

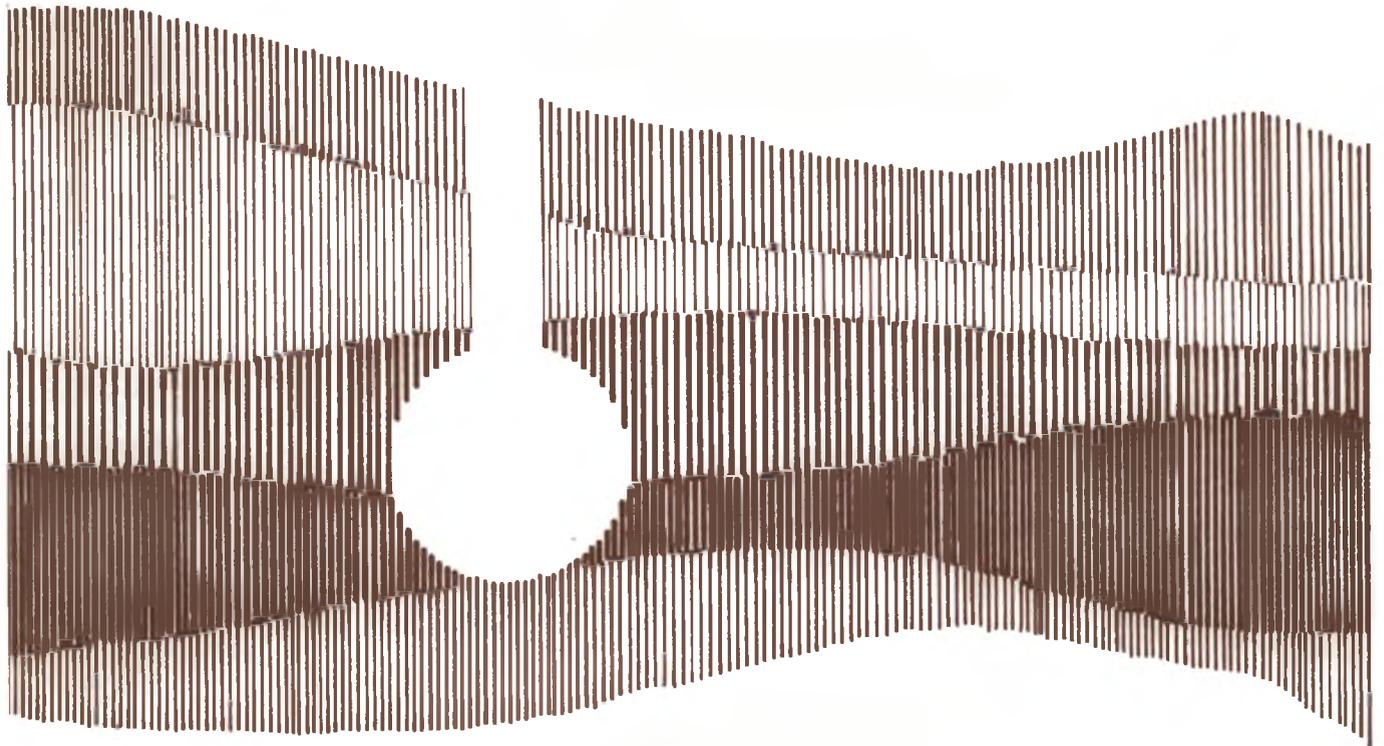
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# Industry Wage Survey: Metal Mining, Summer-Fall 1977



U.S. Department of Labor  
Bureau of Labor Statistics  
1979

Bulletin 2017





# Industry Wage Survey Metal Mining, Summer-Fall 1977



**Part I. Iron Ores**

**Part II. Copper Ores**

**Part III. Lead and Zinc Ores**

**Part IV. Uranium, Radium, and Vanadium Ores**

U.S. Department of Labor  
Ray Marshall, Secretary

Bureau of Labor Statistics  
Janet L. Norwood  
Acting Commissioner  
May 1979

Bulletin 2017

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# Preface

This four-part bulletin summarizes the results of a Bureau of Labor Statistics survey of wages and supplementary benefits in metal mining industries during the summer and fall of 1977. Information is provided separately for: Iron ores (part I); copper ores (part II); lead and zinc ores (part III); and uranium, radium, and vanadium ores (part IV). Survey data relate to October 1977 for all but iron ores; for the latter the reference date is July 1977—just before a prolonged strike occurred in the industry.

This study was conducted in the Bureau's Office of Wages and Industrial Relations as part of its regular program of industry wage studies. Sandra L. King of

the Division of Occupational Wage Structures prepared the analysis in this bulletin. Field work for the survey was conducted by the Assistant Regional Commissioners for Operations.

Other reports available from the Bureau's program of industry wage studies, as well as the addresses of the Bureau's regional offices, are listed at the end of this bulletin.

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# Introduction. The Metal Mining Industries

In 1977, the four metal mining industries covered by this study accounted for one-tenth of the total work force in mining,<sup>1</sup> which also encompasses mining of coal, oil, gas, and nonmetallic minerals (except fuels). The study covered 19,100 production workers in iron ores, 20,200 in copper ores, 5,300 in lead and zinc ores, and 9,000 in uranium, radium, and vanadium ores—about four-fifths of total metal mining employment.<sup>2</sup>

## Earnings and benefits

Among the four industries, average straight-time hourly earnings<sup>3</sup> for production workers ranged from \$6.23 for lead and zinc mining to \$7.60 for copper mining. Workers in uranium mining averaged \$6.89 an hour and those in iron ore facilities, \$7.10. This relationship of pay levels among the industries held for all 16 occupations for which comparisons could be made.

Paid holidays, ranging from 6 to 11 annually, and paid vacations after qualifying periods of service were provided to virtually all production workers in the survey. Nearly all mining facilities visited also provided at least part of the cost of life, hospitalization, surgical, basic medical, and major medical insurance. At least four-fifths of the production workers in each industry were also covered by pension plans. Funeral and jury-duty leave pay plans were also widespread in the industries.

## Production and productivity

Between 1972, the year of the last BLS study of metal mining,<sup>4</sup> and 1977, domestic production of usable iron

<sup>1</sup> Based on the BLS monthly establishment survey, results of which are published in the periodical *Employment and Earnings*.

<sup>2</sup> The estimates of the number of production workers within the scope of the study are intended only as a general guide to the size and composition of the labor force included in the survey. The differ from those in *Employment and Earnings* (20,800 in iron mining, 27,700 in copper) in part by the exclusion of establishments employing fewer than 50 workers (for uranium ores, establishments employing fewer than 20 workers were excluded).

The advance planning necessary to make the survey required the use of lists of establishments assembled considerably in advance of data collection. Thus, establishments new to the industries are omitted, as are establishments originally classified in the iron or copper ores mining industry but found to be in other industries at the time of the survey. Also omitted are iron or copper mining establishments classified incorrectly in other industries at the time the lists were compiled.

<sup>3</sup> Straight-time average hourly earnings of production workers in this bulletin differ in concept from the gross average hourly

ore declined 24 percent, to 57 million long tons.<sup>5</sup> Productivity in the industry, as measured by output per production worker employee-hour, fell 16 percent.<sup>6</sup>

Production of recoverable copper was 1.52 million short tons in 1977, down slightly from its 1972 near all-time high. During the same period, however, more than offsetting declines in labor input spurred the industry to an 8-percent gain in productivity.<sup>7</sup>

At 589,000 short tons, mine production of recoverable lead was down 5 percent from the level recorded in 1972 (619,000 short tons) and was 11 percent lower than the recent 50-year high in 1974. In the past decade, however, production has grown as lead has increased in use in such items as automobile batteries and gasoline antiknock devices. Zinc mine production continued to fall—from 549,000 short tons in 1967 to 478,000 in 1972 to 458,000 in 1977. Demand for the metal remained high in 1977, but the closing of smelters unable to meet antipollution standards tended to discourage the mining of zinc ore.<sup>8</sup>

Large-scale commercial interest in uranium dates from World War II and the development of the atomic bomb. In 1977, approximately 15,000 short tons of uranium concentrate were mined. Uranium is used in government-sponsored nuclear programs, including weapons, propulsion, underground tests, and space, and as nuclear fuel for power reactors. In 1977, 6,200 short tons of recovered vanadium were produced domestically. (Vanadium is recovered from uranium and vanadium ores and concentrates received at mills and also from ferrophosphorus—a derivative of domestic phos-

earnings published in *Employment and Earnings* (\$7.58 for iron ore mining in July 1977 and \$7.80 for copper mining in October 1977). Unlike the latter, the estimates presented here excluded premium pay for overtime and for work on weekends, holidays, and late shifts. Average earnings are calculated by summing individual hourly earnings and dividing by the number of individuals; in the monthly series, the sum of the hours reported by establishments in the industry is divided into the reported payroll totals.

<sup>4</sup> The 1972 survey covered iron, copper, and lead and zinc mining. See *Industry Wage Survey: Metal Mining, September 1972*, Bulletin 1820 (Bureau of Labor Statistics, 1974).

<sup>5</sup> The source for all output information is *Minerals Yearbook* (Bureau of Mines, 1977).

<sup>6</sup> *Productivity Indexes for Selected Industries, 1978 Edition*, Bulletin 2002 (Bureau of Labor Statistics, 1978), p.13.

<sup>7</sup> *Ibid.*, p. 17.

<sup>8</sup> *1978 Commodity Year Book* (New York, Commodity Research Bureau, Inc.), p. 378.

phate rock.) Vanadium's chief use is as an alloying element in steel and in cast iron. Radium, found in small amounts in pitchblende and other uranium minerals, is used in the treatment of cancer and some skin diseases and in diagnostic testing.

### Facilities

Establishments operating ore treatment facilities in connection with their mines accounted for at least three-fourths of the production workers in each of the surveyed industries (text table 1). Nine-tenths of the iron miners were employed by establishments with agglomerating facilities—equipment that prepares the ore into pellet form which is suitable for the blast furnace. Copper and uranium mine workers typically were in establishments with leaching facilities that chemically break down copper or other compounds into higher quality ore.

Underground mining complexes accounted for nine-tenths of the production workers in the lead and zinc industry; surface mines, in contrast, accounted for about three-fifths of the workers in iron and copper mining (text table 2). One-half of the uranium workers were in underground mines; the remaining workers were about equally divided between surface mines and mining complexes with surface and underground components.

**Text table 1. Percent of production workers by type of mining facility, metal mining industries**

Mining facility	Iron	Copper	Lead and zinc	Uranium
Mine only . . . . .	3	1	10	22
Mine and treatment plant . . . . .	97	99	90	78
With agglomerating facility . . . . .	92	—	—	—
With leaching facility . . . . .	—	81	—	67

NOTE: Dashes indicate facility is not applicable to the industry.

Rail and rubber-tired vehicles were the primary means of hauling ore from underground mining sites to hoist or exit. Trucks were the principal vehicles used to haul ore from surface mining sites to primary crusher; other important secondary hauling activity was done by rail or by a combination of truck, rail, and other systems of conveyance. (See text table 2 for details by industry.)

### Establishment size

Overall, establishments with 2,500 workers or more employed three-tenths of the industries' production workers; the same proportion were in facilities with 1,000 to 2,499 workers. Mines with 500 to 999 workers and those with less than 500 each employed about one-fifth. The proportion of workers in these establishment-size groups varied by industry (text table 3). For example, about seven-tenths of the iron and copper mining work forces were in large facilities (1,000 workers or more), compared to one-fourth in uranium mining, and none in lead and zinc.

### Location

Iron ore workers were employed primarily in the Great Lakes region. Minnesota and Michigan together accounted for nearly four-fifths of the work force. Nearly nine-tenths of the copper mining workers were employed in the Mountain States of Arizona, Montana, New Mexico, and Utah. Arizona alone had nearly two-fifths. The uranium, radium, and vanadium mining work force was also located principally in the Mountain States, with one-half of the workers in New Mexico, three-tenths in Wyoming, and one-tenth in Colorado. The lead and zinc work force was more widely distributed throughout the country—one-fourth in Missouri, one-fifth in Tennessee, about one-seventh each in Colorado and Utah, and one-tenth in New York.

### Unionization

Facilities that had labor-management contracts covering a majority of their production and related workers employed slightly less than one-half of the workers

**Text table 2. Percent of production workers by type of mine and method of hauling ore, metal mining industries**

Item	Iron	Copper	Lead and zinc	Uranium
Underground mine only . . . . .	7	21	90	50
Rubber-tired vehicles . . . . .	6	( <sup>1</sup> )	26	13
Rail . . . . .	1	( <sup>1</sup> )	47	23
Other hauling methods . . . . .	( <sup>2</sup> )	( <sup>1</sup> )	17	15
Surface mine only . . . . .	60	64	—	23
Truck . . . . .	16	33	—	19
Rail . . . . .	( <sup>2</sup> )	30	—	—
Other hauling methods . . . . .	44	( <sup>2</sup> )	—	3
Underground and surface . . . . .	32	15	10	27
Truck . . . . .	30	5	—	1
Rail . . . . .	2	—	—	1
Other hauling methods . . . . .	—	10	10	25

<sup>1</sup> Data unavailable from major mines.

<sup>2</sup> Less than 0.5 percent.

NOTE: "Other" methods include conveyors and combination systems. Because of rounding, sums of individual items may not equal totals.

**Text table 3. Percent of production workers by size of establishment, metal mining industries**

Establishment size	Iron	Copper	Lead and zinc	Uranium
Fewer than 100 workers <sup>1</sup> . . . . .	1	( <sup>2</sup> )	3	5
100-499 workers . . . . .	14	6	49	43
500-999 workers . . . . .	13	23	48	30
1,000-2,499 workers . . . . .	16	49	—	23
2,500 workers or more . . . . .	56	21	—	—

<sup>1</sup> Mines with fewer than 20 workers were excluded from the uranium industry; those with fewer than 50 workers were excluded from the iron, copper, and lead and zinc industries.

<sup>2</sup> Less than 0.5 percent.

in uranium mining, just over four-fifths in lead and zinc mining, and virtually all workers in iron and copper mining. The United Steelworkers of America (AFL-CIO) was the major union for these industries. Other unions, including the International Brotherhood of Electrical Workers (AFL-CIO), the International Union of Operating Engineers (AFL-CIO), and the International Chemical Workers (AFL-CIO), also had contracts with facilities in these industries—particularly in copper and uranium mining.

### **Method of wage payment**

Time rates, typically paid on a single-rate basis for specified occupations, applied to virtually all of the production workers in iron and copper ore mining, to nine-tenths in uranium mining, and to three-fourths in lead and zinc mining. Incentive plans—almost exclusively limited to miners and others involved directly in mining operations—typically took the form of individual or group production bonuses.

# Part I. Iron Ores

## Average hourly earnings

Straight-time hourly earnings of the 19,100 production and related workers in iron ore mining averaged \$7.10 an hour in July 1977 (table 1). This was 61 percent above the level recorded in September 1972 (\$4.41), when a similar study was conducted. The annual rate of increase averaged 10.4 percent. Over the same period, the annual rate of increase in the Bureau's Hourly Earnings Index for nonsupervisory workers in all mining industries averaged 9.8 percent.

Earnings in the iron ore industry fell within a relatively narrow range compared to other industries surveyed by the Bureau in the last decade. The index of wage dispersion for iron mining, computed by dividing the middle range of earnings by the median, was 16. Only five industries studied showed lower dispersion factors, one of which was copper ore mining.

## Occupational earnings

The occupations selected to represent the various skill levels and the wage structure of the industry accounted for about three-fifths of the production and related workers (table 2). Average hourly earnings ranged from \$5.92 for underground laborers to \$8.86 for miners. Truckdrivers were the largest occupational group surveyed separately. Those hauling ore averaged \$7.72 an hour compared with \$6.73 for those operating service or water vehicles. Surface laborers, the second largest group, averaged \$6.12 an hour.

Among occupations directly related to mining, averages varied considerably. Both the highest and lowest occupational averages in the survey were found in mining operations. Miners, whose duties include drilling and charging holes with explosives, recorded the highest average and were the most populous underground occupation. Underground laborers averaged the least.

For survey jobs classified under ore treatment operations, averages were between \$6.81 an hour (flotation operators) and \$7.33 (pellet-mill operators); all these occupations involved operation and adjustment or regulation of ore treatment machinery and equipment.

Workers in six selected maintenance crafts had averages ranging from \$7.17 an hour for machinists to \$7.80 for electricians. Other maintenance trades (and their averages) were heavy duty mechanics (\$7.55), automotive mechanics (\$7.63), mechanics (\$7.67), and welders (\$7.69). Seven-eighths of the 4,200 workers in these six trades earned between \$7.60 and \$8.00 an hour.

## Establishment practices and supplementary wage provisions

Data were also obtained for production workers on certain establishment practices such as work schedules and shift differential provisions and practices, as well as selected supplementary benefit provisions, including holidays, vacations, and health, insurance, and retirement plans.

*Work schedules.* Virtually all of the production workers were in iron ore mining facilities where work schedules of 5-day, 40-hour weeks were predominant (table 3).

*Shift provisions and practices.* All production workers were in establishments with late-shift provisions that stipulated premium pay over day-shift rates (table 4). About one-fifth of the workers were actually employed on second shifts in July 1977; a similar proportion worked on third shifts (table 5). All late-shift workers received uniform cents-per-hour differentials—typically 20 cents for second shifts and 30 cents for third.

*Paid holidays.* All establishments in iron ore mining provided paid holidays—nearly always 10 days annually (table 6). According to collective bargaining agreements in effect at the time of the survey, the 10 were: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, the Fourth of July, Labor Day, Thanksgiving Day, the day after Thanksgiving Day, Christmas Eve, and Christmas Day.

*Paid vacations.* All establishments in the industry provided paid vacations to their employees after qualifying periods of service (table 7). The following provisions typically applied: 1 week of vacation pay after 1 year of service, 2 weeks after 3 years, 3 weeks after 10 years, 4 weeks after 20 years, and 5 weeks after 25 years.

Extended vacation plans, providing additional pay every 5 years, covered nine-tenths of the workers (table 9). Typically, under extended vacation plans, the "Senior Group" of employees (those in the upper 50 percent in seniority ranking) are granted additional vacation time off to bring their total for the year to 13 weeks. The "Junior Group" of employees receive an additional 3 weeks' vacation.

*Health, insurance, and retirement plans.* Life, sickness and accident, hospitalization, surgical, basic and major medical, and dental insurance plans were provided to all or nearly all of the production workers (table 8). Three-tenths of the workers also were covered by accidental death and dismemberment insurance and about one-sixth each were covered by sick leave plans (providing either partial pay or a waiting period before pay begins) and long-term disability insurance. All workers were covered by retirement pension plans (in addition to Federal social security) and about one-sixth also were

covered by retirement severance pay provisions. All insurance and retirement plans were financed by the employer.

*Other selected benefits.* All production workers were in mining facilities with provisions for pay while serving as a juror (table 9). Funeral leave and supplemental unemployment benefit provisions each applied to about nine-tenths of the work force, while technological severance pay plans applied to four-fifths.

**Table 1. Iron ore mining: Earnings distribution**

(Percent distribution of production workers by average straight-time hourly earnings<sup>1</sup>, United States, July 1977)

Hourly earnings	All workers	Time workers	Hourly earnings	All workers	Time workers
NUMBER OF WORKERS	14,100	10,300	\$7.10 AND UNDER \$7.20	7.4	7.6
AVERAGE HOURLY EARNINGS	\$7.10	\$7.00	\$7.20 AND UNDER \$7.30	6.7	6.9
TOTAL	100.0	100.0	\$7.30 AND UNDER \$7.40	5.3	5.5
			\$7.40 AND UNDER \$7.50	1.2	1.2
\$4.50 AND UNDER \$4.60	0.1	0.1	\$7.50 AND UNDER \$7.60	1.8	1.9
\$4.60 AND UNDER \$4.70	-	-	\$7.60 AND UNDER \$7.70	15.4	15.8
\$4.70 AND UNDER \$4.80	(*)	(*)	\$7.70 AND UNDER \$7.80	2.8	2.9
\$4.80 AND UNDER \$4.90	(*)	(*)	\$7.80 AND UNDER \$7.90	.9	.9
\$4.90 AND UNDER \$5.00	.1	.1	\$7.90 AND UNDER \$8.00	5.0	5.1
\$5.00 AND UNDER \$5.10	.1	.1	\$8.00 AND UNDER \$8.10	.2	.1
\$5.10 AND UNDER \$5.20	.1	.1	\$8.10 AND UNDER \$8.20	.1	.1
\$5.20 AND UNDER \$5.30	-	-	\$8.20 AND UNDER \$8.30	.1	.1
\$5.30 AND UNDER \$5.40	.1	.1	\$8.30 AND UNDER \$8.40	.1	(*)
\$5.40 AND UNDER \$5.50	.1	.1	\$8.40 AND UNDER \$8.50	(*)	-
\$5.50 AND UNDER \$5.60	.1	.1	\$8.50 AND UNDER \$8.60	(*)	(*)
\$5.60 AND UNDER \$5.70	-	-	\$8.60 AND UNDER \$8.70	(*)	-
\$5.70 AND UNDER \$5.80	.1	.1	\$8.70 AND UNDER \$8.80	(*)	-
\$5.80 AND UNDER \$5.90	.5	.5	\$8.80 AND UNDER \$8.90	1.9	-
\$5.90 AND UNDER \$6.00	.9	.9	\$8.90 AND UNDER \$9.00	.1	-
\$6.00 AND UNDER \$6.10	.8	.9	\$9.00 AND UNDER \$9.10	-	-
\$6.10 AND UNDER \$6.20	9.1	9.4	\$9.10 AND UNDER \$9.20	-	-
\$6.20 AND UNDER \$6.30	1.2	1.2	\$9.20 AND UNDER \$9.30	-	-
\$6.30 AND UNDER \$6.40	2.5	2.6	\$9.30 AND UNDER \$9.40	.1	-
\$6.40 AND UNDER \$6.50	2.3	2.4	\$9.40 AND UNDER \$9.50	-	-
\$6.50 AND UNDER \$6.60	6.0	6.2	\$9.50 AND UNDER \$9.60	(*)	-
\$6.60 AND UNDER \$6.70	1.1	1.1	\$9.60 AND UNDER \$9.70	(*)	-
\$6.70 AND UNDER \$6.80	5.1	5.3	\$9.70 AND UNDER \$9.80	-	-
\$6.80 AND UNDER \$6.90	7.0	7.2	\$9.80 AND UNDER \$9.90	-	-
\$6.90 AND UNDER \$7.00	5.3	5.4	\$9.90 AND UNDER \$10.00	-	-
\$7.00 AND UNDER \$7.10	5.3	5.5	\$10.00 AND OVER	.8	.5

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

\* Less than 0.05 percent.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 2. Iron ore mining: Occupational earnings**

(Number and average straight-time hourly earnings<sup>1</sup> of workers in selected occupations, United States, July 1977)

Occupation	Number of workers	Average hourly earnings	Number of workers receiving straight-time hourly earnings (in dollars) of--																		
			Under 5.80	5.80 and under 6.00	6.00	6.20	6.40	6.60	6.80	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80	8.80 and over	
BRAKERS.....	50	6.32	215	-	-	7	2	12	14	-	-	-	-	-	-	-	-	-	-	-	
BULLDOZER OPERATORS (FINE GRADE)...	414	7.14	-	-	-	-	15	38	56	52	252	2	-	-	-	-	-	-	-	-	
CAGE TENDERS.....	14	6.77	-	-	-	-	7	1	3	3	-	-	-	-	-	-	-	-	-	-	
CAR REPAIRERS.....	83	6.94	-	18	-	-	-	-	-	1	-	64	-	-	-	-	-	-	-	-	
CHANGE ROOM ATTENDANTS.....	127	6.13	2	-	11	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
DRILLERS, MACHINE.....	237	7.09	-	-	-	-	6	20	-	155	44	3	2	-	-	-	-	-	-	-	
LABORERS, UNDERGROUND.....	65	5.92	318	-	2	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MIXERS.....	697	8.86	-	-	-	1	-	-	-	12	46	66	-	-	-	-	-	-	-	-	
POWER-SHovel OPERATORS.....	446	7.79	-	-	-	-	6	3	34	56	-	-	34	145	2	2	3	5	6	33	
SHOT FIRERS.....	64	6.97	3	-	-	-	2	-	3	8	-	-	-	-	-	-	-	-	-	-	
SHOVEL OPERATORS HELPERS.....	12	7.16	4	-	-	-	2	-	-	8	-	-	-	-	-	-	-	-	-	-	
UNDERGROUND-EQUIPMENT OPERATORS.....	16	6.44	45	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	
ORE TREATMENT OPERATIONS																					
BALLING-DRUM OPERATORS.....	86	7.00	-	-	-	-	-	-	16	68	-	-	-	-	-	-	-	-	-	-	
CONCENTRATOR OPERATORS.....	77	7.08	511	-	-	-	2	4	6	3	25	6	6	11	-	-	-	-	-	-	
CRUSHER OPERATORS.....	180	6.97	-	-	4	3	12	12	70	42	27	-	-	-	-	-	-	-	-	-	
PRIMARY CRUSHER.....	103	7.03	-	-	4	-	5	5	29	23	53	-	-	-	-	-	-	-	-	-	
SECONDARY CRUSHER.....	77	6.88	-	-	-	3	7	3	41	14	4	-	-	-	-	-	-	-	-	-	
FILTER OPERATORS.....	119	6.90	-	-	-	4	-	14	53	4	4	-	-	-	-	-	-	-	-	-	
FLOTATION OPERATORS.....	67	6.61	-	8	4	4	10	9	-	8	10	-	-	-	-	-	-	-	-	-	
FURNACE OPERATORS.....	94	7.14	-	-	-	-	-	26	17	6	5	-	4	24	-	-	-	-	-	-	
PELLET-MILL OPERATORS.....	85	7.33	-	-	-	-	-	-	45	-	-	-	6	34	-	-	-	-	-	-	
ROD-AND-BALL-MILL OPERATORS.....	73	7.06	-	3	-	-	4	-	29	12	8	17	-	-	-	-	-	-	-	-	
MINING AND ORE TREATMENT OPERATIONS																					
CLEAN-UP EQUIPMENT OPERATORS.....	389	7.12	-	-	-	-	4	22	65	238	28	10	22	-	-	-	-	-	-	-	
CONVEYOR OPERATORS.....	130	6.52	-	-	-	26	24	41	7	2	-	-	-	-	-	-	-	-	-	-	
ELECTRICIANS, MAINTENANCE.....	687	7.80	-	-	-	-	-	11	45	-	-	-	179	445	6	-	1	-	-	-	
HELPERS, MAINTENANCE TRADES.....	210	6.45	-	-	44	-	1	159	4	2	-	-	-	-	-	-	-	-	-	-	
HOIST OPERATORS.....	50	7.02	-	-	-	12	-	-	-	5	31	2	-	-	-	-	-	-	-	-	
LABORERS, OTHER THAN UNDERGROUND.....	1,782	6.12	8	147	1546	58	22	1	-	-	-	-	-	-	-	-	-	-	-	-	
MACHINISTS, MAINTENANCE.....	255	7.17	-	-	-	-	-	155	-	-	8	-	10	85	-	-	-	-	-	-	
MECHANICS, AUTOMOTIVE.....	431	7.63	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	
MECHANICS, HEAVY DUTY.....	612	7.55	-	-	-	-	19	86	-	-	-	-	4	397	-	-	-	-	-	-	
MECHANICS, MAINTENANCE.....	1,495	7.67	-	13	-	-	-	18	-	-	-	-	451	1	15	-	-	-	-	-	
OILERS AND GREASERS.....	196	6.60	-	-	1	-	116	16	17	6	-	-	93	1350	-	-	-	-	-	-	
STEEL SHARPENERS.....	9	6.67	-	-	2	-	1	2	3	-	1	-	-	-	-	-	-	-	-	-	
TRUCKDRIVERS.....	1,807	7.14	23	-	40	2	1	105	252	282	1030	37	19	-	16	-	-	-	-	-	
ORE HAULAGE.....	1,477	7.22	19	-	-	-	-	83	65	211	1030	34	19	-	16	-	-	-	-	-	
SERVISE OR WATER.....	257	6.73	4	-	40	2	1	11	153	45	-	3	-	-	-	-	-	-	-	-	
WELDERS, MAINTENANCE.....	723	7.65	-	-	-	6	-	-	-	-	-	14	691	-	-	-	-	-	-	-	

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>2</sup> All workers were at \$5.40 to \$5.80.

<sup>3</sup> All workers were at \$4.80 to \$5.

<sup>4</sup> All workers were at \$5 to \$5.20.

<sup>5</sup> All workers were at \$5.20 to \$5.40.

<sup>6</sup> Workers were distributed as follows: 384 at \$8.80 to \$9; 26 at \$9.20 to \$9.40; 8 at \$9.40 to \$9.60; 21 at \$10 to \$10.20; 4 at \$10.20 to \$10.40; 66 at \$10.60 to \$10.80; and 24 at \$10.80 and over.

<sup>7</sup> Includes data for workers in classifications in addition to those shown separately.

**Table 3. Iron ore mining: Work schedules**

(Percent of production workers in establishments by scheduled weekly hours and days,<sup>1</sup> United States, July 1977)

Weekly hours	Percent of production workers
All workers .....	100
5 days .....	100
40 hours .....	98
Over 40 hours .....	2

<sup>1</sup> Data relate to the predominant schedule for full-time day-shift workers in each establishment.

NOTE: Because of rounding, sums of individual items may not equal 100.

**Table 5. Iron ore mining: Shift differential practices**

(Percent of production workers in establishments employed on late shifts by amount of pay differential, United States, July 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers employed on second shift .....	20.8
Receiving differential .....	20.8
Uniform cents per hour .....	20.8
12 cents .....	.2
14 cents .....	.5
15 cents .....	.2
20 cents .....	19.9
<b>Third shift</b>	
Workers employed on third shift .....	19.5
Receiving differential .....	19.5
Uniform cents per hour .....	19.5
20 cents .....	1.5
22 cents .....	.3
25 cents .....	.1
30 cents .....	17.6

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 4. Iron ore mining: Shift differential provisions**

(Percent of production workers in establishments by shift differential provisions,<sup>1</sup> United States, July 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers in establishments with second-shift provisions .....	100.0
With shift differential .....	100.0
Uniform cents per hour .....	100.0
12 cents .....	1.0
14 cents .....	2.4
15 cents .....	.9
20 cents .....	95.8
<b>Third shift</b>	
Workers in establishments with third-shift provisions .....	100.0
With shift differential .....	100.0
Uniform cents per hour .....	100.0
20 cents .....	6.2
22 cents .....	3.4
25 cents .....	.9
30 cents .....	89.5

<sup>1</sup> Refers to policies of establishments currently operating late shifts or having provisions covering late shifts.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 6. Iron ore mining: Paid holidays**

(Percent of production workers in establishments with formal provisions for paid holidays and holidays provided, United States, July 1977)

Number of paid holidays and holidays provided	Percent of production workers
All workers .....	100
Workers in establishments providing paid holidays .....	100
8 days .....	6
10 days .....	93
11 days .....	( <sup>1</sup> )
Holidays provided:	
New Year's Day .....	100
Washington's Birthday .....	91
Good Friday .....	99
Memorial Day .....	69
Fourth of July .....	100
Labor Day .....	100
Veterans' Day .....	31
Thanksgiving Day .....	100
Day after Thanksgiving .....	69
Christmas Eve .....	63
Christmas Day .....	69
New Year's Eve .....	1
Other - 1 day .....	( <sup>1</sup> )
Other - 2 days .....	1

<sup>1</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal totals.

## Table 7. Iron ore mining: Paid vacations

(Percent of production workers in establishments with formal provisions for paid vacations after selected periods of service, United States, July 1977)

Vacation policy	Percent of production workers
All workers .....	100
<b>Method of payment</b>	
Workers in establishments providing paid vacations	100
Length-of-time payment .....	99
Percentage payment .....	1
<b>Amount of vacation pay<sup>1</sup></b>	
<b>After 1 year of service:</b>	
1 week .....	91
2 weeks .....	9
<b>After 2 years of service:</b>	
1 week .....	91
2 weeks .....	9
<b>After 3 years of service:</b>	
2 weeks .....	94
3 weeks .....	6
<b>After 5 years of service:</b>	
2 weeks .....	91
3 weeks .....	9
<b>After 10 years of service:</b>	
3 weeks .....	91
4 weeks .....	9
<b>After 15 years of service:</b>	
3 weeks .....	91
4 weeks .....	2
5 weeks .....	6
<b>After 20 years of service:</b>	
4 weeks .....	91
5 weeks .....	9
<b>After 25 years of service:</b>	
5 weeks .....	100
<b>Maximum vacation:</b>	
5 weeks .....	100

<sup>1</sup> Vacation payments, such as percent of annual earnings, were converted to an equivalent time basis. Periods of service were chosen arbitrarily and do not necessarily reflect individual establishment provisions for progression. For example, changes indicated at 10 years may include changes that occurred between 5 and 10 years.

NOTE: Because of rounding, sums of individual items may not equal totals.

### Table 8. Iron ore mining: Health, insurance, and retirement plans

(Percent of production workers in establishments with specified health, insurance, and retirement plans,<sup>1</sup> United States, July 1977)

Type of plan	Percent of production workers
All workers .....	100
Workers in establishments providing:	
Life insurance .....	100
Noncontributory plans .....	100
Accidental death and dismemberment insurance .....	29
Noncontributory plans .....	29
Sickness and accident insurance or sick leave or both <sup>2</sup> .....	100
Sickness and accident insurance .....	100
Noncontributory plans .....	100
Sick leave (partial pay or waiting period) .....	16
Long-term disability insurance .....	16
Noncontributory plans .....	16
Hospitalization insurance .....	100
Noncontributory plans .....	100
Surgical insurance .....	100
Noncontributory plans .....	100
Medical insurance .....	100
Noncontributory plans .....	100
Major medical insurance .....	100
Noncontributory plans .....	100
Dental insurance .....	98
Noncontributory plans .....	98
Retirement plans <sup>3</sup> .....	100
Pensions .....	100
Noncontributory plans .....	100
Severance pay .....	16

<sup>1</sup> Includes those plans for which the employer pays at least part of the cost and excludes legally required plans such as workers' compensation and social security; however, plans required by State temporary disability laws are included if the employer contributes more than is legally required or the employees receive benefits in excess of legal requirements. "Noncontributory plans" include only those plans financed entirely by the employer.

<sup>2</sup> Unduplicated total of workers receiving sickness and accident insurance and sick leave shown separately.

<sup>3</sup> Unduplicated total of workers covered by pension plans and severance pay shown separately.

### Table 9. Iron ore mining: Other selected benefits

(Percent of production workers in establishments providing selected benefits,<sup>1</sup> United States, July 1977)

Type of benefit	Percent of production workers
Workers in establishments with provisions for:	
Funeral leave .....	92
Jury-duty leave .....	100
Technological severance pay .....	82
Supplemental unemployment benefits .....	90
Extended vacations .....	90

<sup>1</sup> For definition of items, see appendix A.

## Part II. Copper Ores

### Average hourly earnings

Straight-time earnings of the 20,200 production and related workers in copper ore mining averaged \$7.60 an hour in October 1977 (table 10). This was 72 percent higher than in September 1972 (\$4.43) and represented an 11.4-percent annual rate of increase over the 5-year period.

The earnings range was highly compressed in the industry. The index of dispersion—middle range divided by the median—was 12, the second lowest among industries surveyed by the Bureau in the last decade. The high incidence of single-rate pay systems for specified occupations, the predominance of a single union, geographic concentration, and the presence of a few large, multiplant companies contributed greatly to low earnings dispersion in copper mining.

### Occupational earnings

The occupations for which wage data are presented in table 11 were selected to represent the full spectrum of activities performed by production workers in the copper mining industry. These jobs accounted for nearly three-fifths of the 20,200 production and related workers within the scope of the October 1977 survey. Average hourly earnings ranged from \$6.43 for surface laborers to \$8.58 for miners. Truckdrivers, the largest occupational group studied separately, averaged \$7.67; those who hauled ore averaged \$7.75.

Of the 28 occupational classifications studied separately, 21 had averages between \$7.27 and \$8.27. For workers in skilled maintenance crafts, the range was narrower—6 cents. Occupational hourly averages ranged from \$8.03 for automotive and heavy duty mechanics to \$8.09 for machinists. Other maintenance crafts studied were welders (\$8.08), electricians (\$8.06), and mechanics (\$8.05). Among the five occupations related to ore treatment, averages were also in a very narrow band—from \$7.41 for filter and crusher operators to \$7.64 for flotation operators. Other ore treatment occupations studied were rod- and ball-mill operators (\$7.57) and concentrator operators (\$7.58).

### Establishment practices and supplementary wage provisions

*Work schedules.* Ninety-five percent of the industry's production workers were in establishments scheduling

a 5-day, 40-hour workweek (table 12). The rest were on longer schedules.

*Shift provisions and practices.* All copper mining establishments visited had provisions for late shifts in October 1977 (table 12). Nearly one-fourth of the workers were actually employed on second shifts, and one-fifth on third shifts (table 14). All late-shift workers received premium pay above day rates, nearly always 20 cents per hour for second shifts and 30 cents per hour for third shifts.

*Paid holidays.* All workers were in facilities providing 9 paid holidays annually (table 15). Virtually all received New Year's Day, Memorial Day, the Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

*Paid vacations.* All establishments provided their workers with paid vacations after qualifying periods of service (table 16). Typical vacation provisions for workers covered by the survey were 1 week of pay after 1 year of service, 2 weeks after 3 years, 3 weeks after 10 years, 4 weeks after 20 years, and 5 weeks after 25 years.

*Health, insurance, and retirement plans.* All production workers were in establishments with provisions for life, accidental death and dismemberment, sickness and accident, hospitalization, surgical, basic medical, and major medical insurance (table 17). More than nine-tenths of the workers were covered by dental insurance plans, two-fifths by full sick leave plans, and about one-tenth by long-term disability insurance.

Retirement pension plans (in addition to Federal social security) covered all workers. Retirement severance plans also applied to one-eighth.

Nearly all health, insurance, and retirement plans were financed entirely by the employer.

*Other selected benefits.* Jury-duty leave covered all workers; funeral leave, about seven-eighths (table 18.) Seven-tenths of the workers were in establishments having supplemental unemployment benefit plans that augment State unemployment payments to laid-off workers. Technological severance pay applied to less than one-tenth of the workers.

**Table 10. Copper ore mining: Earnings distribution**

(Percent distribution of production workers by average straight-time hourly earnings<sup>1</sup>, United States, October 1977)

Hourly earnings <sup>1</sup>	All workers	Time workers	Hourly earnings <sup>1</sup>	All workers	Time workers
NUMBER OF WORKERS.....	20,040	20,040	\$7.10 AND UNDER \$7.20.....	2.0	2.7
AVERAGE HOURLY EARNINGS.....	\$7.60	\$7.97	\$7.20 AND UNDER \$7.30.....	2.9	2.9
TOTAL.....	100.0	100.0	\$7.30 AND UNDER \$7.40.....	4.0	4.1
			\$7.40 AND UNDER \$7.50.....	5.2	5.2
\$7.50 AND UNDER \$7.60.....	0.1	0.1	\$7.50 AND UNDER \$7.60.....	6.6	6.6
\$7.60 AND UNDER \$7.70.....	-	-	\$7.60 AND UNDER \$7.70.....	6.9	6.5
\$7.70 AND UNDER \$7.80.....	(*)	(*)	\$7.70 AND UNDER \$7.80.....	7.7	7.6
\$7.80 AND UNDER \$7.90.....	(*)	(*)	\$7.80 AND UNDER \$7.90.....	7.7	7.7
\$7.90 AND UNDER \$8.00.....	-	-	\$7.90 AND UNDER \$8.00.....	10.7	10.0
\$8.00 AND UNDER \$8.10.....	-	-	\$8.00 AND UNDER \$8.10.....	5.2	5.2
\$8.10 AND UNDER \$8.20.....	.4	.4	\$8.10 AND UNDER \$8.20.....	7.9	7.9
\$8.20 AND UNDER \$8.30.....	(*)	(*)	\$8.20 AND UNDER \$8.30.....	1.9	1.9
\$8.30 AND UNDER \$8.40.....	.1	.1	\$8.30 AND UNDER \$8.40.....	1.4	1.4
\$8.40 AND UNDER \$8.50.....	-	-	\$8.40 AND UNDER \$8.50.....	5.0	5.0
\$8.50 AND UNDER \$8.60.....	.2	.2	\$8.50 AND UNDER \$8.60.....	.6	.6
\$8.60 AND UNDER \$8.70.....	-	-	\$8.60 AND UNDER \$8.70.....	.6	.6
\$8.70 AND UNDER \$8.80.....	.1	.1	\$8.70 AND UNDER \$8.80.....	(*)	(*)
\$8.80 AND UNDER \$8.90.....	.3	.3	\$8.80 AND UNDER \$8.90.....	.7	.7
\$8.90 AND UNDER \$9.00.....	.4	.4	\$8.90 AND UNDER \$9.00.....	.2	.2
\$9.00 AND UNDER \$9.10.....	-	-	\$9.00 AND UNDER \$9.10.....	.1	.1
\$9.10 AND UNDER \$9.20.....	.1	.1	\$9.10 AND UNDER \$9.20.....	.1	.1
\$9.20 AND UNDER \$9.30.....	.8	.8	\$9.20 AND UNDER \$9.30.....	(*)	(*)
\$9.30 AND UNDER \$9.40.....	1.3	1.3	\$9.30 AND UNDER \$9.40.....	.7	.1
\$9.40 AND UNDER \$9.50.....	2.2	2.2	\$9.40 AND UNDER \$9.50.....	.1	.1
\$9.50 AND UNDER \$9.60.....	1.7	1.7	\$9.50 AND UNDER \$9.60.....	(*)	(*)
\$9.60 AND UNDER \$9.70.....	4.0	4.0	\$9.60 AND UNDER \$9.70.....	(*)	(*)
\$9.70 AND UNDER \$9.80.....	1.5	1.5	\$9.70 AND UNDER \$9.80.....	.1	.1
\$9.80 AND UNDER \$9.90.....	4.0	4.0	\$9.80 AND UNDER \$9.90.....	-	-
\$9.90 AND UNDER \$10.00.....	2.6	2.7	\$9.90 AND UNDER \$10.00.....	(*)	(*)
\$10.00 AND OVER.....	2.6	2.0	\$10.00 AND OVER.....	.4	.2

<sup>1</sup>Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

NOTE: Because of rounding, sums of individual items may not equal 100.

\* Less than 0.05 percent.

**Table 11. Copper ore mining: Occupational earnings**

(Number and average straight-time hourly earnings<sup>1</sup> of workers in selected occupations, United States, October 1977)

Occupation	Number of workers	Average hourly earnings <sup>1</sup>	Number of workers receiving straight-time hourly earnings (in dollars) of--																
			Under 6.00	6.00 and under 6.20	6.20	6.40	6.60	6.80	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80	
			6.00	6.20	6.40	6.60	6.80	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80	9.00	
<b>MINING OPERATIONS<sup>2</sup></b>																			
BULLDOZER OPERATORS (FINE GRADE)...	431	\$7.72	-	-	-	2	-	6	-	18	145	60	120	72	-	-	-	-	
CHANGE ROOM ATTENDANTS.....	32	6.58	-	-	2	15	15	-	-	-	-	-	-	-	-	-	-	-	
DRILLERS, MACHINE.....	231	7.76	-	-	3	-	6	-	14	5	56	70	40	-	-	-	-	-	
DUMPERS.....	18	7.11	-	-	-	5	7	-	-	-	6	-	-	-	-	-	-	-	
POWER-SHovel OPERATORS.....	355	8.40	-	-	2	-	-	-	-	-	68	3	2	-	45	115	39	120	
PUMPERS.....	54	7.55	-	-	-	-	-	-	24	1	25	-	-	-	-	-	-	-	
SHOT FIRERS.....	45	7.14	-	-	2	-	3	-	18	20	6	-	-	-	-	-	-	-	
SHOVEL OPERATORS HELPER.....	67	7.27	-	-	5	9	15	-	18	13	6	10	-	-	-	11	-	-	
SHUTTLE-CAR OPERATORS.....	181	6.95	455	-	-	-	-	-	108	18	-	-	-	-	-	-	-	-	
GASOLINE OR BATTERY POWERED.....	161	6.55	55	-	-	-	-	-	108	18	-	-	-	-	-	-	-	-	
<b>ORE TREATMENT OPERATIONS</b>																			
CONCENTRATOR OPERATORS.....	73	7.56	-	-	6	-	-	-	-	39	14	7	4	-	3	-	-	-	
CRUSHER OPERATORS.....	241	7.41	6	-	-	45	-	9	18	67	48	46	2	-	-	-	-	-	
PRIMARY CRUSHER.....	139	7.54	6	-	-	-	-	9	6	61	19	36	2	-	-	-	-	-	
SECONDARY CRUSHER.....	102	7.24	-	-	-	45	-	-	12	6	29	10	-	-	-	-	-	-	
FILTING OPERATORS.....	47	7.41	-	-	-	-	-	12	4	24	5	4	-	-	-	-	-	-	
FLOTATION OPERATORS.....	204	7.64	-	-	6	-	-	3	7	75	50	63	-	-	-	-	-	-	
ROU-AND-BALL-MILL OPERATORS.....	176	7.57	-	-	-	-	-	-	6	150	5	15	-	-	-	-	-	-	
<b>MINING AND ORE TREATMENT OPERATIONS</b>																			
CLEAN-UP EQUIPMENT OPERATORS.....	289	7.61	-	-	-	-	13	11	-	74	100	41	-	-	-	-	-	-	
ELECTRICIANS, MAINTENANCE.....	651	8.06	-	-	8	-	-	10	5	6	324	202	36	94	-	-	-	-	
ENGINEERS, STATIONARY.....	48	8.05	-	-	-	-	-	-	-	5	-	12	10	15	-	-	-	-	
HELPERS, MAINTENANCE TRADES.....	530	7.03	6	-	11	-	65	232	7	7	175	21	-	-	-	-	-	-	
LABORERS, OTHER THAN UNDERGROUND.....	1,333	6.43	105	-	290	522	243	173	-	-	-	-	-	-	-	-	-	-	
LOCOMOTIVE ENGINEERS.....	297	8.27	-	-	-	-	-	-	-	-	15	-	150	-	132	-	-	-	
MACHINISTS, MAINTENANCE.....	311	8.04	-	-	-	-	-	-	-	-	3	111	101	9	25	-	-	-	
MECHANICS, AUTOMOTIVE.....	96	8.03	-	-	-	-	-	-	-	3	2	94	22	-	15	-	-	-	
MECHANICS, HEAVY DUTY.....	1,610	8.02	-	-	15	-	-	-	-	5	264	551	521	16	206	-	-	-	
MECHANICS, MAINTENANCE.....	425	8.05	-	-	17	-	-	-	-	17	141	71	404	57	222	-	-	-	
OILERS AND GREASERS.....	246	7.34	-	-	3	7	17	17	111	71	-	-	16	-	-	-	-	-	
TRUCKDRIVERS.....	2,057	7.67	16	-	-	35	31	141	91	179	761	601	-	-	-	-	-	-	
ORE HAULAGE.....	1,776	7.75	12	-	-	30	-	8	45	148	333	176	-	-	-	-	-	-	
65 TO 84 TONS.....	113	7.49	-	-	-	-	-	-	-	-	43	-	-	-	-	-	-	-	
45 TO 65 TONS.....	396	7.67	-	-	-	-	-	8	-	146	96	106	-	-	-	-	-	-	
100 TONS OR MORE.....	533	7.77	-	-	-	-	-	-	45	-	43	403	-	-	-	-	-	-	
SERVICE OF WATER.....	281	7.19	6	-	-	5	31	133	46	31	6	23	-	-	-	-	-	-	
WELDERS, MAINTENANCE.....	648	8.08	-	-	-	-	-	-	-	2	86	267	79	35	177	-	-	-	

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>2</sup> The 470 miners, not shown separately, averaged \$8.58 per hour. The workers were distributed as follows: 294 at \$7.60 to \$7.80; 18 at \$8 to \$8.20; 119 at \$8.20 to \$8.40; 12 at \$10.80 to \$11;

8 at \$12.80 to \$13; and 21 at \$13 and over.

<sup>3</sup> Includes data for workers in classifications in addition to those shown separately.

<sup>4</sup> All workers were at \$5.80 to \$6.

**Table 12. Copper ore mining: Work schedules**

(Percent of production workers in establishments by scheduled weekly hours and days,<sup>1</sup> United States, October 1977)

Weekly hours	Percent of production workers
All workers .....	100
5 days .....	95
40 hours .....	95
5 1/2 days .....	5
44 hours .....	5

<sup>1</sup> Data relate to the predominant schedule for full-time day-shift workers in each establishment.

NOTE: Because of rounding, sums of individual items may not equal 100.

**Table 14. Copper ore mining: Shift differential practices**

(Percent of production workers in establishments employed on late shifts by amount of pay differential, United States, October 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers employed on second shift .....	21.9
Receiving differential .....	21.9
Uniform cents per hour .....	21.9
10 cents .....	1.0
15 cents .....	.3
20 cents .....	20.6
<b>Third shift</b>	
Workers employed on third shift .....	19.3
Receiving differential .....	19.3
Uniform cents per hour .....	19.3
20 cents .....	.8
25 cents .....	.3
30 cents .....	18.3

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 13. Copper ore mining: Shift differential provisions**

(Percent of production workers in establishments by shift differential provisions,<sup>1</sup> United States, October 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers in establishments with second-shift provisions .....	100.0
With shift differential .....	100.0
Uniform cents per hour .....	100.0
10 cents .....	5.0
15 cents .....	1.0
20 cents .....	94.0
<b>Third shift</b>	
Workers in establishments with third-shift provisions .....	100.0
With shift differential .....	100.0
Uniform cents per hour .....	100.0
20 cents .....	5.2
25 cents .....	1.0
30 cents .....	93.8

<sup>1</sup> Refers to policies of establishments currently operating late shifts or having provisions covering late shifts.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 15. Copper ore mining: Paid holidays**

(Percent of production workers in establishments with formal provisions for paid holidays and holidays provided, United States, October 1977)

Number of paid holidays and holidays provided	Percent of production workers
All workers .....	100
Workers in establishments providing paid holidays .....	100
9 days .....	100
<b>Holidays provided:</b>	
New Year's Day .....	100
Washington's Birthday .....	8
Good Friday .....	13
Memorial Day .....	100
Fourth of July .....	100
Labor Day .....	100
Veterans' Day .....	4
Thanksgiving Day .....	98
Day after Thanksgiving .....	19
Christmas Eve .....	81
Christmas Day .....	100
New Year's Eve .....	27
Other - 1 day .....	39
Other - 2 days .....	46
Floating .....	19

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 16. Copper ore mining: Paid vacations**

(Percent of production workers in establishments with formal provisions for paid vacations after selected periods of service, United States, October 1977)

Vacation policy	Percent of production workers
All workers .....	100
<b>Method of payment</b>	
Workers in establishments providing paid vacations .....	100
Length-of-time payment .....	97
Percentage payment .....	2
Other .....	1
<b>Amount of vacation pay<sup>1</sup></b>	
<b>After 1 year of service:</b>	
1 week .....	95
Over 1 and under 2 weeks .....	5
<b>After 2 years of service:</b>	
1 week .....	85
Over 1 and under 2 weeks .....	5
2 weeks .....	11
<b>After 3 years of service:</b>	
Over 1 and under 2 weeks .....	2
2 weeks .....	95
Over 2 and under 3 weeks .....	2
<b>After 5 years of service:</b>	
2 weeks .....	98
Over 2 and under 3 weeks .....	2
<b>After 10 years of service:</b>	
3 weeks .....	98
Over 3 and under 4 weeks .....	2
<b>After 15 years of service:</b>	
3 weeks .....	95
Over 3 and under 4 weeks .....	2
4 weeks .....	2
<b>After 20 years of service:</b>	
3 weeks .....	( <sup>2</sup> )
4 weeks .....	97
Over 4 and under 5 weeks .....	2
<b>After 25 years of service:<sup>3</sup></b>	
3 weeks .....	( <sup>2</sup> )
4 weeks .....	9
5 weeks .....	88
Over 5 and under 6 weeks .....	2

<sup>1</sup> Vacation payments, such as percent of annual earnings, were converted to an equivalent time basis. Periods of service were chosen arbitrarily and do not necessarily reflect individual establishment provisions for progression. For example, changes indicated at 10 years may include changes that occurred between 5 and 10 years.

<sup>2</sup> Less than 0.5 percent.

<sup>3</sup> Vacation provisions were virtually the same after longer periods of service.

NOTE: Because of rounding, sums of individual items may not equal totals.

### Table 17. Copper ore mining: Health, insurance, and retirement plans

(Percent of production workers in establishments with specified health, insurance, and retirement plans,<sup>1</sup> United States, October 1977)

Type of plan	Percent of production workers
All workers .....	100
Workers in establishments providing:	
Life insurance .....	100
Noncontributory plans .....	81
Accidental death and dismemberment insurance .....	100
Noncontributory plans .....	100
Sickness and accident insurance or sick leave or both <sup>2</sup> .....	100
Sickness and accident insurance .....	100
Noncontributory plans .....	100
Sick leave (full pay, no waiting period) .....	42
Long-term disability insurance .....	8
Noncontributory plans .....	8
Hospitalization insurance .....	100
Noncontributory plans .....	100
Surgical insurance .....	100
Noncontributory plans .....	100
Medical insurance .....	100
Noncontributory plans .....	100
Major medical insurance .....	100
Noncontributory plans .....	100
Dental insurance .....	95
Noncontributory plans .....	74
Retirement plans <sup>3</sup> .....	100
Pensions .....	100
Noncontributory plans .....	100
Severance pay .....	13

<sup>1</sup> Includes those plans for which the employer pays at least part of the cost and excludes legally required plans such as workers' compensation and social security; however, plans required by State temporary disability laws are included if the employer contributes more than is legally required or the employees receive benefits in excess of legal requirements. "Noncontributory plans" include only those plans financed entirely by the employer.

<sup>2</sup> Unduplicated total of workers receiving sickness and accident insurance and sick leave shown separately.

<sup>3</sup> Unduplicated total of workers covered by pension plans and severance pay shown separately.

### Table 18. Copper ore mining: Other selected benefits

(Percent of production workers in establishments providing selected benefits,<sup>1</sup> United States, October 1977)

Type of benefit	Percent of production workers
Workers in establishments with provisions for:	
Funeral leave .....	87
Jury-duty leave .....	100
Technological severance pay .....	7
Supplemental unemployment benefits .....	69

<sup>1</sup> For definition of items, see appendix A.

## Part III. Lead and Zinc Ores

### Average hourly earnings

The 5,300 production and related workers in lead and zinc ore mining averaged \$6.23 an hour in October 1977 (table 19). This was 48 percent above the level recorded in September 1972. During the 1972-77 period, the annual rate of increase in average earnings amounted to 8.1 percent.

Employee earnings were somewhat more dispersed than in iron or copper mining. (See parts I and II.) The index of wage dispersion (middle range divided by the median) was 18. Factors contributing to the dispersion include the importance of low-paying, small mines (one-half of the workers were in mines with fewer than 500 employees) and of incentive wage systems, which cover one-fourth of the workers (mostly miners). Also lead and zinc mines are located in a variety of labor markets throughout the country, while iron or copper mines are generally found in one geographic region.

### Occupational earnings

Occupations selected to represent the industry's wage structure accounted for three-fourths of the production and related workers (table 20). Miners, the largest group, were highest paid, at \$7.43 an hour. Conveyor operators were lowest paid, averaging \$4.92 an hour.

Of the jobs studied separately, operators of gasoline or battery-powered shuttle cars, at \$6.72, had the second highest average, followed by loading-machine operators (\$6.65), maintenance electricians and machinists (\$6.37), and maintenance mechanics (\$6.28).

Miners, who accounted for three-fifths of the incentive-paid workers, had widely dispersed earnings. They ranged from \$4.80 an hour to over \$10.20. Incentive-paid miners averaged \$8.18; time-rated, \$5.83.

### Establishment practices and supplementary wage provisions

*Work schedules.* A weekly work schedule of 5 days (40 hours) applied to seven-eighths of the lead and zinc work force (table 21). One-eighth were scheduled for 6 days (48 hours).

*Shift provisions and practices.* All employees were in establishments with provisions for late shifts (table 22). Three-tenths worked second shifts, and about one-tenth, third shifts at the time of the survey (table 23). Virtually all received uniform cents-per-hour premiums

above day rates. Differentials ranged from 12 to 18 cents for second shifts and typically amounted to 16 or 20 cents for third shifts.

*Paid holidays.* All production workers were in establishments granting paid holidays (table 24). Nearly two-fifths received 10 days annually; three-tenths, 9 days; one-sixth, 7 days; and one-seventh, 8 days. Among the holidays reported, at least nine-tenths of the workers received New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

*Paid vacations.* Paid vacations, after qualifying periods of service, were provided by all establishments (table 25). The most common provisions were 1 week of vacation after 1 year of service, 2 weeks after 3 years, 3 weeks after 10 years, at least 4 weeks after 20 years, and 5 weeks or more after 25 years.

*Health, insurance, and retirement plans.* Nine-tenths or more of the workers were in establishments providing at least part of the cost of life, sickness and accident, hospitalization, surgical, and basic medical insurance (table 24). Four-fifths were covered by accidental death and dismemberment and major medical insurance; three-fifths had dental insurance. About one-tenth were covered by long-term disability insurance and the same proportion by formal sick leave plans. Employers nearly always paid the total cost of health benefits.

Retirement pension plans (in addition to Federal social security) applied to slightly more than four-fifths of the workers. Retirement severance plans were not found in mines visited. Pension plans were financed completely by the employer.

*Other selected benefits.* More than nine-tenths of the workers were in facilities providing pay while attending funerals of specified family members or serving as a juror (table 25). Supplemental unemployment benefit plans, which augment State unemployment programs, covered slightly more than two-fifths of the workers. About one-fourth of the production workers were employed by establishments having technological severance pay plans for workers permanently separated from their jobs because of a reduction in the work force or a mine or unit closing.

**Table 19. Lead and zinc ore mining: Earnings distribution**

(Percent distribution of production and related workers by average straight-time hourly earnings,<sup>1</sup> United States, October 1977)

Hourly earnings <sup>1</sup>	All workers	Time workers	Incentive workers	Hourly earnings <sup>1</sup>	All workers	Time workers	Incentive workers
NUMBER OF WORKERS.....	2,277	2,435	1,442	\$7.10 AND UNDER \$7.20.....	.2	(*)	.8
AVERAGE HOURLY EARNINGS.....	\$6.23	\$5.70	\$7.63	\$7.20 AND UNDER \$7.30.....	.5	(*)	1.0
TOTAL.....	100.0	100.0	100.0	\$7.30 AND UNDER \$7.40.....	.1	-	.3
				\$7.40 AND UNDER \$7.50.....	2.2	-	8.0
UNDER \$4.00.....	5.1	6.1	2.3	\$7.50 AND UNDER \$7.60.....	1.4	1.5	1.2
\$4.00 AND UNDER \$4.70.....	2.5	3.4	.1	\$7.60 AND UNDER \$7.70.....	1.5	-	5.5
\$4.70 AND UNDER \$4.80.....	2.4	1.6	.3	\$7.70 AND UNDER \$7.80.....	(*)	-	.1
\$4.80 AND UNDER \$4.90.....	2.4	3.1	.4	\$7.80 AND UNDER \$7.90.....	.4	.4	.3
\$4.90 AND UNDER \$5.00.....	1.6	1.6	1.7	\$7.90 AND UNDER \$8.00.....	.3	-	1.0
\$5.00 AND UNDER \$5.10.....	1.8	1.8	1.1	\$8.00 AND UNDER \$8.10.....	.1	-	.3
\$5.10 AND UNDER \$5.20.....	1.8	2.3	.1	\$8.10 AND UNDER \$8.20.....	.1	-	.2
\$5.20 AND UNDER \$5.30.....	5.1	4.0	7.4	\$8.20 AND UNDER \$8.30.....	.1	.1	.2
\$5.30 AND UNDER \$5.40.....	4.3	5.0	1.0	\$8.30 AND UNDER \$8.40.....	2.2	-	8.1
\$5.40 AND UNDER \$5.50.....	3.4	4.7	.1	\$8.40 AND UNDER \$8.50.....	(*)	-	.1
\$5.50 AND UNDER \$5.60.....	3.5	4.0	-	\$8.50 AND UNDER \$8.60.....	(*)	-	.1
\$5.60 AND UNDER \$5.70.....	3.7	4.8	.6	\$8.60 AND UNDER \$8.70.....	.3	-	1.2
\$5.70 AND UNDER \$5.80.....	6.9	6.8	1.8	\$8.70 AND UNDER \$8.80.....	-	-	-
\$5.80 AND UNDER \$5.90.....	6.9	5.3	.5	\$8.80 AND UNDER \$8.90.....	.2	-	.6
\$5.90 AND UNDER \$6.00.....	4.1	5.1	1.3	\$8.90 AND UNDER \$9.00.....	(*)	-	.1
\$6.00 AND UNDER \$6.10.....	5.1	6.7	1.0	\$9.00 AND UNDER \$9.10.....	.6	-	3.1
\$6.10 AND UNDER \$6.20.....	3.4	3.4	3.9	\$9.10 AND UNDER \$9.20.....	(*)	-	.1
\$6.20 AND UNDER \$6.30.....	2.8	2.9	2.7	\$9.20 AND UNDER \$9.30.....	.2	-	.6
\$6.30 AND UNDER \$6.40.....	6.7	7.8	3.7	\$9.30 AND UNDER \$9.40.....	.1	-	.2
\$6.40 AND UNDER \$6.50.....	5.2	3.5	1.5	\$9.40 AND UNDER \$9.50.....	.7	-	2.6
\$6.50 AND UNDER \$6.60.....	4.2	3.4	6.2	\$9.50 AND UNDER \$9.60.....	(*)	-	.1
\$6.60 AND UNDER \$6.70.....	2.3	.6	6.8	\$9.60 AND UNDER \$9.70.....	.1	-	.2
\$6.70 AND UNDER \$6.80.....	2.7	1.7	5.3	\$9.70 AND UNDER \$9.80.....	.1	-	.3
\$6.80 AND UNDER \$6.90.....	.2	.2	.4	\$9.80 AND UNDER \$9.90.....	(*)	-	.1
\$6.90 AND UNDER \$7.00.....	.2	-	.6	\$9.90 AND UNDER \$10.00.....	.1	-	.3
\$7.00 AND UNDER \$7.10.....	.4	-	.5	\$10.00 AND OVER.....	3.4	-	12.5

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.  
\* Less than 0.05 percent.

NOTE: Because of rounding, sums of individual items may not equal 100.

**Table 20. Lead and zinc ore mining: Occupational earnings**

(Number and average straight-time hourly earnings<sup>1</sup> of workers in selected occupations, United States, October 1977)

Occupation	Number of workers	Average hourly earnings <sup>1</sup>	Number of workers receiving straight-time hourly earnings (in dollars) of -												
			Under 4.80	4.80 and under	4.80	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80
					5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80	
MINING OPERATIONS															
CAGE TENDERS	65	\$5.70	-	4	-	-	5	8	9	29	4	-	-	4	2
CHANGE ROOM ATTENDANTS	30	5.00	3	9	-	1	2	7	8	2	-	1	-	-	-
LABORERS, UNDERGROUND	485	5.45	72	18	4	10	165	48	7	97	-	-	-	-	-
LOADING-MACHINE OPERATORS	150	6.65	-	10	4	-	-	6	24	2	12	24	5	2	
MINEAS	1,265	7.45	-	-	58	9	104	6	154	7	147	53	95	135	
MINE TRUCKERS	40	6.14	6	13	1	-	-	-	11	-	2	-	4	-	
PUMPKERS	24	5.95	-	-	-	4	-	-	1	8	6	5	-	-	
RULF BULTERS	42	6.14	1	-	-	1	14	1	2	-	3	14	2	1	
SHUTTLE-CAR OPERATORS	139	6.50	-	7	10	-	12	-	19	26	6	-	8	26	
ELECTRIC OVERHEAD POWERED	47	6.25	-	7	-	-	-	-	6	-	6	-	-	21	
GASOLINE OR BATTERY POWERED	52	6.72	-	-	10	-	12	-	11	26	-	-	8	5	
UNDERGROUND-EQUIPMENT OPERATORS	44	5.82	-	-	1	-	-	2	1	40	-	-	-	-	
UNDERGROUND SERVICERS	172	5.72	6	7	-	5	-	22	51	76	-	-	-	-	
ORE TREATMENT OPERATIONS															
CONCENTRATION OPERATORS	25	5.98	-	-	5	-	-	2	-	-	8	12	-	-	
CRUSHER OPERATORS	101	5.35	9	5	2	8	27	16	12	17	5	-	-	-	
PRIMARY CRUSHER	54	5.48	-	5	1	4	13	7	8	13	3	-	-	-	
SECONDARY CRUSHER	47	5.28	4	-	1	4	14	4	4	2	-	-	-	-	
FILTER OPERATORS	24	5.20	4	5	-	-	2	7	3	3	-	-	-	-	
FLOTATION OPERATORS	67	5.66	-	2	13	2	-	4	10	6	18	3	4	-	
ROD-AND-BALL-MILL OPERATORS	39	5.37	-	9	-	5	1	4	12	3	-	-	-	-	
MINING AND ORE TREATMENT OPERATIONS															
CLEAN-UP EQUIPMENT OPERATORS	14	5.48	2	-	2	1	2	1	-	4	-	1	-	1	
CONVEYOR OPERATORS	10	4.52	6	-	-	-	1	3	-	-	-	-	-	-	
ELECTRICIANS, MAINTENANCE	141	6.37	-	-	-	7	3	-	7	12	25	24	27	21	
HELPERS, MAINTENANCE TRADES	58	5.45	9	6	2	-	7	12	3	10	9	6	3	25	
HIGST OPERATORS	166	5.94	-	11	-	3	3	10	18	48	19	6	3	25	
LABORERS, OTHER THAN UNDERGROUND	154	5.14	37	1	13	12	31	47	1	-	-	12	-	2	
LOCOMOTIVE ENGINEERS	22	5.65	2	-	-	-	-	8	-	5	2	-	-	11	
MALHINISTS, MAINTENANCE	72	6.37	-	-	-	5	-	-	4	2	6	6	31	11	
MECHANICS, HEAVY DUTY	154	6.17	-	-	6	27	-	-	3	14	3	61	17	6	
MECHANICS, MAINTENANCE	334	6.28	-	3	13	-	20	2	17	21	-	179	46	-	
OILERS AND GREASERS	10	5.00	-	-	-	-	1	4	3	2	-	-	-	-	
TRACK LAYERS	28	5.27	-	4	5	3	0	-	6	4	-	-	-	-	
TRUCKDRIVERS	69	5.60	1	13	-	1	-	3	11	27	5	2	4	1	
URE HAULAGE	34	5.50	-	4	-	1	-	2	1	22	-	-	-	-	
SERVICE OR WATER	20	5.43	1	4	-	1	-	-	10	4	-	-	-	-	
WELDEKS, MAINTENANCE	51	5.78	-	-	1	18	2	-	-	-	3	26	-	-	

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>2</sup> Workers were distributed as follows: 5 at \$4 to \$4.20; and 4 at \$4.40 to \$4.60.

<sup>3</sup> Workers were distributed as follows: 5 at \$4.20 to \$4.40; and 67 at \$4.40 to \$4.60.

<sup>4</sup> Workers were distributed as follows: 32 at \$9 to \$9.20; 8 at \$9.20 to \$9.40; 39 at \$9.40 to \$9.60; 5 at \$9.60 to \$9.80; 4 at \$9.80 to \$10; 4 at \$10 to \$10.20; 3 at \$10.20 to \$10.40; 9 at \$10.40 to \$10.60; 6 at \$10.60 to \$11; 34 at \$11 to \$11.40; 10 at \$11.40 to \$11.80; and 86 at \$11.80 and over.

<sup>5</sup> Includes data for workers in classifications in addition to those shown separately.

**Table 21. Lead and zinc ore mining: Work schedules**

(Percent of production workers in establishments by scheduled weekly hours and days,<sup>1</sup> United States, October 1977)

Weekly hours	Percent of production workers
All workers .....	100
5 days .....	88
40 hours .....	88
6 days .....	12
48 hours .....	12

<sup>1</sup> Data relate to the predominant schedule for full-time day-shift workers in each establishment.

NOTE: Because of rounding, sums of individual items may not equal 100.

**Table 22. Lead and zinc ore mining: Shift differential provisions**

(Percent of production workers in establishments by shift differential provisions,<sup>1</sup> United States, October 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers in establishments with second-shift provisions .....	100.0
With shift differential .....	94.7
Uniform cents per hour .....	94.7
10 cents .....	7.0
12 cents .....	16.3
13 cents .....	13.5
14 cents .....	29.4
15 cents .....	20.1
18 cents .....	8.5
<b>Third shift</b>	
Workers in establishments with third-shift provisions .....	100.0
With shift differential .....	94.7
Uniform cents per hour .....	94.7
15 cents .....	1.7
16 cents .....	41.8
18 cents .....	2.7
20 cents .....	25.4
22 cents .....	3.1
23 cents .....	3.8
28 cents .....	5.4

<sup>1</sup> Refers to policies of establishments currently operating late shifts or having provisions covering late shifts.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 23. Lead and zinc ore mining: Shift differential practices**

(Percent of production workers in establishments employed on late shifts by amount of pay differential, United States, October 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers employed on second shift .....	29.5
Receiving differential .....	27.8
Uniform cents per hour .....	27.8
10 cents .....	1.8
12 cents .....	4.6
13 cents .....	3.7
14 cents .....	6.7
15 cents .....	7.2
18 cents .....	3.7
<b>Third shift</b>	
Workers employed on third shift .....	11.3
Receiving differential .....	11.1
Uniform cents per hour .....	11.1
15 cents .....	.1
16 cents .....	6.1
18 cents .....	.3
20 cents .....	2.9
22 cents .....	.1
23 cents .....	.9
28 cents .....	

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 24. Lead and zinc ore mining: Paid holidays**

(Percent of production workers in establishments with formal provisions for paid holidays and holidays provided, United States, October 1977)

Number of paid holidays and holidays provided	Percent of production workers
All workers .....	100
Workers in establishments providing paid holidays .....	100
7 days .....	16
8 days .....	14
9 days .....	31
10 days .....	38
Holidays provided: .....	100
New Year's Day .....	5
Washington's Birthday .....	38
Good Friday .....	95
Memorial Day .....	100
Fourth of July .....	100
Labor Day .....	9
Veterans' Day .....	100
Thanksgiving Day .....	43
Day after Thanksgiving .....	73
Christmas Eve .....	98
Christmas Day .....	16
New Year's Eve .....	46
Other - 1 day .....	13
Other - 2 days .....	42
Floating .....	

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 25. Lead and zinc ore mining: Paid vacations**

(Percent of production workers in establishments with formal provisions for paid vacations after selected periods of service, United States, October 1977)

Vacation policy	Percent of production workers	Vacation policy	Percent of production workers
All workers .....	100		
<b>Method of payment</b>		<b>Amount of vacation pay<sup>1</sup>—Continued</b>	
Workers in establishments providing paid vacations .....	100	<b>After 10 years of service:</b>	
Length-of-time payment .....	82	Over 1 and under 2 weeks .....	2
Percentage payment .....	15	2 weeks .....	1
Other .....	3	3 weeks .....	79
		Over 3 and under 4 weeks .....	2
<b>Amount of vacation pay<sup>1</sup></b>		4 weeks .....	5
<b>After 1 year of service:</b>		5 weeks and over .....	11
Under 1 week .....	2	<b>After 15 years of service:</b>	
1 week .....	84	Over 1 and under 2 weeks .....	2
Over 1 and under 2 weeks .....	2	2 weeks .....	1
2 weeks .....	1	3 weeks .....	79
Over 2 and under 3 weeks .....	11	Over 3 and under 4 weeks .....	2
<b>After 2 years of service:</b>		4 weeks .....	5
Under 1 week .....	2	Over 3 and under 4 weeks .....	11
1 week .....	48	<b>After 20 years of service:</b>	
Over 1 and under 2 weeks .....	3	Over 1 and under 2 weeks .....	2
2 weeks .....	35	2 weeks .....	1
3 weeks .....	11	3 weeks .....	22
<b>After 3 years of service:</b>		Over 3 and under 4 weeks .....	2
1 week .....	2	4 weeks .....	62
2 weeks .....	80	Over 3 and under 4 weeks .....	11
Over 2 and under 3 weeks .....	7	<b>After 25 years of service:</b>	
Over 3 and under 4 weeks .....	11	Over 1 and under 2 weeks .....	2
<b>After 5 years of service:</b>		2 weeks .....	1
1 week .....	2	3 weeks .....	22
2 weeks .....	51	4 weeks .....	7
Over 2 and under 3 weeks .....	7	5 weeks .....	52
3 weeks .....	28	Over 5 and under 6 weeks .....	16
Over 4 and under 5 weeks .....	11	<b>Maximum vacation</b>	
		Over 1 and under 2 weeks .....	2
		2 weeks .....	1
		3 weeks .....	22
		4 weeks .....	4
		5 weeks .....	55
		Over 5 and under 6 weeks .....	11
		6 weeks .....	5

<sup>1</sup> Vacation payments, such as percent of annual earnings, were converted to an equivalent time basis. Periods of service were chosen arbitrarily and do not necessarily reflect individual establishment provisions for progression. For example, changes indicated at 10 years may include changes that

occurred between 5 and 10 years.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 26. Lead and zinc ore mining:  
Health, insurance, and retirement plans**

(Percent of production workers in establishments with specified health, insurance, and retirement plans,<sup>1</sup> United States, October 1977)

Type of plan	Percent of production workers
All workers .....	100
Workers in establishments providing:	
Life insurance .....	100
Noncontributory plans .....	100
Accidental death and dismemberment insurance .....	80
Noncontributory plans .....	80
Sickness and accident insurance or sick leave or both <sup>2</sup> .....	100
Sickness and accident insurance .....	91
Noncontributory plans .....	87
Sick leave (full pay, no waiting period) .....	5
Sick leave (partial pay or waiting period) .....	4
Long-term disability insurance .....	9
Noncontributory plans .....	9
Hospitalization insurance .....	100
Noncontributory plans .....	99
Surgical insurance .....	100
Noncontributory plans .....	99
Medical insurance .....	98
Noncontributory plans .....	96
Major medical insurance .....	82
Noncontributory plans .....	81
Dental insurance .....	59
Noncontributory plans .....	52
Retirement plans <sup>3</sup> .....	84
Pensions .....	84
Noncontributory plans .....	84

<sup>1</sup> Includes those plans for which the employer pays at least part of the cost and excludes legally required plans such as workers' compensation and social security; however, plans required by State temporary disability laws are included if the employer contributes more than is legally required or the employees receive benefits in excess of legal requirements. "Noncontributory plans" include only those plans financed entirely by the employer.

<sup>2</sup> Unduplicated total of workers receiving sickness and accident insurance and sick leave shown separately.

<sup>3</sup> Unduplicated total of workers covered by pension plans and severance pay shown separately.

**Table 27. Lead and zinc ore mining:  
Other selected benefits**

(Percent of production workers in establishments providing selected benefits,<sup>1</sup> United States, October 1977)

Type of benefit	Percent of production workers
Workers in establishments with provisions for:	
Funeral leave .....	93
Jury-duty leave .....	97
Technological severance pay .....	24
Supplemental unemployment benefits .....	43

<sup>1</sup> For definition of items, see appendix A.

# Part IV. Uranium, Radium, and Vanadium Ores

## Average hourly earnings

Straight-time hourly earnings of the 9,000 production and related workers in the uranium, radium, and vanadium ore mining industry averaged \$6.89 in October 1977 (table 28).

Workers' earnings were more widely dispersed than in the other mining industries in this study. Nine-tenths of the workers earned between \$5 and \$10 an hour; the middle 50 percent fell between \$5.98 and \$7.73. The index of wage dispersion for uranium mining (the middle range of earnings divided by the median) was 27—about average among dispersion indexes calculated for other industries studied by the Bureau in the last decade. Factors contributing to the dispersion include the mix of union-nonunion mines (about one-half of the work force in each); the importance of low-paying, small mines (one-half of the work force in mines with fewer than 500 employees); and the wage payment plans in the industry (one-sixth of the workers under formal systems providing a range of rates for specific occupations and an additional one-tenth paid incentive rates).

## Occupational earnings

Occupations selected to represent various skill levels and the wage structure in the industry accounted for seven-tenths of the production and related workers (table 29). Average hourly earnings ranged from \$8.94 for maintenance machinists to \$5.68 for surface laborers. Miners, the largest group studied separately, averaged \$7.68 an hour.

Among occupations classified under mining operations, averages varied considerably. Operators of ore-loading machines, used to gather loose ore (or rock) at the working face of an underground mine and transport it to a designated location, were highest paid, at \$8.92. Laborers who perform general manual tasks in underground mines were lowest paid—\$5.78 an hour.

For survey jobs classified under ore treatment operations, averages were between \$7.30 (flotation operators) and \$6.04 (primary crusher operators). All of these occupations involved operation and adjustment or regulation of ore treatment machinery and equipment.

Workers in six selected maintenance crafts had hourly averages ranging from \$8.94 for machinists to \$6.98 for heavy duty mechanics. Other maintenance trades and averages were mechanics, \$7.12; welders, \$7.19;

electricians, \$7.35; and automotive mechanics, \$7.86.

Earnings of individuals performing similar tasks varied considerably for some occupations. Earnings of the highest paid worker frequently exceeded those of the lowest paid in the same occupation by \$2 an hour or more. Similarly, some workers in comparatively low paid occupations (as measured by the average for all workers) earned more than some workers in occupations for which significantly higher averages were recorded. Text table 4 illustrates this by showing the overlapping of individual earnings for clean-up equipment operators and probers, despite a \$1.50 difference in the hourly averages for the two occupations.

## Establishment practices and supplementary wage provisions

*Work schedules.* Five-day 40-hour work schedules applied to three-fourths of the workers in the uranium mining industry (table 30). About one-tenth of the workers had a 5-1/2 day, 44-hour weekly schedule. The remaining workers had 4-day schedules (40 or 48 hours) or 6-day, 48-hour weekly schedules.

*Shift provisions and practices.* Virtually all production workers were in establishments with late-shift provisions under which differentials were paid (table 31). Slightly more than one-fourth of the workers were actually employed on second shifts in October 1977, and about one-seventh on third shifts (table 32). Shift differentials were nearly always uniform cents per hour

Text table 4. Earnings distribution of clean-up equipment operators and probers in uranium, radium, and vanadium mining

Earnings	Clean-up equipment operators	Probers
Average hourly earnings . . . . .	\$8.06	\$6.56
Number of workers . . . . .	287	153
Under \$5.60 . . . . .	—	36
\$5.60 and under \$6.00 . . . . .	10	13
\$6.00 and under \$6.40 . . . . .	23	29
\$6.40 and under \$6.80 . . . . .	—	7
\$6.80 and under \$7.20 . . . . .	4	23
\$7.20 and under \$7.60 . . . . .	15	10
\$7.60 and under \$8.00 . . . . .	12	14
\$8.00 and under \$8.40 . . . . .	164	13
\$8.40 and under \$8.80 . . . . .	30	8
\$8.80 and over . . . . .	29	—

above day-shift rates. They typically amounted to 15 cents for second shift, and ranged from 12 to 30 cents for third-shift work.

*Paid holidays.* All workers in the uranium, radium and vanadium ore mining industry were in establishments providing paid holidays (table 33). About two-thirds of the workers received 10 days; three-tenths, 9 days. Among the holidays reported, all workers received New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

*Paid vacations.* Paid vacations, after qualifying periods of service, were provided by establishments employing virtually all workers (table 34). Typical provisions in the industry were 2 weeks of vacation pay after 1 year of service, 3 weeks after 5 years, and 4 weeks after 10 years. Maximum vacation provisions of 5 weeks applied to one-fifth of the workers and of over 5 weeks to an additional one-fourth.

*Health, insurance, and retirement plans.* All establishments in the industry provided life, hospitalization, sur-

gical, basic medical, and major medical insurance to their production workers (table 35). Four-fifths of the workers were also covered by sickness and accident insurance, seven-tenths by dental insurance, and about two-thirds by accidental death and dismemberment insurance. Sick leave plans covered slightly more than one-third of the work force. The cost of these health insurance plans was usually borne entirely by the employer.

Retirement pension plans providing regular payments for the remainder of the retiree's life (in addition to Federal social security) were reported for slightly more than nine-tenths of the workers. Retirement severance plans were nonexistent in mines visited.

Health and retirement plans were financed entirely by the employers.

*Other selected benefits.* Virtually all production workers were in establishments providing funeral and jury-duty leave in October 1977 (table 33). Technological severance pay, providing payments to workers permanently separated from employment because of a technological change or mine closing, applied to about one-seventh of the work force.

**Table 28. Uranium, radium, and vanadium ore mining: Earnings distribution**

(Percent distribution of production and related workers by average straight-time hourly earnings,<sup>1</sup> United States, October 1977)

Hourly earnings <sup>1</sup>	All workers	Time workers	Incentive workers	Hourly earnings <sup>1</sup>	All workers	Time workers	Incentive workers
NUMBER OF WORKERS.....	9,000	8,105	891	\$7.10 AND UNDER \$7.20.....	.3	.3	.2
AVERAGE HOURLY EARNINGS.....	\$6.85	\$6.64	\$9.18	\$7.20 AND UNDER \$7.30.....	1.3	1.1	2.9
TOTAL.....	100.0	100.0	100.0	\$7.30 AND UNDER \$7.40.....	1.0	1.0	1.2
				\$7.40 AND UNDER \$7.50.....	.2	.1	1.2
UNDER \$6.50.....	3.6	4.0	-	\$7.50 AND UNDER \$7.60.....	1.9	1.7	3.8
\$6.60 AND UNDER \$6.70.....	.4	.4	-	\$7.60 AND UNDER \$7.70.....	.8	.8	1.1
\$6.70 AND UNDER \$6.80.....	.3	.3	-	\$7.70 AND UNDER \$7.80.....	1.2	.9	3.7
\$6.80 AND UNDER \$6.90.....	.4	.4	0.2	\$7.80 AND UNDER \$7.90.....	1.8	1.8	1.7
\$6.90 AND UNDER \$7.00.....	.5	.5	.7	\$7.90 AND UNDER \$8.00.....	.4	.4	.4
\$7.00 AND UNDER \$7.10.....	2.4	2.7	.4	\$8.00 AND UNDER \$8.10.....	1.4	1.0	5.2
\$7.10 AND UNDER \$7.20.....	1.3	1.4	.4	\$8.10 AND UNDER \$8.20.....	1.6	2.1	.2
\$7.20 AND UNDER \$7.30.....	.2	.2	-	\$8.20 AND UNDER \$8.30.....	3.7	4.0	.8
\$7.30 AND UNDER \$7.40.....	.4	.4	1.1	\$8.30 AND UNDER \$8.40.....	1.2	1.1	2.6
\$7.40 AND UNDER \$7.50.....	2.6	2.8	.8	\$8.40 AND UNDER \$8.50.....	2.8	3.1	.2
\$7.50 AND UNDER \$7.60.....	.2	.3	1.8	\$8.50 AND UNDER \$8.60.....	.4	.1	3.0
\$7.60 AND UNDER \$7.70.....	3.8	4.1	1.0	\$8.60 AND UNDER \$8.70.....	.2	.2	.8
\$7.70 AND UNDER \$7.80.....	4.3	4.6	1.0	\$8.70 AND UNDER \$8.80.....	.6	.6	.7
\$7.80 AND UNDER \$7.90.....	2.1	2.1	1.2	\$8.80 AND UNDER \$8.90.....	1.2	1.1	1.6
\$7.90 AND UNDER \$8.00.....	3.6	3.9	.8	\$8.90 AND UNDER \$9.00.....	.4	.3	1.6
\$8.00 AND UNDER \$8.10.....	2.7	2.6	1.0	\$9.00 AND UNDER \$9.10.....	.9	.9	.1
\$8.10 AND UNDER \$8.20.....	9.7	10.7	1.1	\$9.10 AND UNDER \$9.20.....	.8	.8	.9
\$8.20 AND UNDER \$8.30.....	1.7	1.7	1.8	\$9.20 AND UNDER \$9.30.....	.1	-	.8
\$8.30 AND UNDER \$8.40.....	1.7	1.5	3.5	\$9.30 AND UNDER \$9.40.....	.4	.4	.1
\$8.40 AND UNDER \$8.50.....	3.2	3.4	1.8	\$9.40 AND UNDER \$9.50.....	.3	.1	2.1
\$8.50 AND UNDER \$8.60.....	9.5	10.4	1.2	\$9.50 AND UNDER \$9.60.....	.2	.1	1.3
\$8.60 AND UNDER \$8.70.....	4.7	5.0	1.9	\$9.60 AND UNDER \$9.70.....	.8	.6	3.0
\$8.70 AND UNDER \$8.80.....	3.5	3.8	1.0	\$9.70 AND UNDER \$9.80.....	.1	-	.7
\$8.80 AND UNDER \$8.90.....	2.0	2.2	.2	\$9.80 AND UNDER \$9.90.....	.3	.3	1.1
\$8.90 AND UNDER \$9.00.....	1.8	1.8	1.9	\$9.90 AND UNDER \$10.00.....	.2	-	2.2
\$9.00 AND UNDER \$9.10.....	2.0	2.2	.4	\$10.00 AND OVER.....	3.8	1.0	29.1

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

NOTE: Because of rounding, sums of individual items may not equal 100.

**Table 29. Uranium, radium, and vanadium ore mining: Earnings distribution**

(Number and average straight-time hourly earnings<sup>1</sup> of workers in selected occupations, United States, October 1977)

Occupation	Number of workers	Average hourly earnings <sup>1</sup>	Number of workers receiving straight-time hourly earnings (in dollars) of—												
			Under 4.80	4.80 and under 5.00	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80	7.00
<b>MINING OPERATIONS</b>															
BULLDOZER OPERATORS (FINE GRADE).....	73	\$7.69	-	-	-	-	-	-	6	3	6	-	-	-	-
CAGE TENDERS.....	40	6.73	-	-	-	-	-	1	-	-	4	30	32	-	
DRILLERS, MACHINE.....	53	7.60	-	-	-	-	-	-	1	15	-	-	-	-	
LABORERS, UNDERGROUND.....	466	5.78	-	22	10	27	304	47	9	-	-	1	23	-	
LOADING-MACHINE OPERATORS.....	77	6.42	-	-	-	-	-	-	-	-	4	-	-	28	
MINERS.....	1,726	7.68	-	-	-	6	72	6	115	54	583	226	14	14	
POWER-SHVEL OPERATORS.....	59	6.28	-	-	-	-	-	3	-	-	-	5	-	17	
PROBERS.....	192	6.56	1	4	24	5	2	8	5	29	-	2	5	14	
SHOT FIRERS.....	8	6.22	-	-	-	-	-	-	-	-	-	1	-	-	
SHVEL OPERATORS HELPERS.....	16	7.50	-	-	-	-	-	-	4	-	-	-	-	-	
SHUTTLE-CAR OPERATORS.....	155	7.20	-	-	-	-	-	-	6	6	70	32	-	-	
GASOLINE OR BATTERY POWERED UNDERGROUND-EQUIPMENT OPERATORS.....	120	7.35	-	-	-	-	-	-	6	6	39	32	-	-	
UNDERGROUND-EQUIPMENT OPERATORS.....	12	7.55	-	-	-	-	-	-	-	-	-	2	-	-	
UNDERGROUND SERVICERS.....	98	6.45	-	-	-	-	-	2	40	26	12	6	6	-	
VENTILATION TECHNICIANS.....	27	6.10	1	-	1	-	-	6	1	12	-	-	4	1	
<b>ORE TREATMENT OPERATIONS</b>															
CONCENTRATOR OPERATORS.....	47	6.42	-	-	8	-	-	32	4	-	3	-	-	20	
CRUSHER OPERATORS.....	88	6.20	-	10	8	8	4	8	15	2	-	-	-	-	
PRIMARY CRUSHER.....	52	6.04	-	-	8	4	8	4	15	-	-	-	-	-	
SECONDARY CRUSHER.....	36	6.58	-	-	8	4	-	-	4	-	2	-	-	-	
FILTER OPERATORS.....	67	6.74	-	-	8	-	-	5	-	5	17	-	10	-	
FLOTATION OPERATORS.....	64	7.30	-	-	-	-	-	18	-	-	-	-	-	-	
ROD-AND-BALL-MILL OPERATORS.....	84	6.76	-	-	4	-	8	-	4	27	-	13	3	-	
YELLOWCAKE PACKAGERS.....	67	6.66	-	-	12	-	-	-	5	13	3	-	5	1	
<b>MINING AND ORE TREATMENT OPERATIONS</b>															
CLEAN-UP EQUIPMENT OPERATORS.....	267	6.06	-	-	-	-	-	2	8	23	-	-	-	-	
CONVEYOR REPAIRERS.....	12	7.26	-	-	-	-	4	-	-	-	-	-	-	-	
ELECTRICIANS, MAINTENANCE.....	184	7.35	-	-	-	-	2	-	15	4	6	25	21	38	
HELPERS, MAINTENANCE TRADES.....	93	5.98	-	-	-	1	3	31	-	46	-	10	-	1	
HOIST OPERATORS.....	122	7.16	-	-	-	-	-	26	-	-	-	33	23	4	
LABORERS, OTHER THAN UNDERGROUND.....	342	5.66	12	58	24	-	96	40	3	20	1	72	4	-	
MACHINISTS, MAINTENANCE.....	36	8.94	-	-	-	-	-	4	-	1	3	4	1	-	
MECHANICS, AUTOMOTIVE.....	69	7.86	2	-	-	-	-	8	-	3	-	6	-	-	
MECHANICS, HEAVY DUTY.....	540	6.98	32	-	60	-	28	-	76	-	20	31	30	113	
MECHANICS, MAINTENANCE.....	589	7.12	-	-	12	-	-	-	61	57	15	44	99	-	
OILERS AND GREASERS.....	107	7.26	-	-	-	1	4	2	14	6	-	-	-	-	
TRUCK DRIVERS.....	478	6.70	54	-	46	6	2	20	8	58	14	-	-	-	
ORE HAULAGE.....	452	6.74	54	-	42	-	-	12	4	96	14	-	-	-	
SERVICE OR WATER.....	22	6.01	-	-	4	2	2	8	-	-	-	-	-	-	
WELDERS, MAINTENANCE.....	73	7.19	-	-	-	-	-	-	6	-	2	12	15	12	

Occupation	Number of workers receiving straight-time hourly earnings (in dollars) of—										
	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80	9.00 and over
<b>MINING OPERATIONS</b>											
BULLDOZER OPERATORS (FINE GRADE).....	-	8	-	5	10	2	17	6	-	9	1
CAGE TENDERS.....	3	-	4	3	2	-	-	-	-	-	1
DRILLERS, MACHINE.....	-	2	-	5	-	7	9	10	-	3	1
LABORERS, UNDERGROUND.....	-	-	13	1	-	-	1	-	-	-	138
LOADING-MACHINE OPERATORS.....	-	-	2	-	1	1	3	-	-	-	260
MINERS.....	49	31	45	39	29	45	57	31	39	25	34
POWER-SHVEL OPERATORS.....	6	1	9	7	7	1	12	6	2	-	34
PROBERS.....	-	-	-	-	-	-	-	7	-	-	-
SHOT FIRERS.....	-	-	-	-	3	-	-	3	-	6	-
SHVEL OPERATORS HELPERS.....	-	4	-	5	-	-	-	-	-	-	32
SHUTTLE-CAR OPERATORS.....	-	4	-	1	-	-	-	-	-	-	32
GASOLINE OR BATTERY POWERED UNDERGROUND-EQUIPMENT OPERATORS.....	2	-	4	-	2	-	2	-	-	-	-
UNDERGROUND SERVICERS.....	-	-	-	-	2	-	4	-	-	-	-
VENTILATION TECHNICIANS.....	-	-	-	-	-	-	-	-	-	-	-
<b>ORE TREATMENT OPERATIONS</b>											
CONCENTRATOR OPERATORS.....	8	-	-	-	-	-	8	4	-	-	-
CRUSHER OPERATORS.....	2	8	3	1	3	5	5	-	-	-	-
PRIMARY CRUSHER.....	-	3	-	1	3	1	1	-	-	-	-
SECONDARY CRUSHER.....	2	5	3	-	-	4	4	-	-	-	-
FILTER OPERATORS.....	2	2	-	1	-	2	11	4	-	-	-
FLOTATION OPERATORS.....	-	13	-	8	-	2	12	5	-	6	-
ROD-AND-BALL-MILL OPERATORS.....	1	1	2	10	11	1	2	-	-	-	-
YELLOWCAKE PACKAGERS.....	-	-	-	-	-	-	-	-	-	-	-
<b>MINING AND ORE TREATMENT OPERATIONS</b>											
CLEAN-UP EQUIPMENT OPERATORS.....	4	9	8	12	-	5	159	20	10	19	16
CONVEYOR REPAIRERS.....	-	-	-	-	-	8	-	-	-	-	-
ELECTRICIANS, MAINTENANCE.....	5	-	2	13	-	7	4	13	-	7	22
HELPERS, MAINTENANCE TRADES.....	2	-	-	1	2	2	5	4	-	4	16
HOIST OPERATORS.....	8	-	2	-	-	-	6	-	-	-	-
LABORERS, OTHER THAN UNDERGROUND.....	-	-	-	-	-	4	-	-	3	-	16
MACHINISTS, MAINTENANCE.....	-	-	-	-	-	25	-	5	-	11	9
MECHANICS, AUTOMOTIVE.....	39	-	1	9	-	46	3	57	-	6	59
MECHANICS, HEAVY DUTY.....	8	15	-	4	-	-	25	18	-	28	62
MECHANICS, MAINTENANCE.....	14	5	6	4	41	-	8	-	-	2	-
OILERS AND GREASERS.....	2	13	14	24	26	66	61	22	-	4	-
TRUCK DRIVERS.....	-	11	14	24	26	66	59	22	-	4	-
ORE HAULAGE.....	2	-	-	-	-	-	2	-	-	-	-
SERVICE OR WATER.....	1	-	-	-	-	22	-	-	-	-	3
WELDERS, MAINTENANCE.....	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>2</sup> Workers were distributed as follows: 1 at \$9 to \$9.20; 3 at \$9.60 to \$9.80; 6 at \$10 to \$10.20; 18 at \$10.20 to \$10.40; 3 at \$11.60 to \$12; 2 at \$12 to \$12.40; and 5 at \$12.40 and over.

<sup>3</sup> Workers were distributed as follows: 30 at \$9 to \$9.20; 8 at \$9.20 to \$9.40; 18 at \$9.40 to \$9.60; 12 at \$9.60 to \$9.80; 32 at \$9.80 to \$10; 9 at \$10 to \$10.20; 2 at \$10.20 to \$10.40; 75 at \$10.40 to \$10.60; 4 at \$11.80 to \$12.20; and 70 at \$12.20 and over.

<sup>4</sup> Includes data for workers in classifications in addition to those shown separately.

**Table 30. Uranium, radium, and vanadium ore mining: Work schedules**

(Percent of production workers in establishments by scheduled weekly hours and days,<sup>1</sup> United States, October 1977)

Weekly hours	Percent of production workers
All workers .....	100
4 days .....	2
40 hours .....	( <sup>2</sup> )
48 hours .....	2
5 days .....	84
40 hours .....	80
42 hours .....	4
5 1/2 days .....	11
44 hours .....	11
6 days .....	3
48 hours .....	3

<sup>1</sup> Data relate to the predominant schedule for full-time day-shift workers in each establishment.

<sup>2</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100.

**Table 31. Uranium, radium, and vanadium ore mining: Shift differential provisions**

(Percent of production workers in establishments by shift differential provisions,<sup>1</sup> United States, October 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers in establishments with second-shift provisions .....	99.8
With shift differential .....	97.5
Uniform cents per hour .....	92.4
8 cents .....	1.9
10 cents .....	6.1
12 cents .....	13.5
14 cents .....	10.3
15 cents .....	43.9
18 cents .....	1.2
20 cents .....	11.9
Over 20 and under 25 cents .....	2.0
Uniform percentage .....	5.1
Under 5 percent .....	5.1
<b>Third shift</b>	
Workers in establishments with third-shift provisions .....	96.4
With shift differential .....	94.4
Uniform cents per hour .....	89.3
12 cents .....	1.9
15 cents .....	6.1
20 cents .....	18.5
25 cents .....	14.2
28 cents .....	11.5
30 cents .....	33.0
Uniform percentage .....	5.1
Under 5 percent .....	5.1

<sup>1</sup> Refers to policies of establishments currently operating late shifts or having provisions covering late shifts.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 32. Uranium, radium, and vanadium ore mining: Shift differential practices**

(Percent of production workers in establishments employed on late shifts by amount of pay differential, United States, October 1977)

Shift differential	Percent of production workers
<b>Second shift</b>	
Workers employed on second shift .....	26.7
Receiving differential .....	26.3
Uniform cents per hour .....	25.4
8 cents .....	.7
10 cents .....	1.4
12 cents .....	3.5
14 cents .....	2.7
15 cents .....	13.0
18 cents .....	.5
20 cents .....	3.3
Over 20 and under 25 cents .....	.2
Uniform percentage .....	.9
Under 5 percent .....	.9
<b>Third shift</b>	
Workers employed on third shift .....	15.2
Receiving differential .....	14.8
Uniform cents per hour .....	13.9
12 cents .....	.1
15 cents .....	1.4
20 cents .....	2.9
25 cents .....	2.0
28 cents .....	1.7
30 cents .....	4.9
Uniform percentage .....	.9
Under 5 percent .....	.9

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 33. Uranium, radium, and vanadium ore mining: Paid holidays**

(Percent of production workers in establishments with formal provisions for paid holidays and holidays provided, United States, October 1977)

Number of paid holidays and holidays provided	Percent of production workers
All workers .....	100
Workers in establishments providing paid holidays .....	100
6 days .....	2
7 days .....	( <sup>1</sup> )
8 days .....	2
9 days .....	28
10 days .....	68
Holidays provided:	
New Year's Day .....	100
Washington's Birthday .....	42
Good Friday .....	84
Memorial Day .....	100
Fourth of July .....	100
Labor Day .....	100
Veterans' Day .....	18
Thanksgiving Day .....	100
Day after Thanksgiving .....	65
Christmas Eve .....	54
Christmas Day .....	100
New Year's Eve .....	7
Other - 1 day .....	25
Other - 2 days .....	1
Floating .....	64

<sup>1</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 34. Uranium, radium, and vanadium ore mining: Paid vacations**

(Percent of production workers in establishments with formal provisions for paid vacations after selected periods of service, United States, October 1977)

Vacation policy	Percent of production workers	Vacation policy	Percent of production workers
All workers .....	100		
		Amount of vacation pay <sup>1</sup> —Continued	
<b>Method of payment</b>			
Workers in establishments providing paid vacations .....	97	<b>After 10 years of service:</b>	
Length-of-time payment .....	97	3 weeks .....	26
		4 weeks .....	62
		Over 4 and under 5 weeks .....	10
Amount of vacation pay <sup>1</sup>		<b>After 15 years of service:</b>	
<b>After 1 year of service:</b>		3 weeks .....	16
1 week .....	19	4 weeks .....	71
Over 1 and under 2 weeks .....	10	Over 4 and under 5 weeks .....	10
2 weeks .....	68	<b>After 20 years of service:</b>	
<b>After 2 years of service:</b>		3 weeks .....	15
1 week .....	17	4 weeks .....	37
2 weeks .....	68	5 weeks .....	36
Over 2 and under 3 weeks .....	12	Over 5 and under 6 weeks .....	10
<b>After 3 years of service:</b>		<b>After 25 years of service:</b>	
2 weeks .....	85	3 weeks .....	15
Over 2 and under 3 weeks .....	12	4 weeks .....	35
<b>After 5 years of service:</b>		5 weeks .....	37
2 weeks .....	19	Over 5 and under 6 weeks .....	10
Over 2 and under 3 weeks .....	2	<b>Maximum vacation</b>	
3 weeks .....	66	3 weeks .....	15
Over 3 and under 4 weeks .....	10	4 weeks .....	35
		5 weeks .....	22
		Over 5 and under 6 weeks .....	10
		6 weeks .....	15

<sup>1</sup> Vacation payments, such as percent of annual earnings, were converted to an equivalent time basis. Periods of service were chosen arbitrarily and do not necessarily reflect individual establishment provisions for progression. For example, changes indicated at 10 years may include changes that

occurred between 5 and 10 years.

NOTE: Because of rounding, sums of individual items may not equal totals.

**Table 35. Uranium, radium, and vanadium ore mining: Health, insurance, and retirement plans**

(Percent of production workers in establishments with specified health, insurance, and retirement plans,<sup>1</sup> United States, October 1977)

Type of plan	Percent of production workers
All workers .....	100
Workers in establishments providing:	
Life insurance .....	100
Noncontributory plans .....	62
Accidental death and dismemberment insurance .....	65
Noncontributory plans .....	53
Sickness and accident insurance or sick leave or both <sup>2</sup> .....	95
Sickness and accident insurance .....	79
Noncontributory plans .....	42
Sick leave (full pay, no waiting period) .....	22
Sick leave (partial pay or waiting period) .....	13
Long-term disability insurance .....	30
Noncontributory plans .....	13
Hospitalization insurance .....	100
Noncontributory plans .....	71
Surgical insurance .....	100
Noncontributory plans .....	71
Medical insurance .....	100
Noncontributory plans .....	71
Major medical insurance .....	100
Noncontributory plans .....	56
Dental insurance .....	69
Noncontributory plans .....	62
Retirement plans <sup>3</sup> .....	94
Pensions .....	94
Noncontributory plans .....	94

<sup>1</sup> Includes those plans for which the employer pays at least part of the cost and excludes legally required plans such as workers' compensation and social security; however, plans required by State temporary disability laws are included if the employer contributes more than is legally required or the employees receive benefits in excess of legal requirements. "Noncontributory plans" include only those plans financed entirely by the employer.

<sup>2</sup> Unduplicated total of workers receiving sickness and accident insurance and sick leave shown separately.

<sup>3</sup> Unduplicated total of workers covered by pension plans and severance pay shown separately.

**Table 36. Uranium, radium, and vanadium ore mining: Other selected benefits**

(Percent of production workers in establishments providing selected benefits,<sup>1</sup> United States, October 1977)

Type of benefit	Percent of production workers
Workers in establishments with provisions for:	
Funeral leave .....	98
Jury-duty leave .....	98
Technological severance pay .....	15

<sup>1</sup> For definition of items, see appendix A.

# Appendix A. Scope and Method of Survey

## Scope of survey

The survey covered establishments primarily engaged in the following activities as defined in the 1972 edition of the *Standard Industrial Classification Manual* prepared by the U.S. Office of Management and Budget:

1. Mining, beneficiating, or otherwise preparing iron ores valued chiefly for their iron content (SIC 1011).
2. Mining, milling, or otherwise preparing copper ores (SIC 1021).
3. Mining, milling, or otherwise preparing lead ores, zinc ores, or lead-zinc ores (SIC 1031).
4. Mining, milling, or otherwise preparing uranium-radium-vanadium ores (SIC 1094).

The survey excluded all smelting and refining operations, ore treatment facilities directly connected with smelters located away from the mine, and independently owned ore treatment plants that were not part of a single economic unit as defined below.

Establishments studied in iron, copper, and lead-zinc mining were selected from those employing 50 workers or more at the time of reference of the data used in compiling the universe lists; those picked in uranium mining were from establishments with at least 20 workers. Table A-1 shows the number of establishments and workers estimated to be within the scope of the survey, as well as the number actually studied by the Bureau.

## Method of study

Data were obtained by personal visits of the Bureau's field representatives to a representative sample of establishments within the scope of the survey. To obtain appropriate accuracy at minimum cost, a greater proportion of large than of small establishments was studied. All estimates are presented, therefore, as relating to all establishments in the industry, excluding only those below the minimum size at the time of reference of the universe data.

## Establishment definition

An establishment is defined as: (1) A mine or mines without an ore treatment plant; or (2) a mine or mines with an ore treatment plant operated by a company as a single economic unit. Such establishment is defined as a single economic unit if it has common supervision over the day-to-day activities or common support facilities,

such as maintenance and office.

## Employment

Estimates of the number of workers within the scope of the study are intended as a general guide to the size and composition of the industry's labor force, rather than as precise measures of employment.

## Production workers

The terms "production workers" and "production and related workers," used interchangeably in this bulletin, include working supervisors and all nonsupervisory workers engaged in nonoffice activities. Administrative, executive, professional, and technical personnel, and force-account construction employees, who are used as a separate work force on the firm's own properties, are excluded.

## Occupational classification

Occupational classification was based on a uniform set of job descriptions designed to take account of interestablishment and interarea variations in duties within the same job. (See appendix B for these descriptions.) The criteria for selection of the occupations were: The number of workers in the occupation; the usefulness of the data in collective bargaining; and appropriate representation of the entire job scale in the industry. Working supervisors, apprentices, learners, beginners, trainees, and handicapped, part-time, temporary, and probationary workers were not reported in the data for selected occupations but were included in the data for all production workers.

## Wage data

Information on wages relates to straight-time hourly earnings, excluding premium pay for overtime and for work on weekends, holidays, and late shifts. Incentive payments, such as those resulting from piecework or production bonus systems, and cost-of-living bonuses were included as part of the workers' regular pay. Nonproduction bonus payments, such as Christmas or yearend bonuses, were excluded.

*Average (mean) hourly rates or earnings* for each occupation or category of workers, such as production workers, were calculated by weighting each rate (or hourly earnings) by the number of workers receiving the rate, totaling, and dividing by the number of

**Table A-1. Estimated number of establishments and employees within scope of survey and number studied, metal mining industries, July and October 1977**

Industry	Number of establishments		Workers in establishments		
	Within scope of study	Actually studied	Within scope of study		Actually studied
			Total <sup>1</sup>	Production workers	
All industries combined . . . . .	108	98	66,506	53,590	55,465
Iron mining . . . . .	25	23	22,707	19,103	18,431
Copper mining . . . . .	25	21	25,686	20,210	19,950
Lead and zinc mining . . . . .	22	22	7,051	5,277	7,051
Uranium, radium, and vanadium mining . . . . .	36	32	11,062	9,000	10,033

<sup>1</sup> Includes executive, professional, office, and other workers in addition to the production worker category shown separately.

individuals. The hourly earnings of salaried workers were obtained by dividing straight-time salary by normal (or standard) hours to which the salary corresponds.

**Method of wage payment**

Tabulations by method of wage payment relate to the number of workers paid under the various time and incentive wage systems. Formal rate structures for time-rated workers provide single rates or a range of rates for individual job categories. In the absence of a formal rate structure, pay rates are determined primarily by the qualifications of the individual worker. A single rate structure is one in which the same rate is paid to all experienced workers in the same job classification. (Learners, apprentices, or probationary workers may be paid according to rate schedules which start below the single rate and permit the workers to achieve the full job rate over a period of time.) An experienced worker occasionally may be paid above or below the single rate for special reasons, but such payments are exceptions. Range-of-rate plans are those in which the minimum, maximum, or both of these rates paid experienced workers for the same job are specified. Specific rates of individual workers within the range may be determined by merit, length of service, or a combination of these. Incentive workers are classified under piecework or bonus plans. Piecework is work for which a predetermined rate is paid for each unit of output. Production bonuses are for production in excess of a quota or for completion of a task in less than standard time.

**Scheduled weekly hours**

Data on weekly hours refer to the predominant work schedule for full-time production workers employed on the day shift.

**Shift provisions and practices**

Shift provisions relate to the policies of establishments either currently operating late shifts or having

formal provisions covering late-shift work. Practices relate to workers employed on late shifts at the time of the survey.

**Establishment practices and supplementary wage provisions**

Supplementary benefits in an establishment were considered applicable to all production workers if they applied to half or more of such workers in the establishment. Similarly, if fewer than half of the workers were covered, the benefit was considered nonexistent in the establishment. Because of length-of-service and other eligibility requirements, the proportion of workers receiving the benefits may be smaller than estimated.

*Paid holidays.* Paid holiday provisions relate to full-day and half-day holidays provided annually.

*Paid vacations.* The summary of vacation plans is limited to formal arrangements and exclude informal plans whereby time off with pay is granted at the discretion of the employer or supervisor. Payments not on a time basis were converted; for example, a payment of 2 percent of annual earnings was considered the equivalent of 1 week's pay. The periods of service for which data are presented represent the most common practices, but they do not necessarily reflect individual establishment provisions for progression. For example, changes in proportions indicated at 10 years of service may include changes which occurred between 5 and 10 years.

*Extended vacations.* Data relate to formal plans providing for additional vacation pay at a specified interval. Such plans commonly provide 13 weeks of vacation every 5 years to the "Senior Group" (one-half of employees with longest continuous service) and 3 weeks in addition to regular vacation every 5 years for the "Junior Group".

**Health, insurance, and retirement plans**

Data are presented for health, insurance, pension,

and retirement severance plans for which the employer pays all or a part of the cost, excluding programs required by law such as workers' compensation and social security. Among plans included are those underwritten by a commercial insurance company and those paid directly by the employer from his current operating funds or from a fund set aside for this purpose.

Death benefits are included as a form of life insurance. Sickness and accident insurance is limited to that type of insurance under which predetermined cash payments are made directly to the insured on a weekly or monthly basis during illness or accident disability. Information is presented for all such plans to which the employer contributes at least a part of the cost. However, in New York and New Jersey, where temporary disability insurance laws require employer contributions,<sup>1</sup> plans are included only if the employer (1) contributes more than is legally required, or (2) provides the employees with benefits which exceed the requirements of the law.

Tabulations of paid sick leave plans are limited to formal plans which provide full pay or a proportion of the worker's pay during absence from work because of illness; informal arrangements have been omitted. Separate tabulations are provided for (1) plans which provide full pay and no waiting period, and (2) plans providing either partial pay or a waiting period.

Long-term disability insurance plans provide payments to totally disabled employees upon the expiration of sick leave, sickness and accident insurance, or both, or after a specified period of disability (typically 6 months). Payments are made until the end of disability, a maximum age, or eligibility for retirement benefits. Payments may be full or partial, but are almost always reduced by social security, workers' compensation, and private pension benefits payable to the disabled employee.

Medical insurance refers to plans providing for complete or partial payment of doctors' fees. Such plans may be underwritten by a commercial insurance

company or a nonprofit organization, or they may be a form of self-insurance.

Major medical insurance, sometimes referred to as extended medical or catastrophe insurance, includes plans designed to cover employees for sickness or injury involving an expense which exceeds the normal coverage of hospitalization, medical, and surgical plans.

Tabulations of retirement pensions are limited to plans which provide regular payments for the remainder of the retiree's life. Data are presented separately for retirement severance pay (one payment or several over a specified period of time) made to employees on retirement. Establishments providing both retirement severance payments and retirement pensions to employees were considered as having both retirement pensions and retirement severance plans; however, establishments having optional plans providing employees a choice of either retirement severance payments or pensions were considered as having only retirement pension benefits.

*Paid funeral and jury-duty leave.* Data for paid funeral and jury-duty leave relate to formal plans which provide at least partial payment for time lost as a result of attending funerals of specified family members or serving as a juror.

*Technological severance pay.* Data relate to formal plans providing for payments to employees permanently separated from the company because of a technological change or plant closing.

*Supplemental unemployment benefits.* Data relate to formal plans designed to supplement benefits paid under State unemployment insurance systems.

<sup>1</sup>The temporary disability laws in California and Rhode Island do not require employer contributions.

# Appendix B. Occupational Descriptions

The primary purpose of preparing job descriptions for the Bureau's wage surveys is to assist its field representatives in classifying into appropriate occupations workers who are employed under a variety of payroll titles and different work arrangements from establishment to establishment and from area to area. This classification permits the grouping of occupational wage rates representing comparable job content. Because of this emphasis on interestablishment and interarea comparability of occupational content, the Bureau's job descriptions may differ significantly from those in use in individual establishments or those prepared for other purposes. In applying these job descriptions, the Bureau's field representatives are instructed to exclude working supervisors, apprentices, learners, beginners, trainees, and handicapped, part-time, temporary, and probationary workers.

## **Balling-drum operator**

Operates balling drum to produce green iron pellets. Work involves: Regulating speed of balling drums, cutter bars, and feeds; conducting tests of moisture, compressions, and screen structure; and adjusting water and other controls for proper balling. May clean bins, chutes, and screens when necessary. Exclude operators of ball mills in the concentrator section of the plant (see Rod and Ball-Mill Operator).

## **Braker**

(Coupler; nipper; rope rider; trip rider)

Rides on trains or trips of cars hauled by locomotive or hoisting cable or chain, and assists in their transportation. Work involves *most of the following*: Operating or throwing switches; coupling and uncoupling cars or attaching and detaching cars to cable; opening and closing ventilation doors; and directing movement of train by signaling operator.

## **Bulldozer operator—fine grade**

Operates tractor with concave steel scraper mounted in front of chassis to fine grade roadways and other areas. May build dams and ponds. Excludes Quad Operators (those operating bulldozers pushing scrapers) and operators cleaning up around shovels and crushers (see Clean-up Equipment Operator).

## **Cage tender**

(Skip tender; station tender)

Controls operation of cages between levels of mine and surface. Work involves *most of the following*: Pushing or pulling loaded cars off cage at surface and replacing them with empty cars or cars with supplies or personnel; pulling cars from cage at bottom or other levels of mine and moving them onto sidings; and signaling hoist operator to raise or lower cage. May load cage with materials and record number of cars and production from mine.

## **Car repairer**

(Mine-car repairer)

Reconditions mine cars by repairing worn or broken parts or by replacing such parts with new ones. Work involves *most of the following*: Inspecting mine cars, noting the condition of various parts, and determining need for repair or replacement of parts; and making replacements of worn or broken parts such as axles, wheels, and couplings.

## **Changeroom attendant**

Keeps changeroom and offices clean and orderly. Work involves *most of the following*: Maintaining cleanliness of changerooms, hallways, showers, toilets, etc.; handling mine lamps in and out of charging racks; observing boilers and making minor adjustments; supplying materials; and making minor repairs to lockers, etc.

## **Clean-up equipment operator**

Operates mobile equipment such as rubber-tire or track payloaders or bulldozers to clean-up loose ore or rock in and around surface mine or mill. Places large boulders aside for blasting. May work in conjunction with a power shovel.

## **Concentrator operator**

(Panelboard operator)

Operates panelboard to control all or most of the machinery and equipment in the concentrator mill involving such operations as conveying, feeding, crushing, grinding, reagent handling, flotation classifying, drying, and loading. Work involves *most of the following*: Starting, stopping, and operating concentrating equipment; observing, checking, and manipulating all controls; and making necessary adjustments to regulate ore flow and air, water, fuel, chemicals, lubrication, etc.

### **Conveyor operator**

(Boom-conveyor operator)

Operates the conveyor or conveyor loading boom to transport ore or materials about mine or ore treatment plant. Work involves *most of the following*: Starting specified boom conveyor and conveyor belts; regulating conveyor speed as required; and observing controls to detect malfunctions of conveyor systems. May oil, grease, and make minor adjustments to conveyor system, and may operate drum hoist to position cars under conveyor.

### **Conveyor repairer**

Installs and repairs belt conveyors in and about mine or mill. Work involves: Inspecting and maintaining conveyors; replacing parts such as couplings, pulleys, idlers; installing belt conveyor sections; and lubricating conveyors. May do simple cutting and burning, and welding.

### **Crusher operator**

Operates a crushing machine to break up ore. Work involves: Regulating flow of ore to and from crusher; breaking up large chunks or prodding them through crusher; and cleaning, oiling, and making minor repairs.

For wage study purposes, crusher operators are classified by type of crusher as follows:

*Primary crusher*

*Secondary crusher*

NOTE: Primary crushing machines are frequently located in a mine or pit.

### **Driller, machine**

Operates truck or tractor mounted machine to drill ore body to make holes for explosives in surface mines. Work involves *most of the following*: Positioning drilling equipment and making power connections; drilling shot holes as needed to obtain desired breakage from blasting; and lubricating, adjusting, and making minor repairs to machine. May, in addition, direct work of a helper and insert and set off charges of explosives in the holes. Exclude workers primarily drilling blast holes to break-up large boulders.

### **Dumper**

(Car dumper)

Operates a car-dumping device to unload mine cars or trucks. May direct ore into separate bins by means of an unloading chute and move cars to and from the dumping device.

### **Dust collector servicer**

Services dust collection equipment in a mill. Work involves *most of the following*: Starting, stopping, and inspecting dust collectors; adjusting spray water; cleaning spray nozzles and screens; flushing out hoppers; checking and cleaning fan; and observing gauges. May make minor adjustments to equipment.

### **Engineer, stationary**

Operates and maintains and may also supervise the operation of stationary engines and equipment (mechanical or electrical) to supply the establishment in which employed with power, heat, refrigeration, or air-conditioning. Work involves: Operating and maintaining equipment such as steam engines, air compressors, generators, motors, turbines, ventilating and refrigerating equipment, steam boilers and boiler-fed water pumps; making equipment repairs; keeping a record of operation of machinery, temperature, and fuel consumption. May also supervise these operations. *Head or chief engineers in establishments employing more than one engineer are excluded.*

### **Electrician, maintenance**

Performs a variety of electrical trade functions such as in the installation, maintenance, or repair of equipment for the generating, distribution, or utilization of electrical energy in an establishment. Work involves *most of the following*: Installing or repairing any of a variety of electrical equipment such as generators, transformers, switchboards, controllers, circuit breakers, motors, heating units, conduit systems, or other transmission equipment; working from blueprints, drawings, layout, or other specifications; locating and diagnosing trouble in the electrical system or equipment; working standard computations relating to load requirements of wiring or electrical equipment; using a variety of electrician's handtools and measuring and testing instruments. In general, the work of the maintenance electrician requires rounded training and experience usually acquired through a formal apprenticeship or equivalent training and experience.

### **Filter operator**

Operates machine to filter, dry, and load concentrates in preparation for shipment. Work involves: Controlling flow of air, fuel, and feed into disc, drum, or belt filter; regulating speed of rotation and vacuum suction; and checking discharge end for proper formation of cake. May load ore into cars.

### **Flotation operator**

Operates flotation machinery for the recovery of concentrates. Work involves: Starting, stopping, and observing operation of flotation machines, reagent dispensers, tanks, and related equipment; checking froth in flotation units; and mixing reagents and adjusting reagent feeds.

### **Furnace operator**

(Kiln operator)

Operates furnace or kiln to produce fired pellets. Work involves *most of the following*: Starting and stopping equipment; regulating temperatures, flows, and pressures; observing instruments on control panel; and

controlling feed rates in wet, dry, and firing sections. Kiln operators may fire guns to break up rings in kiln.

### **Helper, maintenance trades**

Assists one or more workers in the skilled maintenance trades, by performing specific or general duties of lesser skill, such as keeping a worker supplied with materials and tools; cleaning working area, machine, and equipment; assisting workers by holding materials or tools; performing other unskilled tasks as directed by journeyman. The kind of work the helper is permitted to perform varies from trade to trade: In some trades, the helper is confined to supplying, lifting, and holding materials and tools and cleaning working areas; and in others he is permitted to perform specialized machine operations, or parts of a trade that are also performed by workers on a full-time basis.

### **Hoist operator**

Operates underground or surface hoisting machinery to move cages or skips. Work involves: Controlling movement; stopping cage or skip tender at proper levels; inspecting machinery for defects; and adjusting brakes.

### **Laborer, other than underground**

Performs manual labor in surface mine, yard, or mill area. Work involves: Repairing railroad tracks, ties, etc.; digging ditches; breaking rock or ore; and loading and unloading supplies. May do minor lubricating.

### **Laborer, underground**

Performs general manual tasks in an underground mine. Work involves: Digging and cleaning ditches, walkways, etc.; loading and unloading tools and supplies; and performing clean-up work or other laboring tasks. Uses handtools such as picks and shovels.

### **Loading-machine operator**

(Duckbill self-loading-conveyor operator; Joy loader operator; Jeffrey loader operator; loading-machine runner; mobile-loader operator; mucking machine operator; ore hauler; scraper-loader operator; slusher operator)

Operates one of a variety of oreloading machines used to gather loose ore (or rock) at the working face of an underground mine and transport it to designated location such as trucks, mine cars, or conveyors. Work involves *most of the following*: Inspecting and testing roof of working area for unsafe condition and setting up supports where necessary; moving track rubber tire or crawler-tread mounted machine to working face; manipulating machine controls to position the gathering head and to move machine as necessary in gathering and loading the ore; directing the activities of helpers; and greasing, oiling, and making minor repairs and adjustments to machine.

### **Locomotive engineer**

Operates train for haulage, switching, and servicing work in and about mine or mill. May control locomotive by remote radio control. May operate feeders and also signal power shovel or haulage trucks when loading and unloading.

### **Machinist, maintenance**

Produces replacement parts and new parts in making repairs of metal parts of mechanical equipment operated in an establishment. Work involves *most of the following*: Interpreting written instructions and specifications; planning and laying out of work; using a variety of machinist's handtools and precision measuring instruments; setting up and operating standard machine tools; shaping of metal parts to close tolerances; making standard shop computations relating to dimensions of work, tooling, feeds and speeds of machining; knowledge of the working properties of the common metals; selecting standard materials, parts, and equipment required for his work; fitting and assembling parts into mechanical equipment. In general, the machinist's work normally requires a rounded training in machine-shop practice usually acquired through a formal apprenticeship or equivalent training and experience.

### **Mechanic, automotive**

Repairs automobiles, buses, motortrucks, and tractors of an establishment. Work involves *most of the following*: Examining automotive equipment to diagnose source of trouble; disassembling equipment and performing repairs that involve the use of such handtools as wrenches, gauges, drills, or specialized equipment in disassembling or fitting parts; replacing broken or defective parts from stock; grinding and adjusting valves; reassembling and installing the various assemblies in the vehicle and making necessary adjustments; alining wheels, adjusting brakes and lights, or tightening body bolts. In general, the work of the automotive mechanic requires rounded training and experience usually acquired through a formal apprenticeship or equivalent training and experience.

### **Mechanic, heavy duty**

(Diesel engine mechanic)

Performs major overhauls and repair of diesel engines and equipment such as trucks, drillers, power shovels, etc. Work involves most of the following: Diagnosing trouble and determining nature and extent of repairs; removing cylinder heads and pistons, cylinder linings, connecting rods, bearings, and all auxiliary parts such as hoist cylinders, hose assemblies, electric and hydraulic equipment; and setting up and operating automotive machine tools such as valve grinders and honing machines. In general, the work of the heavy-duty mechanic requires rounded training and experience usually acquired through a formal apprenticeship or equivalent

training and experience.

Exclude workers repairing railroad diesel engines.

### **Mechanic, maintenance**

Repairs machinery or mechanical equipment of an establishment. Work involves *most of the following*: Examining machines and mechanical equipment to diagnose source of trouble; dismantling or partly dismantling machines and performing repairs that mainly involve the use of handtools in scraping and fitting parts; replacing broken or defective parts with items obtained from stock; ordering the production of a replacement part by a machine shop or sending the machine to a machine shop for major repairs; preparing written specifications for major repairs or for the production of parts ordered from machine shop; reassembling machines; and making all necessary adjustments for operation. In general, the work of a maintenance mechanic requires rounded training and experience usually acquired through a formal apprenticeship or equivalent training and experience. Excluded from this classification are workers whose *primary duties* involve setting up or adjusting machines.

### **Mine trucker**

(Transfer hauler)

Operates rubber-tire truck to transport ore or other materials in an underground mine. Work involves: Manipulating levers and switches for loading, unloading, and transporting ore, rock, and other materials to designated area. Truck may pull rubber-tire cars or have its own body.

### **Miner**

(Operating driller)

Performs a number of the following tasks in underground mines: Drilling blast holes; charging holes with explosives; arranging for proper guarding of all entrances to the area; firing charges; inspecting results of blasts and reblasts where necessary. May scale loose rock from walls or roof of working places.

### **Oiler and greaser**

Lubricates, with oil or grease, the moving parts of wearing surfaces of mechanical equipment of an establishment. Excludes workers classified as conveyor belt cleaners.

### **Pellet-mill operator**

(Panelboard operator)

Operates panelboard to control all or most of the machinery and equipment in a pellet mill such as kiln system cooler, screens, balling discs, pumps, feeders, tripper systems, and conveyors. Work involves *most of the following*: Starting, regulating, and stopping pellet plant equipment; observing panel for fuel, power, temperature, and pressure readings; checking operation of dust collection system; igniting kiln burner and regulating

flow of fuel, and maintaining flow of materials to grinding mill and balling discs.

### **Power-shovel operator**

(Power-shovel engineer)

Operates diesel or electric powered shovels to load ore or other materials into trucks or other transportation equipment in a surface mine.

### **Prober**

Determines grade of ore mined by inserting Geiger counter into drilled holes of ore body and recording data.

### **Pumper**

(Pump operator)

Operates one or more motor-driven pumps used to remove excess water from work areas in an underground or surface mine. Work involves *most of the following*: Setting or assisting in the work of setting the pumps at desired locations, or in laying, connecting, and repairing pipe or hose lines; starting and stopping pumps; making necessary adjustments or minor repairs to equipment; and reporting on water levels in work areas.

### **Roof bolter**

Maintains mine roofs, walls, and pillars for the protection of underground employees and equipment from rock falls. Work involves: Drilling holes for sheaves, pins, and cables; and installing roof supporting equipment, pillars, air lines, and water lines. May drill and blast.

### **Rod and ball mill operator**

Operates rod and ball machines to pulverize ore. Work involves: Charging mill with round stones, steel balls, rods, or other grinding materials; regulating flow of ore and water into mill and controlling rotation speed to grind ore properly; and lubricating and making minor repairs to machinery. Excludes operators of balling-drums in iron pellet mills (see Balling-Drum Operator).

### **Shaft miner**

Constructs vertical shafts in underground mines. Work involves: Drilling, blasting, pouring concrete, setting guides for hoists and skips, and operating special shaft sinking equipment.

### **Shot firer**

(Blaster; shooter)

Blasts ore, or rock, loose from solid mass by charging, lamping, and setting off charges of explosives in drilled holes in a surface mine. Work involves *most of the following*: Preparing and placing explosive charge with primer inserted in shot hole, tamping charge in place; filling remainder of shot hole with noncombustible material, tamping it tightly and leaving a detonator wire extending outside the hole; preparing blasting

equipment and setting off charge; examining areas in which charges have been set off and reporting on number and location of holes fired and those that fail to go off.

### **Shovel operator helper**

Performs a variety of duties to aid operation of a power shovel employed in removing ore in a pit mine. Work involves *a combination of the following*: Moving up power lines or water lines and other supplies when power shovel is moved to a new position in the mine; removing obstructions in path of shovel; blocking treads or wheels to steady shovel; and moving rock within reach of power shovel, using a pick and shovel. May oil shovel.

### **Shuttle-car operator**

Operates gas, battery or electrically powered engine that pulls rail shuttle car in mine to transport supplies or ore from face to designated location.

For wage study purposes, shuttle-car operators are classified by type of car as follows:

*Electric overhead powered*

*Other (gas or battery)*

### **Steel sharpener**

(Bit grinder; bit sharpener)

Shapes, sharpens, and tempers drill steel and bits. Work involves: Shaping and sharpening bits on grinding machine; drilling steel on anvil or press; and tempering drills by heating and quenching in liquids.

### **Track layer**

Prepares the track bed, and lays, maintains, and repairs rail tracks in underground or surface mine. Work involves *most of the following*: Preparing track bed by grading; placing ties in position; laying and spacing rails, spiking or clamping rails to ties, joining rail sections and installing switches; inspecting established track to detect possible defects, making adjustments or replacements as necessary; and removing rails, ties, and other track parts from areas where they are no longer needed. May bond track.

### **Truckdriver**

Drives a truck to transport ore or other materials and equipment or men in and around the mine, loading docks, and other areas as required. May also load or unload truck with or without helpers, make minor mechanical repairs, and keep truck in good working order.

For wage survey purposes, truckdrivers are classified by type of truck and mine as follows:

*Iron, lead and zinc, and uranium, radium and vanadium*

Ore haulage

Service or water  
Combination of types

### *Copper*

Ore haulage

Under 65 tons

65 to 84 tons

85 to 99 tons

100 tons or more

Service or water

Combination of types

### **Underground-equipment operator**

Operates mobile equipment in underground mines, such as lift trucks, front-end loader, load hauler, backhoe, road grader, and bulldozer to maintain roads and ditches, and move and position equipment and supplies. Does not include equipment operators transporting or loading ore or waste at face of mine (see Loading-Machine Operator).

### **Underground servicer**

Performs a wide range of service functions in support of mining activities. Work involves *most of the following*: Installing air, water, and vent pipes and dismantling used pipe; installing pumps; building and installing vent doors, chutes, grizzlies, bulk heads, and pouring concrete. May use lift truck drills, front-end loader, and welding equipment in work.

### **Ventilation technician**

(Air sampler)

Tests samples of air in mine for radon, dust, and diesel emissions to determine air quality. To assure air circulation, locates fans within mine and builds airdoors and bulkheads.

### **Welder, maintenance**

Performs the welding duties necessary to maintain machinery and equipment in good repair, by fusing (welding) metal objects together in the fabrication of metal shapes and in repairing broken or cracked metal objects. Work involves *most of the following*: Planning and laying out work from written or oral instructions and specifications; knowledge of welding properties of a variety of metals and alloys; setting up of work and determining operation sequence; welding a variety of items as necessary; ability to weld with gas and arc apparatus.

### **Yellowcake packager**

Packages processed uranium ore (yellowcake) in metal drums for shipment. Weighs and labels drums. May also pick ore samples for testing.

# Industry Wage Studies

The most recent bulletins providing occupational wage data for industries included in the Bureau's program of industry wage surveys since 1960 are listed below. Copies are for sale from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, or from any of its regional sales offices, and from the

## *Manufacturing*

Basic Iron and Steel, 1972. BLS Bulletin 1839<sup>1</sup>  
Candy and Other Confectionery Products, 1975. BLS Bulletin 1939  
Cigar Manufacturing, 1972. BLS Bulletin 1976  
Cigarette Manufacturing, 1976. BLS Bulletin 1944  
Corrugated and Solid Fiber Boxes, 1976. BLS Bulletin 1921  
Fabricated Structural Steel, 1974. BLS Bulletin 1935  
Fertilizer Manufacturing, 1971. BLS Bulletin 1763  
Flour and Other Grain Mill Products, 1972. BLS Bulletin 1803  
Fluid Milk Industry, 1973. BLS Bulletin 1871  
Footwear, 1975. BLS Bulletin 1946  
Hosiery, 1976. BLS Bulletin 1987  
Industrial Chemicals, 1976. BLS Bulletin 1978  
Iron and Steel Foundries, 1973. BLS Bulletin 1894  
Leather Tanning and Finishing, 1973. BLS Bulletin 1835  
Machinery Manufacturing, 1978. BLS Bulletin 2022  
Meat Products, 1974. BLS Bulletin 1896  
Men's and Boys' Separate Trousers, 1974. BLS Bulletin 1906  
Men's and Boy's Shirts (Except Work Shirts) and Nightwear, 1974. BLS Bulletin 1901  
Men's and Boy's Suits and Coats, 1976. BLS Bulletin 1962  
Miscellaneous Plastics Products, 1974. BLS Bulletin 1914  
Motor Vehicles and Parts, 1973-74. BLS Bulletin 1912  
Nonferrous Foundries, 1975. BLS Bulletin 1952  
Paints and Varnishes, 1976. BLS Bulletin 1973  
Paperboard Containers and Boxes, 1970. BLS Bulletin 1719  
Petroleum Refining, 1976. BLS Bulletin 1948  
Pressed or Blown Glass and Glassware, 1975. BLS Bulletin 1923  
Pulp, Paper, and Paperboard Mills, 1977. BLS Bulletin 2008  
Semiconductors, 1977. BLS Bulletin 2021  
Shipbuilding and Repairing, 1976. BLS Bulletin 1968  
Southern Sawmills and Planing Mills, 1969. BLS Bulletin 1694

regional offices of the Bureau of Labor Statistics shown on the inside back cover. Copies that are out of stock are available for reference purposes at leading public, college, or university libraries, or at the Bureau's Washington or regional offices.

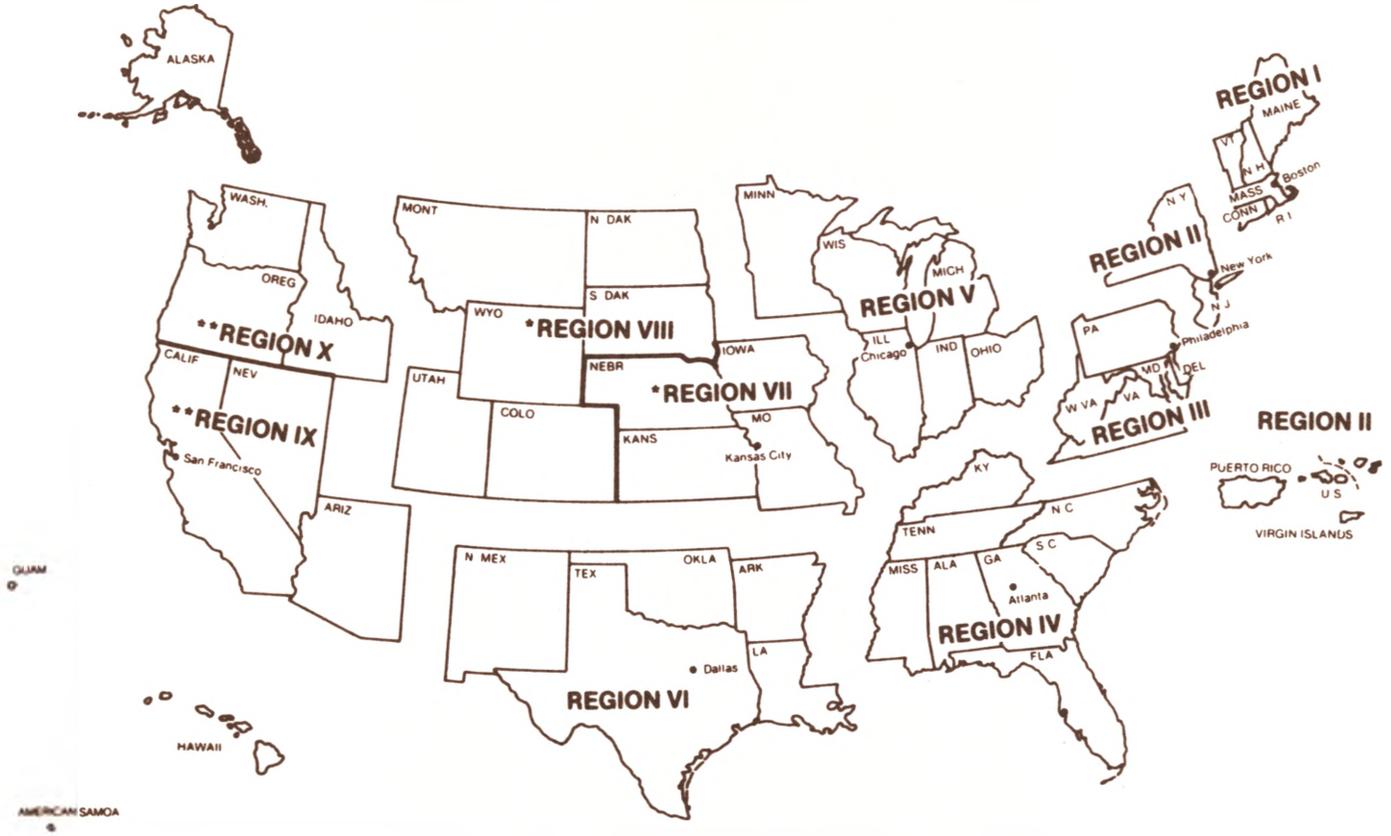
Structural Clay Products, 1975. BLS Bulletin 1942  
Synthetic Fibers, 1976. BLS Bulletin 1975  
Textile Dyeing and Finishing, 1976. BLS Bulletin 1967  
Textiles, 1975. BLS Bulletin 1945  
Wages and Demographic Characteristics in Work Clothing Manufacturing, 1972. BLS Bulletin 1858  
West Coast Sawmilling, 1969. BLS Bulletin 1704  
Women's and Misses' Coats and Suits, 1970. BLS Bulletin 1728  
Women's and Misses' Dresses, 1976. BLS Bulletin 2007  
Wood Household Furniture, Except Upholstered, 1974. BLS Bulletin 1930

## *Nonmanufacturing*

Appliance Repair Shops, 1975. BLS Bulletin 1936  
Auto Dealer Repair Shops, 1973. BLS Bulletin 1876  
Banking and Life Insurance, 1976. BLS Bulletin 1988  
Bituminous Coal Mining, 1976. BLS Bulletin 1999  
Communications, 1976. BLS Bulletin 1991  
Contract Cleaning Services, 1977. BLS Bulletin 2009  
Contract Construction, 1973. BLS Bulletin 1911  
Department Stores, 1977. BLS Bulletin 2006  
Educational Institutions: Nonteaching Employees, 1968-69. BLS Bulletin 1671  
Electric and Gas Utilities, 1972. BLS Bulletin 1834  
Hospitals, 1975-76. BLS Bulletin 1949  
Hotels and Motels, 1973. BLS Bulletin 1883  
Laundry and Cleaning Services, 1968. BLS Bulletin 1645<sup>1</sup>  
Metal Mining, 1977. BLS Bulletin 2017  
Motion Picture Theatres, 1966. BLS Bulletin 1542<sup>1</sup>  
Nursing Homes and Related Facilities, 1976. BLS Bulletin 1974  
Oil and Gas Extraction, 1977. BLS Bulletin 2014  
Scheduled Airlines, 1975. BLS Bulletin 1951  
Wages and Tips in Restaurants and Hotels, 1970. BLS Bulletin 1712

<sup>1</sup> Bulletin out of stock.

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