (3) the staying over of one or two men of a 5-man crew for a double shift, (4) trend toward "mileage allowances" for employees living at a distance from their work, (5) reduction in size of drilling crews, particularly the elimination of one of the floormen and the distribution of his duties among the remaining personnel, (6) deterioration in the maintenance of leases by roustabouts, i. e., less cleaning up and repair, (7) increase in the number of part-time workers at all levels and in all classifications, and (8) extension of the range of operations by pumpers and switchers, i. e., caring for additional wells by moving from lease to lease.

Oil-Field Workers

The oil-field workers in the Southwest are typically rural, male, energetic, migratory, and married. In general they spring from the soil and return to it in their declining years. Obviously the above portrait generalizes broadly and requires qualification for specific place and occupation.

Drillers.—Perhaps the most picturesque figure in the petroleum industry is the driller. On duty 7 days a week, responsible for the safety of his crew, charged with the care of the costly equipment of which the rig is composed, threatened with emergencies created by high gas pressures, blow-outs, fire, broken cables, overhanging weights, and unexpected geological formations, he labors under continuous strain and danger.⁵ A moment of fatigue or carelessness may result in

⁵ Drilling is the most hazardous branch of the petroleum industry, according to statistics reported by both the U. S. Bureau of Mines and the National Safety Council. Bureau of Mines figures on 108 drilling companies in 1942 show an accident-frequency rate of 52.74 per million man-hours. The rate for 530 production companies was 13.27. Both rates were far above those of the 12 other branches of the oil industry listed. (National Petroleum News, December 29, 1943, p. 9.)

National Safety Council figures, based on reports from 180 companies, indicate a similar degree of danger in drilling occupations. Although the petroleum industry as a whole showed an accident-frequency rate of 11.72 in 1942, the rate in producing departments was 15.28, and in drilling departments 46.34. Not only were accidents more frequent among drilling departments, but they were also more severe. (National Petroleum News, December 8, 1943, pp. 42, 43.)

his breaking a leg or smashing an arm. By "dropping" a "string" of pipe he may cost his company from \$5,000 to \$25,000. Typically, he has served an "apprenticeship" as a "roughneck,"⁶ slipping and shuffling about ankle-deep in mud over innumerable derrick floors. He knows intimately every operation performed in the field and is somewhat older than his associates. One large Texas company, for example, reports the average age for its crew members as follows: Drillers 38, firemen 36, derrickmen 32, floormen 32. Another company, reporting only its Texas Gulf Coast workers, gives corresponding averages of 44, 41, 36, and 34.

It is sometimes asserted that "drillers don't quit—they're fired." Not infrequently, in fact, there are successive discharges for carelessness, injury, drunkenness, or age. Many a "broken-down driller" finishes his career with lowered status and diminished earnings—as pumper, machinist in a shop or plant producing oil-field equipment, or farmer. In rare instances, however, the driller may end his days as lease owner, contractor, or producing executive.⁷

Derrickmen.—The derrickman works on a small platform suspended above the well. He must be able on occasion to cover the 100 feet of vertical distance to the top of his work station with speed and agility. Youth and skill are clearly demanded. In the entire industry, production and drilling alike, only drillers, gang pushers, and some maintenance men (employed chiefly by larger companies) receive higher average hourly earnings than the derrickmen.

Rotary firemen.—The rotary fireman, though commonly only 4 or 5 years older than the derrickman, may outlast him by a dozen years. However, it should be noted that firemen are gradually being replaced by motormen and enginemen as steam power gives way to electricity, Diesel motors, gasoline, and other more modern forms of energy. This change is especially apparent in areas where there is a scarcity of water or where water requires much costly treatment.

Production crew.—The production crew, organized on a lower skill level than the drilling crew, normally includes pumpers and/or switchers and roustabouts. The switcher operates in fields where wells flow under natural gas pressure and do not require pumps. The pumper often lives on the property ("lease") being worked for oil, with house and utilities furnished. Sometimes he is given space for a garden, chickens, and cows. Though paid for a basic week ranging as a rule from 40 to 48 hours, the pumper may labor many more or many fewer hours. One firm reported 84 hours as the workweek of its pumpers for a given period. If equipment is in satisfactory condition, however, relatively little actual work may be required. As a consequence, numbers of pumpers have small farms which they maintain along with their duties as employees. Not infrequently men in the occupation hire out to several companies operating in the same territory, and spend part of the day with each company. Very often a farmer living in the vicinity of a producing field will accept part-time employment and tend wells on one or more leases.

Roustabouts, who perform those duties of lease and well maintenance requiring relatively little skill, are quite generally referred to

⁶ Rotary fireman, rotary floorman, or derrickman.

⁷ An item from the "Personal Notes" column of an oil journal (names and places altered) reads as follows: "A. D. Smith recently promoted to drilling superintendent for the X Oil Corporation in the Texas Gulf Coast area at Houston started as a roughneck in Spindletop in 1917, joined the Y Petroleum (now X Oil) as a driller at Smackover in 1927."

as the "common labor" of the oil industry. The duties of roustabouts, however, are usually more responsible than those of common laborers and involve work which is consistently heavy and frequently dangerous. Wages of these men, therefore, are higher as a rule than those paid to ordinary common labor.

Roustabouts are not only employed in oil-production activities; on occasion they are also engaged in pipe-lining, and in drilling operations that are getting under way or that are approaching completion, in the preparation of slush pits, laying of water and fuel lines, moving equipment on and off the drilling site, and like tasks. Such work is discontinuous. When a well clean-up or servicing job is finished, or when a drilling site has been prepared, activity ceases. As a result large companies tend to transfer roustabouts from one lease or area to another, thus keeping them continuously on the pay roll. Smaller establishments, on the other hand, report the employment of permanent roustabouts in limited numbers only. Local men, temporarily hired and less skilled than in pre-war years, often constitute the majority of the workers.

Substantial age differences distinguish the "production end of the business" and the "drilling end of the business," according to the Subcommittee on Manpower, Petroleum Administration for War, District III. In May 1944 the age distribution of 15,057 production workers in the four States of Arkansas, Louisiana, New Mexico, and Texas was as follows: 2 percent under 26 years, 7 percent between 26 and 30 years, 26 percent over 30 but under 38 years, and 65 percent over 38. The corresponding percentages for 5,559 drilling workers were 7, 13, 35, and 45. Available Southwestern records indicate that, though the number of boys and old men hired during wartime has been greater than usual, the employment trend away from the intermediate age groups, both in drilling and production, has been less marked than in industries less essential to the war economy.

Unionization of Workers

Of the 355 representative companies surveyed in the Bureau's study, only 14 reported collective-bargaining agreements with unions. Seven of these unions were affiliated with the Oil Workers' International Union, C. I. O., and two with the International Union of Operating Engineers, A. F. of L. Five were independent unions. The 14 unionized companies, although constituting only 4 percent of the total number of companies, conducted 11 percent of the total number of operations and employed 33 percent of the workers. This indicates that union organization is more frequently found in large than in small companies. Eleven percent of all operations in Oklahoma, 10 percent in Texas, and 19 percent in Louisiana were handled by firms with union agreements.

Factors Affecting Total Earnings

The average workweek among the operations studied was 49.2 hours. The most usual week was 48 hours, reported by 37 percent of the operations. A 56-hour week was reported by 33 percent, and a

40-hour week by 20 percent. Hours in the remaining instances ranged from 35 to 84.

Almost 99 percent of the establishments in the survey paid time and a half for hours in excess of 40 per week, and over 20 percent also paid this premium rate for hours in excess of 8 in any 1 day. About 80 percent of the establishments paid double time for work on the seventh consecutive day, while a few reported time and a half on the sixth or seventh consecutive day. Forty-five percent paid time and a half for work on 6 specified holidays; and about 2 percent paid different premium rates on 5 or 6 holidays.

Paid vacations were granted in 57 percent of the companies. In general, the length of the vacation varied from 1 to 4 weeks, depending in many cases on the period of service with the company. Twenty percent gave 2 weeks after 1 year of service; 17 percent gave 1 week after 1 year and 2 weeks after 2 years. Less than 10 percent paid for vacations of more than 2 weeks, and in most of these the long vacations were contingent upon extended service. An example is that of one company which allowed 4 weeks after 20 years, and 4 weeks for each 5 years thereafter.

Half of the operations in this study were conducted on a 3-shift basis, 3 percent had two shifts, and 47 percent had a daylight shift only. No differential was paid by any company for work on a late shift. Shift rotation was reported in 10 percent of the operations.

Wages were paid exclusively on a time-rate system. No incentive system was reported on any operation.

Average Hourly Earnings

The 22,907 employees covered by this survey earned a straight-time average of \$1.07 per hour in April 1944. Louisiana reported an average of \$1.09, Texas \$1.07, and Oklahoma \$1.04. While these averages were obtained from the wages paid to workers in 15 selected occupations, they are believed to be representative of the straight-time earnings of all the workers in the industry. These selected occupations were well distributed across the wage structure, and they accounted for more than four-fifths of the total employment at the time of the 1944 survey.

The average for all workers in the 3-State region as a whole was 5 cents higher in April 1944 than in April 1943. The average in Louisiana rose by 7 cents, that in Oklahoma by 5 cents, and that in Texas by 4 cents in the 1-year period.

When the 9 producing-area subdivisions are compared, the Louisiana Gulf Coast ranked highest and north Texas lowest. The four areas with lowest averages were north Texas \$1.03, Texas Panhandle \$1.04, Oklahoma \$1.04, and north Louisiana \$1.05. Since these areas are, in general, characterized by shallow drilling, low yield per well, and high degree of stripper activity, it would appear that the marginal nature of operations may be partly responsible for the somewhat lower wage rates. At the same time this type of operation generally requires a less-skilled type of worker, particularly on drilling crews, and this factor also influences the level of wage rates.

Areas in which high gas pressures and deep drilling are factors, on the other hand, demand the most-experienced and most highly skilled

workers in the industry. Danger both to personnel and to expensive equipment is great, and rates of pay reflect these hazards. The Gulf Coast areas of Texas and Louisiana, where such operating conditions prevail, had the highest average hourly earnings (\$1.10 and \$1.12, respectively) in 1944, as they had in 1943 (\$1.06 and \$1.05).

Although the average hourly earnings in an area are determined to some extent by the character of the geologic structure and hence by operating conditions, they are also influenced by other factors such as dominance of large (generally higher-rate) companies, relative importance of drilling and production activities, degree of unionization, etc.

The change in averages in the period between the two surveys is noteworthy. The fact that increases occurred in each of the areas seems to imply a fairly widespread increase in rates of pay throughout the industry. Information on general wage-rate changes was collected as part of the survey, and although no detailed analysis of the influence of these changes on the area averages has been made, a preliminary check of the data permits the following statements: General wage-rate increases (those affecting 10 percent or more of a company's employecs, or those affecting key occupations) were reported most often among drilling contractors; these companies accounted for 53 percent of the general increases. Approximately 23 percent of all small establishments, 48 percent of all medium-size, and 22 percent of all large companies granted wage-rate increases of the type described. Of the 355 companies studied, 28 percent increased their rates.

Another factor contributing to the increase in the averages shown for the two periods is the greatly accelerated drilling activity that took place throughout the region during the year. Drilling operations are the high-rate jobs of the industry, and any disproportionate increase in the number of such workers would be expected to influence the averages accordingly. Still a third factor is the reclassification of workers to higher-skill jobs at higher rates of pay.

These three factors have contributed in varying degrees to the increases in the average hourly earnings shown in the accompanying tabulation. Limitations of the data collected preclude any precise evaluation of each factor separately, and no effort has been made to gauge their relative importance.

	Average hourly earnings ¹	
	April 1943	April 1944
Southwest.....	\$1.02	\$1.07
Texas.....	1.03	1.07
Texas Panhandle.....	1.01	1.04
West Texas.....	1.03	1.07
North Texas.....	.95	1.03
East Central Texas.....	1.04	1.08
Southwest Texas.....	1.04	1.08
Texas Gulf Coast.....	1.06	1.10
Louisiana.....	1.02	1.09
North Louisiana.....	.99	1.05
Louisiana Gulf Coast.....	1.05	1.12
Oklahoma.....	.99	1.04

¹ All data are exclusive of premium payments for overtime and night work. In the preparation of these averages constant occupational weights were used, based on the distribution of workers by occupation in the Southwest as a whole in the respective years.

OCCUPATIONAL DIFFERENCES IN EARNINGS

Straight-time average hourly earnings for individual occupations in oil-well drilling and crude-petroleum production in the Southwest in April 1944 ranged from 70 cents for watchmen to \$1.57 for rotary drillers (table 2).

TABLE 2.—Average Hourly Earnings¹ of Male Workers in Selected Occupations in Oil-Well Drilling and Crude-Petroleum Production in the Southwest, April 1944

Occupation	Number of operations in which occupation was found	Workers		Average hourly earnings	Number of workers in operations in which occupational hourly earnings averaged—				
		Number	Per cent		Under \$0.80	\$0.80 and under \$0.85	\$0.85 and under \$0.90	\$0.90 and under \$0.95	\$0.95 and under \$1.00
All selected occupations:									
Number of workers.....	22,907			\$1.07	1,477	461	514	1,255	3,876
Percent.....	100.0			1.07	6.4	2.0	2.2	5.5	16.9
Derrickmen.....	166	1,651	7.2	1.09	1	1	3	10	73
Drillers, cable.....	51	213	.9	1.20				3	
Drillers, rotary.....	209	1,895	8.3	1.57					
Drillers' helpers, rotary, not other-wise classified.....	48	949	4.1	.99	3	12	6	83	398
Firemen, rotary.....	103	930	4.1	1.07		1	3	6	45
Floormen, rotary.....	162	3,287	14.4	1.02	9	1	18	110	1,568
Gang pushers.....	180	851	3.7	1.20	12	16	5	28	16
Maintenance men, class A.....	63	139	.6	1.21	1				4
Maintenance men, class B.....	26	148	.6	.98	2		1	8	59
Pumpers and switchers.....	482	7,669	33.5	1.01	715	191	248	587	1,074
Roustabouts.....	343	4,427	19.3	.97	610	203	186	312	579
Tool dressers.....	43	172	.8	1.03	3	9	12	19	13
Truck drivers, under 2½ tons.....	117	339	1.5	.96	55	10	22	53	25
Truck drivers, 2½ tons and over.....	71	157	.7	1.00	22	12	7	17	22
Watchmen.....	43	80	.3	.70	44	1	3	19	

Occupation	Number of workers in operations in which occupational hourly earnings averaged—								
	\$1.00 and under \$1.05	\$1.05 and under \$1.10	\$1.10 and under \$1.15	\$1.15 and under \$1.20	\$1.20 and under \$1.25	\$1.25 and under \$1.30	\$1.30 and under \$1.35	\$1.35 and under \$1.40	\$1.40 and over
All selected occupations:									
Number of workers.....	3,303	3,630	4,025	1,640	424	165	26	172	1,939
Percent.....	14.4	15.9	17.6	7.2	1.9	.7	.1	.7	8.5
Derrickmen.....	261	176	848	96	137	45			
Drillers, cable.....	22	6	41	33	36	46	10	4	12
Drillers, rotary.....			3		1	9		19	1,863
Drillers' helpers, rotary, not other-wise classified.....	410	24	13						
Firemen, rotary.....	131	428	134	139	37	6			
Floormen, rotary.....	787	171	304	319					
Gang pushers.....	48	66	74	241	118	32	4	145	46
Maintenance men, class A.....	5	14	16	19	44	17	3	1	15
Maintenance men, class B.....	56	11	6	1					
Pumpers and switchers.....	327	2,187	1,595	700	34	4	4	2	1
Roustabouts.....	1,150	415	953	19					
Tool dressers.....	74	3	9	18	3	3	4		2
Truck drivers, under 2½ tons.....	26	97	11	39			1		
Truck drivers, 2½ tons and over.....	3	22	18	16	14	3		1	
Watchmen.....	3	10							

¹ Exclusive of premium payments for overtime and night work.

Only one of all the fifteen occupations studied, that of watchman, reported average hourly earnings under 80 cents per hour for any of the 9 petroleum area subdivisions; these workers represented but

three-tenths of 1 percent of the total number of workers scheduled. The next lowest occupational average for the Southwest was that of truck driver (under 2½ tons) at 96 cents per hour. Three other averages fell within the 95 cents to \$1.00 range, namely rotary drillers' helpers (not otherwise classified), class B maintenance men, and roustabouts. These four occupations in the classification \$0.95 and under \$1.00 included 25.5 percent of all workers tabulated. Pumpers and switchers, largest employee block (33.5 percent of all workers), earned \$1.01 per hour. Roustabouts, next operation in size (19.3 percent), averaged 97 cents. Rotary drillers, comprising 8.3 percent of all workers studied, were the only workers receiving more than \$1.25 per hour. The second highest occupational average, for class A maintenance men, was \$1.21 per hour.

The distribution of all employees by wage-rate interval (based on occupational averages within each occupation) reveals that 6.4 percent were in jobs averaging less than 80 cents per hour, 26.6 percent in jobs paying 80 cents to \$1.00, and 67 percent in jobs paying \$1.00 or more. Ten percent were in occupations averaging \$1.25 or more. Comparison with similar figures for 1943 shows an increase in the percentage of workers in the higher rate ranges.

	Percentage distribution	
	1944	1943
Under \$0.80.....	6.4	11.9
\$0.80 and under \$1.00.....	26.6	30.7
\$1.00 and under \$1.25.....	57.0	49.8
\$1.25 and over.....	10.0	7.6
Total.....	100.0	100.0

It should be noted that this shift in the distribution of workers to the upper ranges does not reflect increased wage rates alone; changes in the volume of employment at jobs within the higher rates will as readily produce such variations in the distribution. The increased drilling activity known to have taken place in 1944 and the consequent percentage increase in number of workers in the higher-paid drilling occupations were undoubtedly factors of significance in the present instance. Detailed comparison of the distribution of average hourly earnings, shown in table 2, with a similar analysis for 1943 shows that the shift to higher earnings is primarily accounted for by changes in the groups receiving \$1.05 and under \$1.10, \$1.10 and under \$1.15, and \$1.40 and over. These are the earnings intervals in which a majority of the drillers, derrickmen, and firemen fall and these jobs in turn are the occupations in which increased employment has occurred.

Although the averages for individual occupations varied widely from one operation to another, a large proportion of the workers in several of the jobs were employed in operations paying very similar rates. Thus, 94 percent of all rotary drillers' helpers (not otherwise classified) were employed in operations paying 90 cents to \$1.05 for this work and 78 percent of all derrickmen and 75 percent of all rotary firemen were in the \$1.00 to \$1.15 range. The averages among different operations for gang pushers, pumpers and switchers, and

roustabouts, on the other hand, were characterized by a greater spread and a greater unevenness in distribution of workers. These occupations are the least standardized in job content, show the greatest variability in duties from company to company, and present certain other scheduling and tabulating difficulties which may be reflected in the averages. The workers in these occupations are frequently paid on a monthly or weekly salary basis for certain specified duties, and a detailed record of hours worked may not be kept. Pumpers, for instance, as elsewhere stated, are often on call for 24 hours per day, balancing days of long hours with others on which few or no hours are worked, as their duties require. In such cases, estimated "normal" hours must be used to arrive at average hourly earnings. The occupations of pumper, switcher, gang pusher, and roustabout are all predominantly associated with maintenance and production rather than drilling activities. The workers in these occupations are less mobile than the typical drilling-crew worker. They are not often required to move from remote location to location but are commonly drawn from local labor markets. Their rates of pay consequently reflect to some degree the differences in such market conditions.

AREA DIFFERENCES IN OCCUPATIONAL EARNINGS

Average hourly earnings for the occupations studied show relatively small differences from one petroleum area to another, as compared with those found within each area (table 3).

TABLE 3.—Average Hourly Earnings¹ of Male Workers in Selected Occupations in Petroleum Drilling and Production in the Southwest, by Area, April 1944

Occupation	Texas									
	Entire State				Texas Pan-handle		West Texas		North Texas	
	Number of workers	General average	Lowest operation average	Highest operation average	Number of workers	General average	Number of workers	General average	Number of workers	General average
Derrickmen.....	1,136	\$1.10	\$0.72	\$1.27	39	\$1.01	381	\$1.10	111	\$1.06
Drillers, cable.....	141	1.23	1.00	1.77	43	1.21	57	1.23	27	1.26
Drillers, rotary.....	1,323	1.57	1.25	1.87	45	1.51	427	1.56	180	1.51
Drillers' helpers, rotary, not otherwise classified.....	736	.99	.80	1.09	20	.99	129	.99	279	.99
Firemen, rotary.....	666	1.08	.88	1.27	27	.99	150	1.08	41	1.06
Floormen, rotary.....	2,304	1.02	.75	1.18	83	.97	773	1.01	150	1.00
Gang pushers.....	579	1.20	.61	1.77	50	1.17	92	1.19	85	1.17
Maintenance men, class A.....	85	1.24	.63	1.57	3	1.12	21	1.16	7	1.07
Maintenance men, class B.....	81	.99	.70	1.16	10	.96	8	1.05	5	.95
Pumpers and switchers.....	5,021	1.02	.38	1.44	434	1.01	735	1.03	759	.95
Roustabouts.....	2,821	.97	.30	1.12	242	.98	478	.99	418	.94
Tool dressers.....	113	1.05	.80	1.33	36	1.03	44	1.06	25	.97
Truck drivers, under 2½ tons.....	222	.96	.40	1.31	21	.94	71	.90	31	.99
Truck drivers, 2½ tons and over.....	101	.99	.60	1.35	4	1.01	18	.96	18	.87
Watchmen.....	55	.72	.19	1.08	5	.54	10	.73	7	.45

See footnotes at end of table.

TABLE 3.—Average Hourly Earnings¹ of Male Workers in Selected Occupations in Petroleum Drilling and Production in the Southwest, by Area, April 1944—Con.

Occupation	Texas—Continued						Louisiana			
	East Central Texas		Southwest Texas		Texas Gulf Coast		Entire State			
	Number of workers	General average	Number of workers	General average	Number of workers	General average	Number of workers	General average	Lowest operation average	Highest operation average
Derrickmen.....	56	\$1.13	109	\$1.14	440	\$1.10	234	\$1.13	\$0.80	\$1.26
Drillers, cable.....	9	1.24	(?)	(?)	3	1.25	—	—	—	—
Drillers, rotary.....	97	1.57	123	1.63	451	1.59	245	1.64	1.20	1.87
Drillers' helpers, rotary, not otherwise classified.....	168	.98	48	.97	92	1.02	42	1.02	.75	1.12
Firemen, rotary.....	46	1.10	74	1.12	328	1.07	163	1.09	.80	1.20
Floormen, rotary.....	116	1.05	246	1.04	936	1.02	540	1.04	.80	1.18
Gang pushers.....	130	1.20	70	1.19	152	1.24	83	1.24	.60	1.87
Maintenance men, class A.....	22	1.18	4	1.18	28	1.40	12	1.17	.96	1.24
Maintenance men, class B.....	4	.91	—	—	54	.99	(?)	(?)	(?)	(?)
Pumpers and switchers.....	1,435	1.02	501	1.01	1,157	1.06	444	1.03	.34	1.37
Roustabouts.....	610	1.00	316	.94	757	.97	359	.99	.50	1.12
Tool dressers.....	6	1.00	—	—	(?)	(?)	—	—	—	—
Truck drivers, under 2½ tons.....	34	.99	27	1.03	38	.96	52	.97	.50	1.09
Truck drivers, 2½ tons and over.....	13	1.03	3	1.23	45	1.04	13	1.07	.62	1.24
Watchmen.....	10	.96	(?)	(?)	21	.72	7	.63	.55	.90

Occupation	Louisiana—Continued				Oklahoma: Entire State			
	North Louisiana		Louisiana Gulf Coast		Number of workers	General average	Lowest operation average	Highest operation average
	Number of workers	General average	Number of workers	General average				
Derrickmen.....	81	\$1.08	153	\$1.15	281	\$1.04	\$0.95	\$1.19
Drillers, cable.....	—	—	—	—	72	1.15	.91	1.35
Drillers, rotary.....	87	1.56	158	1.69	327	1.53	1.12	1.77
Drillers' helpers, rotary, not otherwise classified.....	26	.99	16	1.05	171	.98	.90	1.00
Firemen, rotary.....	62	1.04	101	1.13	101	1.03	.95	1.15
Floormen, rotary.....	179	.98	361	1.07	443	1.00	.95	1.12
Gang pushers.....	36	1.15	47	1.32	189	1.15	.83	2.30
Maintenance men, class A.....	6	1.14	6	1.20	42	1.16	.99	1.35
Maintenance men, class B.....	(?)	(?)	(?)	(?)	64	.96	.94	1.11
Pumpers and switchers.....	158	1.00	286	1.05	2,204	1.00	.43	1.21
Roustabouts.....	112	.97	247	1.00	1,247	.95	.50	1.16
Tool dressers.....	—	—	—	—	59	.98	.79	1.12
Truck drivers, under 2½ tons.....	14	.82	38	1.03	65	.94	.55	1.12
Truck drivers, 2½ tons and over.....	(?)	(?)	12	1.06	43	.97	.60	1.16
Watchmen.....	(?)	(?)	6	.58	18	.66	.24	1.04

¹ Exclusive of premium payments for overtime and night work.

² Number of plants and/or workers too small to justify presentation of an average.

As the above table indicates, in 11 of the 15 occupations there was less than 20 cents difference between the highest and the lowest area averages; in 9 occupations the difference was less than 15 cents, and in 4 it was 10 cents or less. In most areas, some occupational averages were higher, others lower, than those for the Southwest as a whole. Only in Oklahoma were the figures consistently lower than those for the 3-State region. In no case did the averages in north Louisiana exceed, or those in the Texas Gulf Coast area fall below,

the corresponding figures for the Southwest region as a whole. The Louisiana Gulf Coast area paid relatively high wages in all but two occupations, and these were numerically unimportant. In view of the small differences among area averages and the lack of consistent patterns of variation, regional differences on a producing-area basis cannot be considered as of great significance in the determination of wage rates in this segment of the petroleum industry.

DIFFERENCES IN EARNINGS AND SIZE OF COMPANY

Two factors of apparent importance in contributing to interplant variations in occupational wage rates are unionization and size of company as measured by number of employees. As shown in table 4, large companies pay the highest rates, small ones the lowest, and the rates of medium-size plants lie between these two. The table also indicates less change from 1943 to 1944 in average hourly earnings in large establishments than in those of the other size categories. Rotary firemen, for instance, earned \$1.02 in small, \$1.04 in medium-size, and \$1.12 in large companies in 1944. The increase over 1943 earnings in the occupation was 6 cents in both small and medium-size companies and 3 cents in the large ones. For rotary drillers' helpers (not otherwise classified) the year's increases were 6 cents, 7 cents, and 1 cent, respectively, for the successive size classes.

TABLE 4.—Average Hourly Earnings¹ of Male Workers in Selected Occupations in Petroleum Drilling and Production, by Size of Company, April 1943 and April 1944

Occupation	Average hourly earnings					
	Small companies (9 to 50 employees)		Medium-size companies (51 to 250 employees)		Large companies (251 or more employees)	
	1943	1944	1943	1944	1943	1944
All selected occupations:						
Number ²	4,709	3,722	4,934	6,480	12,038	12,705
Percent.....	21.7	16.2	22.8	28.3	55.5	55.5
Derrickmen.....	\$0.95	\$1.05	\$1.00	\$1.06	\$1.09	\$1.14
Drillers, cable.....	1.11	1.16	1.21	1.22	1.23	1.26
Drillers, rotary.....	1.43	1.51	1.48	1.52	1.61	1.65
Drillers' helpers, rotary, not otherwise classified.....	.91	.97	.93	1.00	.98	.99
Firemen, rotary.....	.96	1.02	.98	1.04	1.09	1.12
Floormen, rotary.....	.96	.98	.93	.99	1.05	1.06
Gang pushers.....	1.06	1.08	1.12	1.18	1.21	1.22
Maintenance men, class A.....	.96	1.12	1.01	1.14	1.02	1.25
Maintenance men, class B.....	.84	.84	.99	.99	.98	.98
Pumpers and switchers.....	.80	.82	.94	.95	1.07	1.07
Roustabouts.....	.73	.74	.86	.91	1.03	1.04
Tool dressers.....	(³)	1.01	(³)	1.04	(³)	1.06
Truck drivers, under 2½ tons.....	.69	.69	.70	.84	.99	1.05
Truck drivers, 2½ tons and over.....	.88	.83	.99	.95	1.06	1.11
Watchmen.....	.50	.45	.64	.52	.72	.90

¹ Exclusive of premium payments for overtime and night work.

² Numbers reported for 1943 exclude 124 workers in occupations not shown in this table.

³ Data not available.

DIFFERENCES IN EARNINGS AND UNIONIZATION

Companies with union agreements differ from those without such agreements (table 5) in much the same ways as have been indicated for large and small plants. Average hourly earnings are higher, and they

have been more stable in union than in nonunion establishments. For example, average hourly earnings of derrickmen, floormen, and roustabouts in union firms did not change between April 1943 and April 1944, but in nonunion companies increased by several cents an hour. Union averages not only changed less during the year, but they were also higher. This is well illustrated by these same occupations: union derrickmen, \$1.22, nonunion \$1.07; union floormen, \$1.14, nonunion \$0.99; union roustabouts \$1.06, nonunion \$0.89.

TABLE 5.—Average Hourly Earnings¹ of Male Workers in Selected Occupations in Union and Nonunion Petroleum Companies in the Southwest, April 1943 and April 1944

Occupation	Average hourly earning			
	Companies with union agreements		Companies without union agreements	
	1943	1944	1943	1944
All selected occupations:				
Number of workers ²	7,084	7,496	14,597	15,411
Percent.....	32.7	32.7	67.3	67.3
Derrickmen.....	\$1.22	\$1.22	\$0.99	\$1.07
Drillers, cable.....	1.40	1.32	1.13	1.19
Drillers, rotary.....	1.80	1.81	1.47	1.53
Drillers' helpers, rotary, not otherwise classified.....	.71		.93	.99
Firemen, rotary.....	1.17	1.16	.99	1.04
Floormen, rotary.....	1.14	1.14	.95	.99
Gang pushers.....	1.20	1.23	1.14	1.16
Maintenance men, class A.....	.98	1.21	1.02	1.21
Maintenance men, class B.....		1.07		.97
Pumpers and switchers.....	1.08	1.10	.93	.94
Roustabouts.....	1.06	1.06	.86	.89
Tool dressers.....	(?)	1.02	(?)	1.03
Truck drivers, under 2½ tons.....	.98	1.06	.76	.90
Truck drivers, 2½ tons and over.....	1.10	1.15	.98	.93
Watchmen.....	.84	.96	.60	.54

¹ Exclusive of premium payments for overtime and night work.

² Numbers reported for 1943 exclude 124 workers in occupations not shown in this table.

³ Data not available.

The union companies included in this survey are predominantly large companies. The factors of size and unionization are so closely related that evaluation of the influence of either separately is not possible from the tabulations presented.