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# **BUREAU OF MINES**

State Services Building 1525 Sherman Street

Denver 3, Colorado

A Division of the Department of Natural Resources

# **Annual Report**

for the Year

# 1962



G. A. FRANZ, JR. Deputy Commissioner of Mines

Publication Approved by E. G. Spurlin, State Controller



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# Letter Of Transmittal

May 1, 1963

Honorable John A. Love Governor of Colorado State Capitol Denver

Dear Governor Love:

In compliance with the requirements of Chapter 92, Article 32, Section 11, of the Colorado Revised Statutes 1953, I have the honor to transmit herewith the Report of the State Bureau of Mines for the year 1962.

Respectfully submitted,

G. A. Franz, Jr.

Deputy Commissioner of Mines

### Personnel

G. A. FRANZ, JR., Deputy Commissioner.....Lakewood DAVID R. COLE, Senior Inspector......Grand Junction NORMAN R. BLAKE, Inspector, District No. 1....Black Hawk JOSEPH L. KEATING, Inspector, Dist. No. 2....Colo. Springs JOHN W. DOYLE, Inspector, District No. 3.....Leadville WILLIAM E. HORN, Junior Inspector...........Naturita KEITH P. JOHNSON, Junior Inspector......Ouray CALVIN T. WARNICA, Junior Inspector......Nucla MARGARET G. LAWRENCE, Administrative Assistant Denver THELMA L. MACMANUS, Senior Account Clerk.......Denver OLIVIA C. REMINES, Intermediate Clerk Typist......Aurora CATHERINE C. CLARK, Intermediate Clerk Typist....Littleton MARIE E. BARNES, Clerk Typist......Uravan

# **Commissioners Of Mines**

HARRY A. LEE.	May 11, 1895 - May 10, 1903
E. L. WHITE	
T. J. DALZELL	May 10, 1907 - May 10, 1911
T. R. HENAHEN	May 10, 1911 - May 10, 1915
FRED CARROLL	May 10, 1915 - May 10, 1919
HORACE F. LUNT	June 1, 1919 - June 1, 1923
JOHN T. JOYCE	June 1, 1923 - June 12, 1939
Edward P. Arthur	June 12, 1939 - August 26, 1943
Fred Jones	September 27, 1943 - April 25, 1950
WALTER E. SCOTT, JR.	May 3, 1950 - May 31, 1959

# **Directors Of Natural Resources**

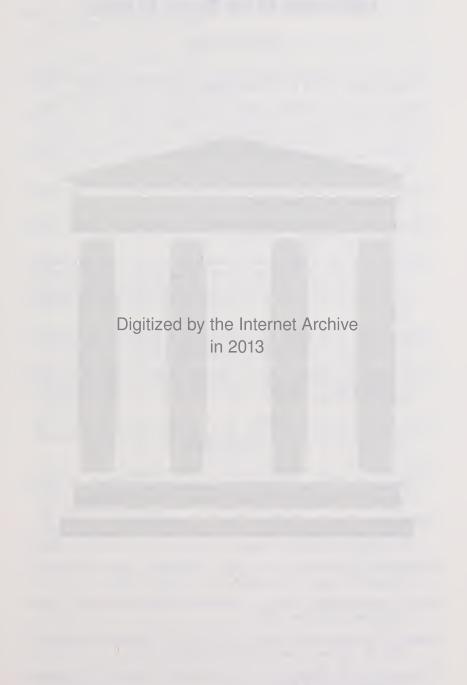
DR. EDWARD L. CLARKOctober 15, 1959 - March 7, 1	1962
FELIX L. SPARKSAugust 2,	1962

# **Deputy Commissioner Of Mines**

G. A	. Franz,	JrJune	1,	1959
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# **Districts Of Inspection**

- **DISTRICT NO. 1**, all of the following counties: Adams, Arapahoe, Boulder, Cheyenne, Clear Creek, Denver, Douglas, Elbert, Gilpin, Grand, Jackson, Jefferson, Kit Carson, Larimer, Logan, Morgan, Phillips, Sedgwick, Washington, Weld, Yuma, and that part of Park County lying north of Fairplay.
- **DISTRICT No. 2,** all of the following counties: Alamosa, Baca, Bent, Conejos, Costilla, Crowley, Custer, El Paso, Fremont, Huerfano, Kiowa, Las Animas, Lincoln, Otero, Prowers, Pueblo, Teller, and that part of Park County lying south of Fairplay.
- **DISTRICT NO. 3**, all of the following counties: Chaffee, Eagle, Garfield, Lake, Mineral, Moffat, Pitkin, Rio Blanco, Rio Grande, Routt, Summit, and that part of Gunnison County in the extreme northwest corner and lying north of the 39th degree of latitude, and that part of Saguache County lying south and east of the Continental Divide.
- **DISTRICT NO. 4**, all of the following counties: Archuleta, Delta, Dolores, Hinsdale, La Plata, Mesa, Montezuma, Montrose, Ouray, San Juan, San Miguel, and Gunnison County, except the extreme northwest corner lying north of the 39th degree of latitude, and that part of Saguache County lying north and west of the Continental Divide.



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### **Publications Of The Bureau Of Mines**

#### BULLETINS

- Bulletin No. 1, Recommendations for Safety Appliance in Mining, Harry A. Lee, Commissioner of Mines, 1896.
- Bulletin No. 2, Precious Metal Production for the Year 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 3, Mining Laws, Relative to Bureau of Mines Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 4, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1901.
- Bulletin No. 5, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1902.
- Bulletin No. 6, Regulations Relative to the Construction, Equipment and Operation of Metalliferous Mines, Mills and Metallurgical Plants, Recommendations and Mineral Production for 1905, E. L. White, Commissioner of Mines, 1906.
- Bulletin No. 7, Federal and State Laws Relating to Mining, Fred Carroll, Commissioner of Mines, 1916.
- Supplement to Bulletin No. 7, Mining Laws Enacted by the Twenty-First General Assembly, Fred Carroll, Commissioner of Mines, 1917.
- Supplement No. 2 to Bulletin No. 7, Amendments to the Mining Laws Enacted by the Twenty-Second General Assembly, Horace F. Lunt, Commissioner of Mines, 1919.
- Supplement No. 3 to Bulletin No. 7, Amendments to Laws Relating to Mining Enacted by the Twenty-Third General Assembly, Horace F. Lunt, Commissioner of Mines, 1921.
- Supplement No. 4 to Bulletin No. 7, Amendments to Laws Relating to Mining Enacted by the Twenty-Fourth General Assembly, Horace F. Lunt, Commissioner of Mines, 1923.
- Bulletin No. 8, The Oil Shales of Northwestern Colorado, Horace F. Lunt, Commissioner of Mines, 1919.
- Bulletin No. 9, Mine Safety Standards, Horace F. Lunt, Commissioner of Mines, 1920.
- Bulletin No. 11, Federal and State Laws Relating to Mining, John T. Joyce, Commissioner of Mines, 1931.
- Bulletin No. 12, Mining Laws of Colorado, Edward P. Arthur, . Commissioner of Mines, 1942.

- Bulletin No. 13, Mining Laws of Colorado, Fred Jones, Commissioner of Mines, 1946.
- Bulletin No. 14, Mining Laws of Colorado, Fred Jones, Commissioner of Mines, 1949.
- Bulletin No. 15, Oil Well Safety Laws, Walter E. Scott, Jr., Commissioner of Mines, 1953.
- Circular No. 1, Location of Lode and Placer Mining Claims, Walter E. Scott, Jr., Commissioner of Mines, 1953.
- Bulletin No. 16, Colorado Mining Laws with Rules and Regulations, Walter E. Scott, Jr., Commissioner of Mines, 1954.
- Circular No. 1, Revised, Location of Lode and Placer Mining Claims, Walter E. Scott, Jr., Commissioner of Mines, 1957.
- Bulletin No. 17, Safety Rules and Regulations (Condensed), G. A. Franz, Jr., Deputy Commissioner of Mines, 1959.
- Circular No. 2, Minerals of Colorado and Area Locations, G. A. Franz, Jr., Deputy Commissioner of Mines, 1960.
- Bulletin No. 18, Oil Well Safety Laws, G. A. Franz, Jr., Deputy Commissioner of Mines, 1961.
- Circular No. 3, Location Regulations for Lode and Placer Mining Claims, Tunnel Sites and Mill Sites, G. A. Franz, Jr., Deputy Commissioner of Mines, 1961.
- Bulletin No. 19, Colorado Mining Laws with Safety Rules and Regulations, G. A. Franz, Jr., Deputy Commissioner of Mines, 1962.

#### REPORTS

- Report of Bureau of Mines, Colorado, from its Establishment in May, 1895, to November 30, 1896, Harry A. Lee, Commissioner of Mines.
- Annual Reports for 1897-1898, Harry A. Lee, Commissioner of Mines.
- Biennial Reports for 1899-1902, Harry A. Lee, Commissioner of Mines.
- Biennial Reports for 1903-1906, E. L. White, Commissioner of Mines.
- Biennial Reports for 1907-1910, T. J. Dalzell, Commissioner of Mines.
- Biennial Reports for 1911-1914, T. R. Henahen, Commissioner of Mines.

- Biennial Reports for 1915-1918, Fred Carroll, Commissioner of Mines.
- Annual Reports for 1919-1922, Horace F. Lunt, Commissioner of Mines.
- Annual Reports for 1923-1924, John T. Joyce, Commissioner of Mines.
- Annual Report for 1925 was fully prepared but, because of lack of funds, was not printed. The manuscript is on file in the office of the State Bureau of Mines.
- Annual Reports for 1926-1935, John T. Joyce, Commissioner of Mines.
- Owing to lack of funds the Annual Report for 1936 was not published.
- Annual Report for 1937, John T. Joyce, Commissioner of Mines.
- Owing to lack of funds the Annual Report for 1938 was not published.
- Annual Report for 1939, Edward P. Arthur, Commissioner of Mines.
- Owing to lack of funds the Annual Report for 1940 was not published.
- Annual Report for 1941, Edward P. Arthur, Commissioner of Mines.
- Annual Reports for 1942 and 1943, Fred Jones, Commissioner of Mines.
- Lists of Mines for 1944 and 1945, Fred Jones, Commissioner of Mines.
- Annual Reports for 1946-1947, Fred Jones, Commissioner of Mines.
- Annual Report for 1948 was not published.
- Annual Reports for 1949-1958, Walter E. Scott, Jr., Commissioner of Mines.
- Annual Reports for 1959-1962, G. A. Franz, Jr., Deputy Commissioner of Mines.
- At the time this report goes to press, copies of the following reports are available: 1897, 1919, 1921, 1922, 1928, 1929, 1932, 1939, 1941, 1946, 1947, 1950-51, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961. All other reports are out of print, but they may be consulted in our Denver office and at most public libraries.

### Forward

With the passing of 1962 a very definite change has been evident in the type of minerals produced in Colorado. The high cost of supplies and materials used in mining operations, along with exceedingly high labor cost, is not being offset by the prices received for our precious and base metals. In 1962 a silver price of \$1.22 per ounce was attained which was the highest price received in forty-two years and this incentive had little or no effect on the amount of silver produced in the State during the year. Although not adequate to cover increased mining costs, the prices received for lead, zinc, copper and gold are considerably higher than they were in the boom days of base and precious metals. Despite these increased prices, the production of these minerals has steadily declined. Another factor which has a tremendous effect on production of these minerals is the fact that since 1960 we have not had a smelter or final treatment plant in the State and all ores and concentrates, by necessity, are shipped to other states for processing. This of course again increased the cost of delivering ores to their ultimate destination and added to the cost of mining.

With this very depressing picture of the precious and base metal industry in Colorado and other western states, we are still able to report an increase of over three hundred million dollars per year in Colorado mineral production over the year 1900. We can report an overall price increase in base and precious metals which, with decreased production of the metal content, makes the dollar value of these minerals produced almost equal to the dollar value in 1900. Other metallics, industrial minerals and mineral fuel, considered of little value in 1900, now have a predominate place in the State's mineral industry. These minerals, such as molybdenum, uranium, vanadium, sand and gravel, limestone, shale, petroleum, gas, stone, volcanic scoria and many others, now constitute over 90% of our mineral production. Equally as many other minerals found in Colorado are waiting to be developed.

Colorado has untapped riches and opportunity lying idle in our oil shale reserves. Our limestone, shale, gypsum, beryl, feldspar, rare earth, scoria, quartz, sulphur and many other minerals have not been even partially developed to their ultimate capacity. We realize full well that an operator, having his equipment and capital tied up in base and precious metal property, cannot easily shift into this new field of opportunity, and in many cases the desire to change over has been dimmed by his past sad experiences in base and precious metals. It is certainly desired that these minerals will someday command prices that will enable our Colorado operators to resume operations. However, in the meantime conditions will not be improved by passing up the production of minerals that can be mined for a profit, a profit which rightfully belongs to one who had a major part in developing Colorado's past mineral industry. In other words, we believe that there are many opportunities being passed up in Colorado today while we are waging a near hopeless battle to restrict imports and place extra duties on our base metals.

In this respect mining men and industry are not alone in a condition of inactivity. Colorado's various state agencies, including the Bureau of Mines, have not prepared up-to-date geologic, qualitative or quantitative bulletins which would certainly help the industry in determining Colorado's potential in these minerals and assist in their development. We have only to refer to the work being done by our neighboring states to realize our inadequacies. It is not the intent of this statement to criticize either the industry or the state agencies, for we know that many conditions alter and prevent us from doing the things that, for all practical purposes, are perfectly clear. We do wish to call attention to what has gradually happened and keep you informed of the future trend of the mining industry in Colorado.

During the year 1962 several factors have had an influence on mineral production in the State. Uranium quotas have been reduced and several of our larger producers operating under AEC leases have ceased production. For the most part this loss of production has been absorbed by the uranium industry and plans are under way to prepare the industry for a reduced market at the end of 1966 when AEC purchases will be curtailed. A strike which started July 19 at the Climax properties in Lake County and continued through the balance of the year, has had a very serious effect on molybdenum production. This strike idled over a thousand miners in the State. Partial production of this metal resumed late in October when the supervisory employees of the company started limited operations.

For their appreciated assistance during the year, we want to extend thanks to the Colorado Department of Public Health, the United States Public Health Service, the United States Bureau of Mines, the State Compensation Insurance Fund and other agencies who extended their generous services to this Department.

The untimely death of our first Director of Natural Resources, Dr. Edward L. Clark, on March 7 was a great loss to the Bureau of Mines and other resource agencies of the State. His untiring efforts towards developing resources of Colorado are most certainly missed by this Department and by the State in general. Dr. Clark's unfinished term was filled by the appointment of Mr. Felix L. Sparks as our second Director of Natural Resources.

Information in this report and the compilation of the same

came from the generous contribution and untiring efforts of every member of this Department, both clerical and inspection. Their unqualified support and loyalty are gratefully acknowledged.

G. A. Franz, Jr.

# **Radon Daughter Control Program**

#### By David R. Cole, Senior Inspector

The year 1962 saw great strides taken toward the control of radon and its daughter products as a radiation hazard in Colorado's uranium mines. Detailed information on the status of mines and work accomplished is contained elsewhere in this Annual Report.

The need for, organization of, and procedure followed in the Bureau of Mines' Radon Daughter Control Program initiated in June 1961 were described in detail in the Bureau of Mines 1961 Annual Report.

It is the policy of the Bureau of Mines to promote and protect the mining industry in Colorado. To accomplish this we make every effort to work with the operator and assist him in every way possible so that he may continue to produce ores in our State. We are, however, charged to make certain that all miners work in a healthy environment and to protect their health and safety under all conditions. In keeping with this policy, the function of the Radon Daughter Control Program is to reduce the concentration of radon daughter products in the atmosphere of Colorado's uranium mines to acceptable limits, thereby lessening the possibility of Colorado's uranium miners contracting lung cancer as a result of this radiation hazard. This is accomplished by evaluating the hazard through air sampling and initiating corrective ventilation when required.

On September 28, 1962 a directive was issued from the Denver Office of the Bureau of Mines to all uranium mine operators in the State. This directive restated the Bureau of Mines' position, policy, and procedure in respect to radon daughter concentrations in excess of allowable limits. As a result of the mine operators' support and cooperation with the Junior Inspectors and other Bureau of Mines personnel, the great strides aforementioned were possible.

Keeping the miners' exposure to radon and its daughter products within acceptable limits is a continuing problem requiring periodic evaluation of the operating uranium mines along with appropriate changes in ventilation systems as mining progresses and conditions change. With the continued cooperation and effort of the uranium mine operators and their employees, this radiation hazard can be kept under control.

In conjunction with the Control Program, the Bureau of Mines is giving all possible assistance to the Atomic Energy Commission, United States Public Health Service, United States Bureau of Mines, Colorado State Department of Public Health, other agencies, and the mine operators. Through the cooperation and material support of the United States Public Health Department and the Colorado State Department of Public Health facilities are available at the Bureau of Mines Naturita Field Office to calibrate the radiation detection equipment used in' this program. This service is available to mine operators and regulatory agencies within Colorado as well as those in neighboring states.

During 1962 the Bureau of Mines has continued to receive the results of radon daughter sampling conducted by other regulatory agencies and mine operators, as well as the exchange of other pertinent information, and is grateful for these contributions and support.

The cooperation that has been received by the Bureau of Mines in carrying out this program has been excellent in all respects from all concerned and is gratefully acknowledged.

### Minerals In 1962

Colorado's 1962 mineral production of \$337,534,623 was 15% lower than the 1961 production of \$396,702,149, which was an all time high. Increased production in industrial minerals was not sufficient to overcome the loss of production in petroleum, gold, molybdenum, uranium and vanadium ores. Of the thirty major minerals produced in 1962, 16 showed an increase and 14 showed a decline.

Cutbacks in uranium allotments, along with a lower per pound price and cancellation of most of Colorado's Atomic Energy Commission leases, was responsible for the reduction in uranium and vanadium production. A strike at the Climax properties in Lake County, which extended from mid-July to the end of the year, was responsible for the reduction in molybdenum, tungsten, tin and pyrites. A general levelling off of production in Colorado's leading oil fields, with a minimum of new discoveries, was responsible for the drop in petroleum production. Closing of the Golden Cycle Mill at Cripple Creek at the end of 1961, and all of the properties shipping to this mill, cut Colorado's gold production by 30%. Present gold production comes from other mines in the State as a co-product with lead, copper, zinc and silver.

Increased production of silver, zinc and copper was influenced by steady and improved mining methods at the Idarado Mining Company and Camp Bird properties in Ouray and San Miguel Counties, at the New Jersey Zinc properties in Eagle County, at the Emperius Mining Company properties in Mineral County, at the Standard Metals property in San Juan County and at the Rico-Argentine properties in Dolores County. The average price of silver in 1962 increased .14¢ over the price received in 1961 and informed sources claim a price of \$1.29 will be attained in 1963. This probable increase is having some effect in stimulating the sampling and opening of old properties which have been closed for many years. As most Colorado ores are complex, this stimulation will no doubt increase production in lead and zinc to some extent. With fullscale operations resumed at Climax on increased tonnage, molybdenum, tin, tungsten and pyrite production should be back to normal or above in 1963. With cut-backs in uranium and vanadium production, and with an almost 100% participation in the Atomic Energy Commission's stretch-out program to 1970, production of these minerals can be expected to decrease considerably for the next few years.

Colorado's nonmetallic and industrial mineral production has shown gains in the last few years, primarily due to increased building and construction in the State. Highway construction, reclamation projects and general building have created an ever increasing demand for cement, sand and gravel, stone and other building materials. This condition will most likely continue for the next few years.

Mineral fuels production, which includes petroleum, gas and coal, levelled off in 1962 and showed a definite decrease over the preceding year. This condition was due primarily to lower petroleum production in Rio Blanco and Morgan Counties and can be classed as temporary. The bulk price per barrel of crude petroleum used to calculate the 1962 petroleum production was \$2.88 per barrel as against \$2.90 in 1961. Gas was priced at .12¢ per thousand cubic feet in 1962. Coal production decreased some 308,000 tons over 1961 production but with increased activity in northern Colorado, this production should be up considerably in 1963. There was no activity in oil shale development or production during 1962, however several large oil companies and Colorado organizations have submitted bids to the Interior Department for development and research program authority.

Colorado's oil shale potential, along with the industrial and nonmetallic mineral potential if and when properly catalogued and developed, will eventually surpass any production previously recorded. To properly exploit these minerals, much research and development work is necessary which will require the coordinated effort of every mineral agency in the State.

Some average prices used in calculating Colorado's mineral production in 1962 are as follows: Gold — \$35.00 per ounce, Silver — \$1.08 per ounce, Copper — .306¢ per pound, Lead — .095¢ per pound, Zinc — .116¢ per pound, Molybdenum — \$1.40 per pound, Uranium — \$8.00 per pound, Vanadium — \$1.80 per pound.

Information in this report is gathered by Bureau of Mines inspectors and office personnel and, although the production figures cannot be accepted as final they are as nearly accurate as possible to secure at this early date. They are intended as a preliminary indication and cannot be used for tax or other valuation purposes. Petroleum and coal production is supplied by the Colorado Oil and Gas Conservation Commission and the State Coal Mine Division and the dollar value is calculated by this office. All production figures are calculated by multiplying the unit of production by the average yearly prices. Metallic and nonmetallic mineral production figures are received directly from the operator and in some cases where these reports are incomplete, an estimate from inspection reports is used.

# Production Of Metals, Nonmetallics, Petroleum And Coal

State Totals

Metallics Molybdenum Uranium Vanadium Zinc Tungsten Lead Copper Gold Silver Pyrite Iron Beryl Tin Miscellaneous Metallics Total Metallic Mineral Production	45,551,080 9,964,400 10,346,567 3,052,781 3,270,316 2,530,305 1,719,102 2,123,519 836,480) 170,789) 178,316 61,348 342,850	Cumulative Through 1962 \$ 613,032,788 781,688,804 80,414,260 377,599,139 41,281,453 333,610,658 101,655,543 915,719,529 595,175,508 7,307,363 1,130,289 436,783 11,190,120 \$3,860,242,237
Nonmetallics Cement	$18,245,522 \\18,539,971 \\2,609,340 \\1,926,382 \\1,612,010 \\1,619,460 \\434,414 \\81,734 \\72,944 \\40,000 \\1,490,042$	143,676,206 131,813,150 23,780,429 33,394,754 17,082,993 30,876,757 10,166,207 3,479,422 276,710 272,678 3,880,017 \$ 398,699,323
Mineral Fuels Crude Oil Gas Sold Gas (All classes, well head value) Coal Total Mineral Fuel Production TOTAL STATE MINERAL PRODUCTION	9,099,431 ) 11,688,103 ) 20,898,231 \$164,019,931	1,767,230,853 147,902,364 2,106,885,856 \$4,022,019,073 \$8,280,960,633

### **County Activity And Production**

#### ADAMS (1)

\*Brighton

Area 1,250 square miles

Plants, projects-144 men

Production from some eighty wells in the Badger Creek, Beacon, Busy Bee, Little Beaver, Middlemist, Muddy Creek, Deer Trail, Doherty, Knox, Leader, Noonen Ranch, Poison Springs, Rosner, Second Creek, Simpson, Windy Hill, Woodrow West and other fields in Adams County maintained a steady production of oil and gas during the year. Boise Cascade Sand & Gravel Company, Brannan Sand & Gravel Company and the Cooley Sand & Gravel Company operated pits from which some gold and silver were recovered from the washed gravel which added to the minerals produced. Oil exploration drilling was normal.

Gold\$ Silver	41,185 2,067
Total\$	43,252
Sand & Gravel Miscellaneous	2,404,905 500,000
Total\$	2,904,905
Petroleum Gas Sold	1,751,005 100,087
Total\$	1,851,092
TOTAL PRODUCTION FOR COUNTY\$	4, <b>7</b> 99, <b>2</b> 49

#### **ARCHULETA** (4)

\*Pagosa Springs

Area 1,364 square miles

Oil-85 men

Minerals, fuels and sand and gravel made up the mineral production of Archuleta County in 1962. Gramps field, the largest petroleum producer in Archuleta County, operated by the Oriental Refining Company and located south and east of Chromo, had a steady production from some 23 wells during the year. Other producers were in Mancos field, the Greenhorn field and the Mesa Verde field. Some highway construction was noted in the Arboles and Navajo Reservoir Area and some rare metal prospecting was evident in other parts of the County.

Sand & Gravel\$	56,423
Petroleum\$	229,994

TOTAL PRODUCTION FOR COUNTY......\$ 286,417

#### BACA (2)

\*Springfield

Area 2,565 square miles

Plant, oil-60 men

The Garvey Drilling Company, Horizontal Oil and Gas Company, Michaelis Graham Drilling Company, Smith Boor Drilling Company, The Davis Drilling Company and Earl F. Wakefield were active in exploration drilling in the County with reported fair success. With oil and gas produced from over 12 wells in the County, mineral fuel production can be expected to steadily increase. Sand and gravel operations added to the economy of mineral production in this area.

Sand & Gravel Petroleum Gas Sold	 8,500 588,963 80,784
Total	\$ 669,747
TOTAL PRODUCTION FOR COUNTY	\$ 678,247

#### **BOULDER** (1)

\*Boulder

Area 758 square miles

Mines, plants, quarries, project, oil-279 men

Fluorspar, petroleum, sand and gravel, stone, peat, and clay, with some production of gold and silver, were the principal mineral commodities of Boulder County in 1962. The increased silver price was an inducement for several of the silver mines in the area to resume development and exploration work. The Cash and Rex mines in the Gold Hill area were further developed by the Steen Mining Company for gold and silver. The Burlington Mine at Jamestown, operated by the General Chemical Division of the Allied Chemical Corporation, was the largest mining operation in the County during the year. Their crude flourspar ore was trucked from the mine to the companyoperated mill at Valmont. The Burlington Mine was put on a

\*County seats

semi-stand-by basis in December and production came from pulling stopes only. The mill at Valmont started on a five-day per month basis in December. Stone production, consisting of various colors of sandstone from the many quarries in the County, increased over last year's production. Red, pink and white sandstone is quarried and shipped to many areas in the Rocky Mountain region. The cut stone is used in building construction and the uncut stone is used as flagstone and for decorative purposes. Boulder County's once flourishing tungsten industry was at a standstill during 1962 and has been so since the government supported price on tungsten was lifted in 1956.

Tungsten\$ Uranium	10,000
Miscellaneous	5,000
Total\$	15,000
Sand & Gravel Fluorspar Stone Clay Peat	464,314 1,619,460 195,212 693 14,521
Total\$	2,294,200
Petroleum\$	7,474
TOTAL PRODUCTION FOR COUNTY\$	2,316,674

#### CHAFFEE (3)

\*Salida

#### Area 1,040 square miles

Mine, plants, quarries, projects-101 men

Granite, feldspar, limestone, and sand and gravel were Chaffee County's principal mineral products in 1962. The County's past production of gold, lead and silver has ceased with the exception of several small prospect operations. The Homestake Mine, operated by M & S, Inc., produced feldspar. The Colorado Granite Grit Corporation produced crushed granite for the poultry industry. Limestone was produced from the Monarch Quarry, located on Monarch Pass, which was operated by the Colorado Fuel & Iron Works. Small amounts of granite monumental stone were quarried in the various quarries near Salida.

\*County seats

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Miscellaneous\$	1,000
Sand & Gravel Limestone Stone Feldspar, Mica, etc. Miscellaneous	175,057 344,513 27,300 102,204 22,000
Total\$	671,074
TOTAL PRODUCTION FOR COUNTY\$	672,074

#### CLEAR CREEK (1)

\*Georgetown

Area 395 square miles

Mines, plants, placers-153 men

Although very little mineral production was realized from Clear Creek County during the year, several important development operations were active. Development work at the Cascade Tunnel on Ute Creek by the Humphreys Engineering Company gave promising results to the operators. Some of their developed ore was shipped to the smelters in Texas and some was milled in the Silver Spruce Mill. Exploration and development work at the Urad Mine west of Berthoud Pass by C. Ryan & Son for the Climax Molybdenum Company continued during the year and the operator is hopeful of mining this large molybdenum deposit. Kerr-McGee Oil Industries did exploration drilling on the Gold Dirt group of mines two miles northwest of Empire on property owned by Tedrow and Nelson. Operators were encouraged by the rise in the price of silver during the year and many of the County's old silver mines were reopened for sampling and prospecting work. Placer mining was evident along Clear Creek east of Idaho Springs.

Gold\$ Silver Lead Zinc	4,417 8,861 6,040 2,200
Total\$	21,518
Sand & Gravel\$	17,554
TOTAL PRODUCTION FOR COUNTY\$	39,072

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#### CONEJOS (2)

\*Conejos

Area 1,274 square miles

Plants, projects-94 men

The Great Lakes Carbon Corporation operated their perlite processing plant throughout the year 1962 on ores shipped into Colorado from northern New Mexico. Sand and gravel production was normal for the year.

Sand & Gravel ......\$ 38,329

TOTAL PRODUCTION FOR COUNTY......\$ 38,329

#### COSTILLA (2)

\*San Luis

Area 1,220 square miles

Quarry, project, oil-22 men

Volcanic scoria was produced at the Mesita Hill Quarry, operated by Colorado Aggregate, Inc., and sand and gravel was produced from several pits in the County. The Alamosa Drilling Company conducted exploratory oil well drilling on the Vaugen No. 1 Well, one and one-half miles northeast of San Luis.

Sand & Gravel\$ Volcanic Scoria	223,655 21,500
Total\$	245,155
TOTAL PRODUCTION FOR COUNTY\$	245,155

#### CUSTER (2)

\*Westcliffe

Area 738 square miles

Mines, quarry, project-52 men

Encouraging gold and silver ore development work was continued at the Buckeye-Holt property, located 24 miles southwest of Wetmore, by Eisenhour & Decker and at the Copper Reef and Tomboy properties, operated by Jack Best and Charles and Lyman Akin, respectively. The increased price of silver should have a beneficial influence on the development work at these properties. Clay was produced at the Lawson Quarry and vermiculite and perlite were produced at the Ponderosa and Rosita Quarries, respectively. The Ponderosa Quarry is located seven miles northeast of Westcliffe and the Rosita Quarry is located one and one-half miles southeast of Rosita.

Sand & Gravel Perlite		
Total	.\$ 128,883	
TOTAL PRODUCTION FOR COUNTY	.\$ 128,883	

#### DELTA (4)

Area 1,161 square miles

Plant, projects, oil-82 men

Agricultural grade gypsum and calcium sulphate were mined by the Chipeta Mining Company from their quarry near the junction of the Smith Fork and the Gunnison River. This material was processed in the company plant which produces commercial fertilizer. The Bud King Construction Company continued work on the Smith Fork reclamation project and the several carbon dioxide wells, located between Delta and Paonia, were steady producers of carbon dioxide gas during the year. Sand and gravel was produced from several pits located on the Gunnison and Uncompander Rivers.

Sand & Gravel\$ Gypsum	
Total\$	18,614
TOTAL PRODUCTION FOR COUNTY\$	18,614

#### DENVER (1)

Area 73 square miles

#### Plants-162 men

The American Smelting & Refining Company's Globe Plant and the Allied Chemical Corporation, General Chemical Division's Denver Plant, both located in metropolitan Denver, continued to operate all year. The American Smelting & Refining Company Plant produced refined metals and the General Chemical Plant produced various chemicals and acids. Many of Colorado's mining and milling companies, as well as many oil companies, have their main offices in the Denver area.

Sand & Gravel .....\$ 211,457

TOTAL PRODUCTION FOR COUNTY......\$ 211,457

\*County seats

\*Delta

\*Denver

#### DOLORES (4)

\*Dove Creek

Area 1,029 square miles

Mines, plants, projects, oil--115 men

Lead-zinc mining and milling operations of the Rico-Argentine Mining Company continued steady during the year on ores from the St. Louis and Mountain Spring properties located at Rico. The Ramco Sulphuric Acid Plant, located north of Rico, operated most all year and was closed in late December. Acid from this plant was sold to the various uranium mills in the area. Some prospecting and development work was recorded at the Rosebud property in the Dunton area. Work continued on Highway 145 between Ophir and Dolores.

Gold	2,575 45,600 4,300 150,000 232,000 612,000
Total\$	1,046,475
Sand & Gravel\$	11,000

### TOTAL PRODUCTION FOR COUNTY......\$ 1,057,475

#### DOUGLAS (1)

\*Castle Rock

Area 844 square miles

Mines, plants, quarry-34 men

Clay mines, located east of the mountains and operated by the Robinson Brick & Tile Company, Denver Brick & Tile Company and Stroud Whisenhunt, had a steady clay production during the year. Some feldspar and considerable sand and gravel production was recorded from the County.

Sand & Gravel\$ Limestone Clay Miscellaneous	625,867 2,914 231,993 34,450
Total\$	895,224
TOTAL PRODUCTION FOR COUNTY\$	895,224

#### EAGLE (3)

#### \*Eagle

#### Area 1,686 square miles

#### Mine, plant, quarry-661 men

The Eagle Mine, consolidated from several properties on Battle Mountain in 1915 by the Empire Zinc Company and now operating as the New Jersey Zinc Company, has been in continuous operation for over 47 years. This lead, zinc, copper, silver property presently produces in excess of 22,000 tons per month crude ore and is of vast importance to the economy of Eagle County and the State. Careful planning, coupled with economical operating procedures, enables this company to continue operations in the face of high material and labor costs. Despite these adverse operating conditions, this company has maintained an exceptional safety record during the years. The other Eagle County operator is the Lava Products, Inc., producing volcanic cinders from their Dotsero Quarry. The recently authorized Frying Pan-Arkansas project will result in more employment in this County.

Gold\$	214,900
Silver	621,756
Copper	319,652
Lead	690,840
Zinc	5,718,488
Total\$	7,565,636
Sand & Gravel	13,001
Scoria	8,986
Total\$	21,987
TOTAL PRODUCTION FOR COUNTY\$	7,587,623

<sup>\*</sup>County seats

#### EL PASO (2)

\*Colorado Springs

Area 2,159 square miles

Plant, quarries, projects-588 men

Excavation operations at the NORAD project by the Utah Mining & Construction Company were near completion at the end of this year. Completion of two small diameter inclined raises to the surface and some slabbing operations were all that remained in the way of excavation to complete the first phase of this project. Both the Lennox Breed and Castle Quarries, located north and west of Colorado Springs, operated all during the year producing limestone and concrete aggregate. Sand and gravel production and highway construction added to employment in the County.

Sand & Gravel\$	1,293,571
Limestone	30,000
	1 202 551
Total\$	1,323,571
TOTAL PRODUCTION FOR COUNTY\$	1,323,571

#### FREMONT (2)

\*Canon City

Area 1,562 square miles

Mines, plants, quarries, projects, oil-326 men

Limestone and cement manufacturing by the Ideal Cement Company at Portland has been by far the largest mineral operation in Fremont County for several years. The operation of 10 mines and 16 quarries in 1962 exemplified the diversified mineral activity in this County. Limestone, gypsum, dolomite, uranium, ornamental stone, building stone, travertine, perlite, clay, quartz, marble and granite aggregate are some of the products produced in this County. The New Jersey Zinc Company operated their sintering plant seven days a week during 1962. During the year the Cotter Corporation Mill was in steady production on refining uranium ores from Fremont County and counties along the Front Range of Colorado. Installation of a new research laboratory at the Cotter Plant will enable this company to continue research and metallurgy on such minerals as zirconium, titanium, molvbdenum, silver, tungsten and some of the rare earths. Sand and gravel production and road projects added to employment during the year. Colorado's oldest producing oil field at Florence continued to be active.

Uranium\$ Beryllium Miscellaneous	3,911,160 11,717 500
Total\$	3,923,377
Cement	8,235,899 105,648 545,099 86,000 86,839 14,960 4,510 718 71,000 1,465
Total\$	
Petroleum\$	83,638
TOTAL PRODUCTION FOR COUNTY\$	13,159,153

#### GARFIELD (3)

\*Glenwood Springs

#### Area 3,000 square miles

Mine, plants, quarries, project-287 men

Late in 1962 the Department of Interior issued invitations to institutions, organizations, companies and others to submit bids and programs for reopening the Government Oil Shale Mine and Plant west of Rifle. No definite plans had been announced as to the success of these requests by the end of the year, however it is almost assured that some activity in oil shale will be evident in the near future. The Rifle plant of Union Carbide Nuclear Corporation, located in Rifle, continued production of refined uranium and vanadium ores during the year, processing in excess of 1,000 tons of crude ore per day. No work was recorded at the Rifle vanadium mine. Limestone was quarried at the Basic Chemical Quarry, located five miles northeast of Glenwood Springs. Petroleum and gas were produced in the western part of the County as was sand and gravel along the Colorado River.

Sand & Gravel\$ Limestone	437,914 126,136
Total\$	564,050
Gas Sold\$	168,554
TOTAL PRODUCTION FOR COUNTY\$	732,604

#### GILPIN (1)

\*Central City

Area 149 square miles

Mines, plants, placers-83 men

Increased activity in placer mining was evident in Gilpin County during 1962. Ten separate placer operations were recorded, however, gold production was light. Development work was continued at the Wilma molybdenum property located at the head of Jenny Lind Gulch near Apex by Nye Metals, Inc. Some development and improvement work was continued at the Glory Hole property and mill, operated by Glory Hole, Inc. Altogether 15 gold and silver properties were under various stages of development work during the year. Peat was mined from four bogs and two mills in the County were operated for a short time during the year. The County's tourist mines were popular during the summer months. Mineral activity in this County, like many other counties in the State, was retarded due to a lack of custom milling and smelter facilities.

Gold\$ Silver Copper Lead Zinc	11,549 993 243 3,985 361
Total\$	17,131
Sand & Gravel Peat	2,000 14,423
Total\$	16,423
TOTAL PRODUCTION FOR COUNTY\$	33,554

#### **GUNNISON** (3 & 4)

\*Gunnison

Area 3,243 square miles

Mines, plants, quarries, projects-310 men

Eighteen separate mine development operations were listed in Gunnison County during the year. Most of these reported no production. The increased price of silver no doubt had some influence on a few of these operations. The Gunnison uranium mill owned by Kerr-Mac Nuclear Fuels Corporation was closed early in January 1962 as was the Micawber property northwest of Crested Butte. The Micawber mill was moved to Summit County. Development work continued on the big Iron Hill property by Boyles Brothers Drilling Company near Powderhorn. This property is owned by E. I. du Pont de Nemours Company of Wilmington, Delaware. Development work continued on the Forrest Hill property near Taylor Park by the Gaddis Mining Company. The various highway tunnel and dam preparation projects connected with the construction of the Blue Mesa Dam, Curecanti Unit, has added materially to employment in the County. The diversion tunnel that will divert the Guunison River around the dam was driven by Quad Construction Company, sub-contracting from the Tecon Corporation, the prime contractor.

Miscellaneous\$	4,500
Sand & Gravel Stone Miscellaneous	,
Total\$	111,623
TOTAL PRODUCTION FOR COUNTY\$	116,123

#### HINSDALE (4)

\*Lake City

Area 1,062 square miles

#### Mines-15 men

Development work with some production was recorded from Child's Park Lode operated by W. J. Crain, the Edna Mine operated by Swanson House, the Golconda operated by Bob Watson and Carl Jensen, the Highland Chief operated by Ajax Syndicate, and the Silver Jack operated by Tim Ingram and G. E. Wetzel. Transportation and the high cost of mining material and labor, coupled with low metal prices, have seriously curtailed gold, silver, lead and zinc production from this once important mineral area. Considerable highway improvement was made between Lake City and Powderhorn.

Miscellaneous\$	5,000
Sand & Gravel\$	5,502

TOTAL PRODUCTION FOR COUNTY......\$ 10,502

#### JACKSON (1)

\*Walden

Area 1,628 square miles Oil—50 men

\_\_\_\_\_

\*County seats

Petroleum and gas production from over 54 wells located in four separate fields was normal for the year. New wells drilled, compensated for those that were abandoned. Mining was at a complete standstill in the County during the year.

Sand & Gravel	 \$ 2,500
Petroleum Gas Sold	1,586,678 23,425
Total	\$ 1,610,103
TOTAL PRODUCTION FOR COUNTY	\$ 1 612 603

#### **JEFFERSON** (1)

\*Golden

#### Area 791 square miles

Mines, plants, quarries, projects, oil-384 men

Clay production in Jefferson County again was high among the various counties in the State. Pits and mines operated by the Denver Fire Clay Company, the Denver Brick & Pipe Company, Lakewood Brick & Tile Company, The Robinson Brick & Tile Company and the George W. Parfet Estate, Inc. were the major producers. Thirty mines and six quarries were listed as active during the year. The Schwartzwalder Mine, operated by Denver-Golden Corporation, was the largest producer of uranium ores on the east slope and considerable uranium ore was mined by the Yellow Queen Uranium Company and the Cotter Corporation. Most of these ores were trucked to the Cotter Corporation mill at Canon City. Beryl ore was produced and processed at the Beryl Ores Company plant operated by Michael D. Lyons. Lightweight aggregate was quarried and processed at Aggregate Inc., at Calcite Aggregate Company and the Idealite quarry and plant located on Rocky Flats. Sand and gravel production from the many pits in the County showed an increase this year over 1961. Some gold and silver was recovered from these operations. Varicolored stone was quarried and crushed for use in the building trade. Several new white quartz quarries were opened up in the Platte Canyon area during the year and most of the mined quartz was hauled to Canon City for crushing.

Gold\$ Uranium Miscellaneous	16,705 1,802,080 2,000
Total\$	1,820,785
Sand & Gravel	1,969,749 115,244 605,659 200,000 672,984
Total\$	3,563,636
TOTAL PRODUCTION FOR COUNTY\$	5,384,421

#### LAKE (3)

\*Leadville

#### Area 384 square miles

Mines, plants, projects, placer-2,344 men

Production, development work and construction work at the Climax property of American Metals Climax, Inc. was completely halted or seriously reduced this year by a strike of O.C.A.W. Local No. 2-4410 called on July 18, 1962. The strike continued for the balance of the year and ended on January 9, 1963. On October 26, the mine and mill was started by supervisory employees and continued to operate on reduced tonnage until the strike was settled. Prior to work stoppage in July, the Company was producing around 37,000 tons per day and development work was in progress in the No. 4 and No. 5 shafts. No. 18 mill was in the process of being installed for the purpose of handling increased tonnage. Bechtel Corporation started preliminary work and surveys on the Homestake Water Diversion Project in August and major work should start in 1963. The Frving Pan-Arkansas project, approved late in 1962, will add employment to Lake County when work is started in 1963. Some placer mining was reported during the year as was other exploration and development work.

Gold\$	144
Molybdenum	46,695,020
Tungsten	3,042,781
Pvrite	224,480
Pyrite Tin	61,348
Miscellaneous	10,000
Total\$	50,033,773
Sand & Gravel\$	90,462
TOTAL PRODUCTION FOR COUNTY\$	50,124,235

\*County seats

#### LA PLATA (4)

\*Durango

#### Area 1,691 square miles

Mines, plants, projects, placers, oil-654 men

Seven mines, three mills, four projects and one peat bog were listed in the mineral industry of La Plata County in 1962. Some production was noted from the gold, silver, lead and copper properties in La Plata Canvon but most of the work was on prospecting and development. Most activity was in the La Plata Canyon area. The Vanadium Corporation of America mill located in Durango operated on steady tonnage from uranium and vanadium mines in Colorado and New Mexico. Safety improvements were made in the mill and the mill waste disposal system was improved. Work on the Lemon Dam and Florida Canal by A. S. Horner Construction Company and the Colorado Construction Company continued during the year with completion contemplated in 1963. This project is located 17 miles northeast of Durango. Some sand and gravel production from various pits was reported. Gas and oil was produced from four fields in the County, the Mesa Verde field being the largest with 217 wells. Gas and oil exploration in the southwest of the County continued.

Gold	3,895 1,039 2,500
Total\$	7,434
Sand & Gravel\$	244,050
Petroleum Gas Sold	164,091 3,742,611
Total\$	3,906,702
TOTAL PRODUCTION FOR COUNTY\$	4.158.186

#### LARIMER (1)

\*Fort Collins

Area 2,640 square miles

Mines, plants, quarries, oil-237 men

Oil production from over 38 wells in the seven fields in the County maintained steady production during the year with a normal amount of exploration and development work being completed. Red, pink and white sandstone was produced from the County's 16 operating quarries. Gypsum rock was quarried at the Goodwin Quarry by Ernest W. Munroe and limestone was quarried and crushed at the Holly Quarry operated by Norberg Construction Company. By far the largest mineral operation in the County was the Ideal Cement Company operations at the Boettcher Quarry and La Porte Cement Plant. Both the quarry and plant are located two miles north of Fort Collins and have made steady and continued production during the year. Mica and beryl ores were produced at the Langston and Jolex property located at Columbine, Colorado. Beryllium oxide was produced from beryl ore at the Mineral Concentrates & Chemical plants located at Loveland and Berthoud, Colorado. Some beryl ores were trucked into the plant from Park County. Green quartz was mined at the Yaqunina Mine owned by F. R. Koenig and King Koenig and operated by the Alcott Coal & Ice Company of Arvada.

Beryllium\$	5,600
Cement Sand & Gravel Limestone Stone Feldspar, Mica, etc. Gypsum	10,009,623 248,329 877,720 157,478 50,003 204,489
Total\$	11,547,642
Petroleum\$	529,240
TOTAL PRODUCTION FOR COUNTY\$	12,082,482

#### LAS ANIMAS (2)

\*Trinidad

Area 4,798 square miles

Mines, quarry, project, oil-112 men

Oil prospecting and development continued in three fields in the County with one gas well listed as producing. Clay was mined by the Empire Clay Products Company, located 35 miles southeast of Trinidad, and by the Scott Mining Company from their Santa Fe property at Starkville. Sand and gravel was produced from the County's various pits.

Sand & Gravel\$	112,886 44,650
Total\$	157,536
Gas Sold\$	4,018
TOTAL PRODUCTION FOR COUNTY\$	161,554

\*County seats

### LOGAN (1)

\*Sterling

Area 1,849 square miles

Projects, oil-440 men

Oil production was steady. Several new wells were drilled and some were completed and put in production. New interest was shown in the northern part of the County.

Sand & Gravel\$	168,712
Petroleum	, .
Total\$	14,158,199
TOTAL PRODUCTION FOR COUNTY\$	14,326,911

MESA (4)

\*Grand Junction

### Area 3,334 square miles

Mines, plants, quarries, projects, oil-1,152 men

Although Mesa County maintained its third place in uranium and vanadium production for 1962, both employment and production in the County uranium industry dropped slightly. The cancellation of all Atomic Energy Commission leases and consolidation of properties reduced the number of mines operating during the year. The Climax Uranium Company mill, located in Grand Junction, operated on a slightly increased tonnage from ores mined on the Colorado Plateau and on ore from their own company-operated mines. Increased activity and production came from the Beaver Mesa area while production from Outlaw and Calamity Mesa decreased. Gas production in Mesa County increased during the year with production coming from 11 fields in the western part of the County. White quartz was produced from the Jacobs Ladder area and was shipped to Colonna & Company at Canon City. Sand and gravel production and road projects added to the County employment.

Uranium\$ Vanadium	4,238,904 1,478,741
Total\$	5,717,645
Sand & Gravel Stone Clay	898,193 41,804 7,600
Total\$	947,597
Gas Sold\$	217,306
TOTAL PRODUCTION FOR COUNTY\$	6,882,548

### MINERAL (3)

\*Creede

### Area 923 square miles

Mines, plant-75 men

Mining activity in Mineral County this year consisted of development work by the Outlet Mining Company at their Mexico Mine and production from the Commodore and Amethyst properties of the Emperius Mining Company. Production of lead-zinc-silver from the Amethyst and Commodore mines was milled in the company mill, located below Creede, and this production ranked third in the State. Considerable improvement in mine ventilation was made at the Emperius property which enabled the company to operate on a more steady basis during the year. Some prospect drilling was done by the Humphries Engineering Company on their property above the Amethyst Mine.

Gold\$	20,895
Silver	304,273
Copper	163,073
Lead	406,930
Zinc	615,579
Total\$	1,510,750
Sand & Gravel\$	10,000
TOTAL PRODUCTION FOR COUNTY\$	1,520,750

### MOFFAT (3)

Area 4,761 square miles

Mines, plant, oil-382 men

Uranium activity was increased in Moffat County for the year when underground mining was continued from the bottom of the Trace Elements pits. Drifts and crosscuts were extended to known ore bodies that had been previously test drilled. This property, owned and operated by Union Carbide Nuclear Company, had continuous operations during the year and their ore was milled at the company's 1,000-ton mill, located near Maybell. Mining operations at the property have completed six years of mining without a lost-time injury and a Safety Achievement Award will be presented to the Mining Department early in 1963. Oil production was steady from the Danforth Hills, Maudlin, Elk Springs, Moffat, Isles Dome, Powder Wash, and Hiawatha fields. Sand and gravel was also produced in the County during the year.

Gold\$ Uranium	350
Total\$	350
Sand & Gravel\$	108,872
Petroleum Gas Sold	2,865,770 1,041,913
Total\$	3,907,683
TOTAL PRODUCTION FOR COUNTY\$	4,016,905

### MONTEZUMA (4)

\*Cortez

Area 2,097 square miles

### Mines, projects, oil-247 men

Two mining properties were active in Montezuma County in 1962 and these were the Discovery Level on East Mancos Creek operated by the Hardway Mining Company and the Twin Canyon Group operated by Charles and Wesley Potts. Some small mineral production was noted. Four construction projects, along with petroleum and gas production, added to employment in the County. Oil and gas production came from eleven wells located in ten different fields in the County. Texaco Inc., Delhi Taylor, The California Company, the Ohio Oil

Company, Bird-Frost and Phillips Petroleum Comp among the principal petroleum and gas producing c	
Miscellaneous\$	20,000
Sand & Gravel\$	785,702
Petroleum Gas Sold	666,720 44,601
Total\$	711,321
TOTAL PRODUCTION FOR COUNTY\$	1,517,023

### MONTROSE (4)

\*Montrose

Area 2,240 square miles

Mines, plants, projects, oil-1,492 men

Expiration of Atomic Energy Commission leases on the Colorado Plateau had considerable effect on uranium and vanadium production in Montrose County during 1962. Among some of the large producing mines that have been closed were the Bowen Mine and the Worcester Mine on Atkinson Mesa. Montrose County, however, remained in first place in uranium and vanadium production. A sulphuric acid plant was added to the Union Carbide Nuclear Uravan Plant complex during the year and the plant was in operation late in 1962. Improvements were made in the flow sheet at the new Vanadium Corporation of America up-grading plant at Naturita. Crude uranium and vanadium ore for both plants was mined from both company and privately owned mines in the area. The principal uranium producing areas in Montrose County are Club Mesa, Long Park, Bull Canyon, Carpenter Flats, Atkinson Mesa, the Dolores Rim and Monogram Mesa. Mines in these areas have been steady producers since the Atomic Energy Commission U-308 Procurement Program was started in 1949. Some development activity was noted at the Cashin Mine, the County's only copper mine, located on La Sal Creek near the Utah border. Sand and gravel and gas production added to the County's economy. Kerr-McGee Oil Industries has been drilling at the Uravan No. 1 Unit all during the year. This well has surpassed all previous depths in Colorado and was down to a point over 17,100 feet at the end of the year. A Colorado Bureau of Mines District Office from which the State Radiation Program is directed, is located in Naturita.

38

\*County seats

Uranium Vanadium	19,558,224 4,710,061
Total	\$ 24,268,285
Sand & Gravel	\$ 90,290
Gas Sold	\$ 1,224
TOTAL PRODUCTION FOR COUNTY	\$ 24,359,799

### MORGAN (1)

\*Fort Morgan

Area 1,300 square miles

Projects, oil-440 men

Petroleum production from over 330 wells, located in excess of 54 fields, placed Morgan County petroleum production third in the State. Water flooding continued at Adena field, the second largest field in the State, which insures a maximum recovery from this field. Continuous exploration drilling was reported during the year with the average number of completions. Sand and gravel production was steady.

Sand & Gravel	\$ 142,165
Petroleum Gas Sold	15,923,485 1,106,474
Total	\$ 17,029,959
TOTAL PRODUCTION FOR COUNTY	\$ 17.172.124

### OURAY (4)

\*Ouray

Area 540 square miles

Mines, plant, project-207 men

The mining operations of the Idarado Mining Company, located in both Ouray and San Miguel Counties, were steady during 1962 and the production and employment created by these operations were most beneficial to Ouray, San Juan and San Miguel Counties. Some 30,000 tons per month of crude gold, silver, lead, zinc and copper ore were mined throughout the year and milled in the company mill at Telluride. Considerable prospecting and development mining was evidenced at the Hidden Treasure Mine by Sesquehanna Western Inc. in the Sneffels district, by the Rouville Mining Company in the Red Mountain area, by the Bi-Metallist Mining Company on Potosi Mountain, and by M. W. Waldrum on the Mineral Farm property. Operations at the Camp Bird property west of Ouray were fairly steady during the year on silver, gold, lead and zinc ore which was milled in the company mill at Camp Bird Colorado. Several other mines in the County completed assessment work with some additional development of existing ore bodies.

Gold\$ Silver Copper Lead Zinc	319,520 258,026 560,160 540,218 1,019,639
Total\$	2,697,563
Sand & Gravel\$	12,540
TOTAL PRODUCTION FOR COUNTY\$	2,710,103

### PARK (1 & 2)

\*Fairplay

Area 2,178 square miles Mines, plants, placer—36 men

All test runs at the new Mineral Concentrates & Chemical Company Tarryall beryl mill, located on Badger Flats, were completed in 1962 and the plant went into production. Ore was received from the Boomer Mine, operated by the U.S. Beryllium Company, and from other beryl properties in the area. This is a custom mill and can handle any adaptable bervl ore received. Construction work was started on the Progressive Mill and Smelter, located north and west of Fairplay. This mill is being constructed by a joint community organization and will be designed to handle any and all ores mined in the Fairplay district. A plant of this type should be a great aid to mining activity in the northern part of the County. Several other silver, gold and lead properties as well as some placer mining operations were active during the summer months. Sand and gravel, feldspar and other minerals make up the mineral production in this County.

Gold\$ Silver	3,250 520
Uranium Beryllium	71,000
Total\$	74,770
Sand & Gravel Peat	99,366 12,000
Total\$	111,366
TOTAL PRODUCTION FOR COUNTY\$	186,136

### PITKIN (3)

\*Aspen

Area 975 square miles

### Mine, plant, oil-52 men

Stripping and development operations at the Pitkin Iron Mine, located seven miles southeast of Ashcroft, continued through the summer months. This property, owned by the Pitkin Iron Corporation and operated by Morrison-Knudsen. Inc., produced in excess of 1,000 tons per day of iron ore and this selected ore was normally shipped to the Columbia-Geneva Steel Company in Utah. Improvements were made at Woody Creek by installing a conveyor across the Roaring Fork River for the purpose of expediting the loading operation. Plans were made during the year by the Colorado Aspen Mining Company to start a barite operation in the County.

Iron Ore\$	72,787
Sand & Gravel\$	56,742

### TOTAL PRODUCTION FOR COUNTY......\$ 129,529

### PUEBLO (2)

\*Pueblo

Area 2,414 square miles

Mines, plants, projects, oil-168 men

Uranium production from the Kathryn Mine, located on Turkey Creek 26 miles southeast of Colorado Springs, along with clay mined at the Nellie Ellen property, the General Refractory property at Stone City, the Chamblin property north of Mustang, and the Rock Creek property near Beulah, was steady during the year. Sand and gravel was produced by the

### ANNUAL REPORT

Fountain Sand & Gravel Company and by the Certified Concrete Company as well as from other pits in the County. Considerable road construction this year added to employment in Pueblo County.

Uranium	
Sand & Gravel\$ Clay	326,389 61,407
Total\$	387,796
TOTAL PRODUCTION FOR COUNTY\$	387,796

### **RIO BLANCO (3)**

\*Meeker

Area 3,264 square miles

Mines, projects, oil-657 men

Oil production from Rangely field in northwest Rio Blanco County again was first in Colorado. Gas injection and water flooding of the field were continued during the year and the average number of new wells were completed and worked over. Two gasoline plants were operated continuously in the County. Uranium mining operations were conducted at the Coal Creek No. 1 uranium mine by Devereaux Brothers and at the Midnight Mine by the J & H Mining Company. Several sand and gravel operations were active.

Uranium Vanadium	
Sand & Gravel\$	234,801
Petroleum Gas Sold	53,372,105 974,181
Total\$	54,346,286

TOTAL PRODUCTION FOR COUNTY......\$ 54,581,087

### RIO GRANDE (3)

\*Del Norte

Area 916 square miles

Mine, projects-20 men

Some development and exploration work was done at the Reynolds Mine in the Summitville area by John Riggs during

\*County seats

the summer months. No other activity was reported from this County.

Miscellaneous ......\$ 2,000

Sand & Gravel ......\$ 10,335

TOTAL PRODUCTION FOR COUNTY......\$ 12,335

### ROUTT (3)

\*Steamboat Springs

Area 2,331 square miles

Mines, quarry, projects, placer-111 men

The quarry operations of the McCoy Aggregate Company at their cinder pit, located seven miles north of McCoy, were active when weather permitted during the year. The Curtis, Sage, Tow Creek and Grass Creek fields maintained a steady petroleum production and a normal amount of petroleum and gas exploration drilling was noted. Highway construction added to employment in the County.

Gold\$	420
Sand & Gravel Scoria	135,940 51,248
Total\$	187,188
Petroleum\$	380,900
TOTAL PRODUCTION FOR COUNTY\$	568,508

### SAGUACHE (3 & 4)

\*Saguache

Area 3,146 square miles

Mines, projects-135 men

Base metal activity in Saguache County continued dormant this year, however most of the mines and mills in the Bonanza area were maintained on a standby basis pending a more favorable operating atmosphere. Considerable uranium was produced by the Pinnacle Exploration Company in the Marshall Pass area prior to December and some production was noted from the Kerr-McGee properties which were purchased from the Gunnison Mining Company and which were closed in April of this year. The Gibraltor Mining Company, operating the Lookout uranium property northeast of Sargents, was active most of the year. Highway construction and surfacing on Colorado Highway 114, and sand and gravel operations as well as gem-

\*County seats

stone mining in the Villa Grove area added to employment in the County.

Uranium\$	4,388,000
Sand & Gravel Gemstones	
Total\$	121,258
TOTAL PRODUCTION FOR COUNTY\$	4,509,258

### SAN JUAN (4)

\*Silverton

Area 392 square miles

Mines, plants, projects, placers-148 men

San Juan County showed the largest percentage increase in mineral production in the State during the year. With the starting of the Standard Mill (the old Shenandoah Dives Mill) in August, crude ore from the American Tunnel was concentrated and shipped to smelters out of state. For the past three vears Standard Metals has been developing and improving access to the old Gold King and Sunnvside workings on Cement Creek which has culminated in a 700% county mineral production increase over 1961. The mill presently is operating on tonnage in excess of 500 tons per day which is trucked from the mine portal to the mill. Both the Washington vein and the Belle Creole vein have been developed through the old Gold King or American Tunnel. New stoping methods are being developed which will enable the company to operate on the presently low base metal prices. Work continued on the erection of a mill at the Richardson property, formerly the Brooklyn, east of Chattanooga and some crude production was noted. The Pride Mill at Howardsville operated for a time during the summer months. Several properties in San Juan County were opened and sampled during the year. This increased mining activity has materially helped employment in the County.

Gold	15,018 52,617 38,215 177,814 307,200 1,350
Total\$ Sand & Gravel\$	592,214
TOTAL PRODUCTION FOR COUNTY\$	610,165

### SAN MIGUEL (4)

\*Telluride

### Area 1,284 square miles

Mines, plants, projects, oil-821 men

Although some lower than last year, San Miguel County maintained second place in uranium and vanadium production in the State. Most production came from the Slick Rock, Bull Canyon, Gypsum Valley and Egnar districts and this ore was treated at Uravan, Durango, Grand Junction and Naturita. Slight allotment cutbacks in uranium ore purchasing and the closing of the Atomic Energy Commission mines during the year were responsible for lower production. Operations at the Idarado Mining Company property in Ouray and San Miguel Counties remained steady during the year which resulted in this company's production of lead, copper and silver from their Pandora Mine being first in the State. Ores from veins in both counties were treated in the company's 1,000-ton per day mill located east of Telluride. With a rise in the silver price during the year many old, idle properties were examined for future operation. The San Miguel Drilling Company prospected for oil and gas in the drilling of their Federal No. 1 well in the western part of the County. Sand and gravel production was noted and this material was used for highway and building construction. Highway 145 was oiled from Telluride to the top of Lizard Head Pass.

Gold	618,334 564,567 1,444,662 1,294,534 2,451,100 5,146,176 1,771,645 98,000
Total\$	13,389,018
Sand & Gravel\$	133,398
TOTAL PRODUCTION FOR COUNTY\$	13,522,416

### SUMMIT (3)

\*Breckenridge

Area 616 square miles

Mines, plant, projects, placer-382 men

All excavation, tunnel lining and surface construction work was completed at the Harold D. Roberts Tunnel early in 1962 and the finished project was turned over to the Denver Water

<sup>\*</sup>County seats

Board by the Blue River Constructors, Inc., the prime contractors on the project. Work continued on the Dillon Dam by the Potashnick Construction Company and the dam was nearly two-thirds completed by the end of 1962. Completion is expected late in 1963. The Consolidated Parnett Corporation continued development work on the Wellington Mine and at the end of the year were installing a new mill to replace their mill and surface plant which were destroyed by fire on August 29. This operation expects to get into production early in 1963. Several placers along the Blue River were active during the year and C. Ryan & Son operated their gravel plants for the Climax Molybdenum Company near Kokomo.

Gold\$ Silver	2,260 3,200
Total\$	5,460
Sand & Gravel\$	336,025
TOTAL PRODUCTION FOR COUNTY\$	341,485

### TELLER (2)

\*Cripple Creek

Area 555 square miles

Mines, plant, quarries, placer-106 men

With the closing of the Golden Cycle mining properties and the Carlton Mill early in 1962, gold production in Teller County was stopped for the first time since its discovery in 1891. The fixed price of gold at \$35.00 per ounce and increased labor, material and supply costs has made it almost impossible to mine and produce gold in Colorado. The closing of the Cripple Creek-Victor District marks the closing of Colorado's last gold camp. The peak gold production of Teller County in any one year occurred in 1900 when \$18,147,681 worth of gold was produced. In 1961 gold production was \$1,183,549 and the accumulated production of gold from this County up to and including 1961 was \$379,047,793. At the end of 1962 only the Molly Kathleen and the El Paso Mines were open for the tourist trade. Some peat and stone were mined and quarried during the year.

Sand & Gravel\$ Stone Peat	3,000 24,300 32,000
Total\$	59,300
TOTAL PRODUCTION FOR COUNTY\$	59,300

### WASHINGTON (1)

Area 2,530 square miles

Projects, oil-440 men

Several new wells were completed in the eastern and southern sections of the County which should bring more interest and drilling into this area during 1963. Some clay was mined in the Akron area and hauled into Denver by the Denver Brick & Pipe Company for testing.

Sand & Gravel\$	207,045
Petroleum Gas Sold	25,865,027 388,585

Total .....\$ 26,253,612

TOTAL PRODUCTION FOR COUNTY .......\$ 26,460,657

### WELD (1)

\*Greeley

Area 4,033 square miles

Plants, projects, oil-154 men

Renewed interest was given the Rogden area and several wells were put into production during the year. The northern part of the County also enjoyed some new activity and some wells were brought in that should encourage more wildcat drilling. Sand and gravel production was steady.

Sand & Gravel\$	1,017,616
Petroleum Gas Sold	4,987,011 264,915
Total\$	5,251,926
TOTAL PRODUCTION FOR COUNTY\$	6,269,542

# **Safety Awards**

Safety Achievement Awards were issued to the Fibreboard Paper Products Company's Quarry & Crushing Plant, the Portland Quarry & Crushing Plant operated by Ideal Cement Company, and to the Union Carbide Nuclear Company for their Maybell Mining Operations. These awards are presented to those operators who achieve a minimum of 1,000,000 man-hours or five years worked without a lost-time injury.

Safety awards have been issued to the following operators who have completed the year 1962 without a lost-time injury and who have exceeded 30,000 man-hours of employment during the year:

American Smelting & Refining Company-Globe Plant

Castle Concrete Company—Castle Quarry & Crushing Plant

Oral Clark—Plateau Operations

Douglas Cleghorn-Plateau Operations

Cotter Corporation-Cotter Mill

Davis Drilling Company—Rig No. 1, Colorado Operations W. B. Eckman—Deer Shaft

- Gardner Construction Company-Colorado Projects
- General Chemical Division, Allied Chemical Corporation —Burlington Mine
- General Chemical Division, Allied Chemical Corporation —Valmont Plant
- Ideal Cement Company-Boettcher Quarry & Crushing Plant
- Morrison-Knudsen Company, Inc.—Pitkin Iron Mine & Crusher
- Mountain Fuel Supply Company—Hiawatha Oil Field
- Mountain Fuel Supply Company—Powder Wash Oil Field Nielson, Inc.—Colorado Projects
- Schmidt Construction Company—Colorado Projects

Texaco Inc.-Wilson Creek Oil Field

- Union Carbide Nuclear Company-Capella Mine
- Union Carbide Nuclear Company-Deremo Mine
- Union Carbide Nuclear Company-Paradox D Mine
- Union Carbide Nuclear Company-Uravan Mining Department

Awards of Merit have been issued to the following operators, some of which had no lost-time injuries during the year but had insufficient man-hours to qualify for a Safety Award. This award is given to large and small operators alike in appreciation of outstanding effort and cooperation in the field of Safety during the year.

Don Andrews—Picket Corral Mine Baker Well Service—Colorado Operations

- Levi B. Barnes-Bill Batey Mine
- G. C. Bennetts & Son-Clay Mining Operations
- Delbert Burbridge-Plateau Operations
- The California Company—Ault Division
- The California Company-Oil & Gasoline Plant
- Camay Drilling Company—Colorado Operations
- Carmack Drilling Company-Colorado Operations
- Cenpac Mining Company-La Sal Mine
- Colonna & Company of Colorado, Inc.-Canon City Quarries
- Colorado Aggregate, Inc.--Mesita Hill Quarry & Crushing Plant
- Colorado Fuel & Iron Company-Monarch Quarry
- Colorado Lime Company—Lennox Breed Quarry & Crushing Plant
- Colorado Well Service, Inc.—Colorado Operations
- Wesley D. Conda-Clay Mining Operations
- C. H. Corey, Jr.-Strawberry Roan Mine
- Cowan Brothers-Cowan Brothers Quarry
- Denver Brick & Pipe Company-Clay Mining Operations
- Denver Fire Clay Company-North Golden Mine
- Dulaney Mining Company-Radium No. 7 Mine
- Emperius Mining Company-Mine & Mill
- Empire Clay Products-Pits Nos. 1, 2, 3, 4
- Ralph Foster & Sons-Mesa No. 8 Mine
- Roy Franklin-Plateau Operations
- Harry Harp-Midnight Mine
- Herren & Strong Company, Inc.-Colorado Operations
- Idarado Mining Company-Mine & Mill
- William R. Irvin-I&E Mine
- E. J. Johannsen—Plateau Operations
- Jones & Jones-Rim Rock No. 5 Mine
- Domenic Leone Construction Company, Inc.—Colorado Operations
- Alex Lockhart & Sons-Mica Lode Quarry
- Meade Drilling Company—Colorado Operations
- Moran Brothers, Inc.-Colorado Operations
- Ernest W. Munroe-Goodwin Quarry & Plant
- Neilson & Klingensmith-Plateau Operations
- New Jersey Zinc Company-Eagle Mine
- New Jersey Zinc Company-New Jersey Zinc Plant
- Albert Nickerson-Plateau Operations
- George W. Parfet Estate, Inc.—Clay Mining Operations Peacock Well Service—Colorado Operations
- Persolite Products, Inc.-Rosita Pit & Crushing Plant
- Pikes Peak Granite Company-Pikes Peak Quarry
- Polar Mesa Mining Company-Plateau Operations
- Potashnick Construction Company-Blue River Projects
- R&R Well Service—Colorado Operations
- LaVerne Ray-Plateau Operations

- Rio Grande Gravel Company-Jefferson County Plant & Pit
- Robinson Brick & Tile Company-Douglas & Jefferson County Mines
- Rock Products, Inc.-Rock Products Crushing Plant
- C. Ryan & Son Construction Company-Colorado Operations
- C. C. Sanders-Plateau Operations
- DeVar Shumway-Plateau Operations
- Standard Fire Brick Company-Rock Creek & Chamblin Mines
- Sterling Sand & Gravel Company-Fort Collins Sand & Gravel Plant
- Stroud-Whisenhunt-Boulder & Douglas County Clay Mines
- Transit Mix Concrete Company-Sand Pits & Screening Plants
- Marion Trone—Plateau Operations
- Union Carbide Nuclear Company-Eula Belle Mine
- Union Carbide Nuclear Company-Maybell Mill
- Union Carbide Nuclear Company-Rigel Mine
- U. S. Bervllium Corporation-Boomer Mine
- U. S. Soil Conditioning Corporation-Thunder Mountain Ouarry
- United States Gypsum Company-Loveland Works
- Utex Exploration Company-Cash & Rex Mines Valley Concrete Company-Lamar Sand Pit & Screening Plant
- Lark Washburn-Plateau Operations
- Wellington Mine Association-Wellington Mine
- Western Feldspar Milling Company-Western Feldspar Mill
- Grover Williams--Trace Elements Pits

# Injuries

Total lost-time injuries in the mineral industry, exclusive of coal mining, in 1962 were 198 less than in 1961 or a 22% overall reduction. Man-hours of exposure in 1962 were 364,800 less than in 1961 or a decline of less than one percent. The 1962 overall frequency rate was 20.3 or 5.2 less than the previous year. The 1962 overall severity rate was 1,671 or 1,073 less than the previous year. Nine fatal injuries occurred in 1962 which was two less than in 1961. Five of these fatals occurred in underground mining and one each in a milling operation, oil well drilling operation, quarry operation and a highway project. This figure is five less than the ten year average of 14 fatals per year. Although a slight reduction in man-hours worked had some influence on the above remarkable improvement, continued efforts towards a safe operation by the employer, employee and Bureau of Mines inspectors were largely responsible for this continuing improvement.

Fall of rock was responsible for the greatest number of non-fatal injuries in 1962 while transportation equipment was responsible for three of the nine fatals and second in cause of non-fatal injuries. One fatal occurred for every 838 men working underground or one for every 1,803,380 man-hours worked. One fatal occurred for every 3,499 men working in plants or one for every 7,680,000 man-hours worked. One fatal occurred for every 327 men working in quarries or one for every 996,000 man-hours worked. One fatal occurred for every 3,101 men working on projects or one for every 7,442,400 man-hours. One fatal occurred for every 3,472 men working in the oil well drilling industry, or one for every 7,929,200 man-hours worked. One lost-time injury occurred for every 21 men working in the entire industry or one for each 49,069 man-hours worked.

All of the above fatal accidents were promptly investigated by Bureau of Mines inspectors as were all injuries considered of a serious nature. Complete reports covering these accidents and injuries were filed in the Bureau of Mines office by the inspectors and pertinent information as to the cause of these injuries was distributed to all inspectors immediately. Corrective recommendations were left with the operator and all similar situations in the State were corrected.

Specific cause, type, nature and site of all lost-time injuries are listed in the following table as are the location and number of injuries by district and operation.

Severity Rate Per One Million Man-Hours 4,142. 6,125. 6,125. 1,040. 139. 1,671.		(1,000,000	oosure		Totals 101 57 235 345 738		jury		cap blown out the cap slipped a down and he his death. Im-
	abilities.	Total Time Charges in Days $\times$ 1,000,000	Number of Man-Hours of Exposure		Oil Wells 4 4 4 25 25 113		Cause of Injury		While replacing a cap blown out by a prior blast, the cap slipped out "mocking Lujan down and he fell 6 sets, causing his death. Im- proper safeguards.
Frequency Rate of Per One Million Man-Hours 40.3 21.9 11.7 11.5 14.2 20.3	nt partial dis:	Total Time C			Projects 19 21 27 86				While by a out ki fell 6 proper
Number of 7,354 Lost 37,354 1,087 1,087 7,127 7,127 7,127 7,127 1,106 0,522	to 6 permane	Severity Rate=		CTS	Mills-Plants- Smelters 15 7 23 45  90		County	-	Eagle
Lost-Time Injuries 364 16 96 90 113 738	loss of 54,000 days due to 9 fatalities and 1,875 days due to 6 permanent partial disabilities.			INJURIES BY DISTRICTS	Quarries- Pits 6 0 16	FATAL INJURIES	ed by	Mines, Underground	The New Jersey Zinc Company
Fatal Injuries 5 1 1 1 9 9	to 9 fatalities	000,000	of Exposure	INJURIE	Mines, Surface 8 33 24 69 69	FAT	Employed by	Mine	he New Jersey
Total Man-Hours 9,016,800 3,139,200 7,580,000 7,580,000 7,580,000 7,539,200 36,213,600	64.000 days due	Number of Injuries $\times$ 1,000,000	Number of Man-Hours of Exposure		Mines, 0 9 133 214 364		Age		36 T
cound Smelters . al Project ustry	This table includes the loss of 5		Frequency Rate=Numbe		Fatals           rict         1           rict         2           rict         4           rict         4		Name		Ted Leo Lujan
Mines, Underg Mines, Surface Quarries, Pits Mils-Plants State & Feder Oil & Gas Ind Totals	This toble	aroph Still I	Frequ		District 1 District 2 District 3 District 4 Totals		Date		1-24-62

SUMMARY OF INJURIES

COLORADO BUREAU OF MINES

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Cause of Injury Yardley backed his shuttle car into a stub drift and under a loose slab which fell, hitting him on the head and causing instant death. Lack of ground support.	Clark was placing a bomb in a finger raise to blast a hangup when the hangup released, causing injuries which resulted in death. Incorrect evaluation of hangup.	Begay backed his shuttle car into drift to turn around and in so do- ing crushed his chest between a four foot high 8 x 8 timber and the steering wheel, causing instant death. Carelessness. Improper safe- guards.	Bartell, a mine foreman, was in the act of opening a four inch air valve when a section of four inch plastic pipe failed, causing valve to swing and hitting him in the head. Inflicted injuries caused death 10- 31-62. Equipment failure.		Zeilinger, a mill operator, con- tacted a metal pole which was in contact with a 440-volt line. Elect- rocution. Improper electrical instal- lation.		Standing on a 134-foot section of conveyor frame during installation when the frame collapsed, causing Astle to fall 25 feet and resulting in death. Insufficient support and carelessness.
County Montrose	Lake	San Miguel	Lake		Mesa		Garfield
Employed by Cole and Bond Mining Company	American Metals Climax, Inc.	Union Carbide Nuclear Company	American Metals Climax, Inc.	Mills	Climax Uranium Company	Quarries	Moab Drilling Company
Age 41	43	31	34		53		51
Name Lonzo Haskel Yardley	Clement A. Clark	Raymond Begay	10-29-62 Leo A. Bartell		John Zeilinger		Thomas J. Astle
Date 4-5-62	6-24-62	7-27-62	10-29-62		8-3-62		9-5-62

Cause of Injury	Driving empty International Har- vester Payscraper on rough terrain with blade raised high. Scraper overturned crushing Twite and causing death. Failure to use prop- er safety precautions.		Leiter was standing on the rig floor next to 74 double stands of drill pipe when a guyline deadman failed. allowing derrick to fall over. Leiter was crushed by falling drill stem. Improper deadman in- stallation.
			c
County	Conejos		Washington
Employed by Projects	Siegrist Construction Company	Oil Wells	Edward Ernest Leirer, Jr. 21 Allison Drilling Company, Inc.
Age	45		21
Name 4	12-10-62 Forest A. Twite		Edward Ernest Leirer, Jr.
Date	12-10-62		<b>4</b> -18-62

FUSI L	a		bic k		S	E	Inel		CODE	A III						
	Mi Underground	Mines	ss Surface		Mills-Plants- Smelters	nts-	Quarries	ies	Projects	cts	Oil Wells	S	ß	Grand Totals	otals	
AGENCY CAUSING INJURY (I = Injuries; $F = Fatalities$ )	Γ	řч	I	Ĩ.	I	Ĩщ	I	٤	Ч	۲ų.	I	۶	Ι	ы	Totals	
Atmosphere	. 2				5								4		4	
Bars-Bins-Chutes	. 4				1				1		1		7		L	
Belts-Conveyors-Pulleys	. 12		ľ		ۍ ۱				-		I		8		8	
Cables-Hose-Ropes			4		e				2		2		28		28	
Cars-Motors-Vehicles	47	7	6		4				8	1	ი		71	7	73	
Chains-Gears-Sprockets					÷						21		c1 (		c1 (	
Cutoinore	۰ ۲		-		4 0						4		ۍ د د		÷ د	
Derricks	<b>°</b>		4		•						-	1	71	-	212	
Doors-Windows-Gates					1							4	1 67	4	101	
Drills-Drilling Equipment	29		6		-		1		10		20		20		70	
Dust & Particles	10		1		1				<b>m</b>				15		15	
Electricity-Elec. Equipment			2		4	1			3				6	1	10	
Explosives, Loading & Firing	ი :		1										4		4	
Explosives, Transportation	:								1				1		1	
Falling or Flying Objects	5	1			e		1				2		8	1	6	
Falls-Floor-Ice-Snow	. 12	1	9		6		2	1	9		10		45	2	47	
Flames-Fire-Heat	. 1				2		1		5		e		14		14	
Hoists-Hoisting Apparatus	2		1		5				1		2		11		11	
Ladders-Manways	- 7		1		ო						7		13		13	
Machinery-Tools	. 55		6		16		2		2		17		104		104	
Materials	, es		N		п,		,		- ı		- ;		∞ ;		8	
Metal Objects	: 51 c		10		71-		I		15		18		69		69	
Premature or Delaved Black					4				-		¥.		- 0		- 0	
	. 103	61	ę		ę		7		13		1		130	5	132	
Shovels, Power					1								-	1	1	
Timber-Lumber-Poles	32		8						9		2		48		48	
Since	;		,						,		13		13		13	
Tracks Unclassified-Insufficient Data	າ ເ								e.		¢		2		- 4	
	°	ŀ	•		1	1	1	1	I	1	۹		2	1	2	
Totals	359	5	69		89	1	15	1	85	1	112	1	729	6	738	

Lost Time Injury Statistics — Mineral Industry

### ANNUAL REPORT

LOST TIME IN	IJURY	STA	STATIST	ICS-	MIN.	MINERAL	LIN	DUS	USTRY		(Continued)	(par			
		Mines			Mills-Plants-	ints-					Oil				
	Underground	pun	Surface		Smelters	IS	Quarries	ies	Projects	cts	Wells	s	ъ Ч	Grand Totals	otals
<b>TYPE OF INJURY</b> (I = Injuries; F = Fatalities)	I	۶	I	۲ų.	I	۶ų.	I	£4	I	£4	I	۶ų.	I	E E	Totals
Burns-Shock	°.		67		6	1	1		4		4		23	1	24
Caught in or between	. 51	1	7		11				11		20		95	1	96
Fall on Same Level	. 15		ę		8		1		7		e		32		32
Fall on Different Level	80	1	e		e			1	5		6		28	2	30
Handling	. 105		31		34		9		22		19		217		217
Inhalation-Suffocation					<b>m</b>				ę				6		6
Slip-Stepping on	. 26		12		6		2		8		8		65		65
	. 148	e	16		15		2		30	1	49	1	263	S	268
Unclassified-Insufficient Data	-	I											1		1
Totals	. 360	ما	69	1	92	-	15	-	85		112		733	ი	742
NATURE OF INJURY															
Amputations	- 7								ର		1		10		10
Burns-Scalds-Shock	O		e		6	1	1		9		4		28	1	29
Cuts-Bruises-Lacerations-Punctures	. 178		25		29		9		37		55		330		330
Foreign Bodies	. 19		e		e		1		3		63		31		31
Fractures	. 66	4	11		11		1	1	17	1	30	1	136	7	143
Hernia	9.	1	4		e		1		5		1		17	1	18
Occupational Diseases					1								1		1
Respiratory	61				e				61				7		2
Strains-Sprains-Dislocations	. 110		29		39		9		29		27		240		240
Nature Unknown	-				1				1		63		2		5
Totals	394	o l	75		66	1-	16		66		122	=	805	6	814
SITE OF INJURY	10		V		Ŀ		-		α		ĸ		AF		46
Head Fare Nerk	30	6	* 42		10		4		;1		14		81	6	83
Trunk	127	10	25		41		9	1	34		33	1	266	1 10	271
Upper Extremities	97		12		18		1		18		33		179		179
Lower Extremities	. 129		24		53		2		32		35		247		247
	9		7			1	1			1	,		6	5	11
Unclassified-Insufficient Data					-						1		3		3
Totals.	420	0	73		66	<del>ا</del> ا	15		103	<del></del>	121	=-	831	6	840

COLORADO BUREAU OF MINES

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steady number of men working in the industry. In addition to the cancellation of Atomic Energy Commis-sion leases, the Golden Cycle Mill and Mines in Teller County suspended operations which affected some A slight decrease in mineral industry employment was noted in 1962 for the first time since 1958. This decrease occurred in the employment of underground miners, mill men and quarry men. An increase in mining and milling. Despite the fact that many Atomic Energy Commission leases were terminated in 1961, the a private lease when employment slacks off and this procedure maintains a fairly employment of oil workers and project workers was not sufficient to overcome the loss of employment in secured employment in other phases of the industry. Generally speaking, employees in the mineral industry will become self-emloss of only 147 men in the industry indicated that those men affected immediately ployed or will secure 200 employees.

			Mills	Plants							
District 1 District 2	No. 32	Mines Men 435 128	No. 16 16	Smelters Vo. Men 43 544 16 196	Quarri No. 34	Quarries & Pits No. Men 34 147 23 106	No. PJ	Placers Pr Men 63 9	Projects Men 592 933	Oil Wells Men 1,535	Totals Men 3,316
District 3 District 4	331	2,016 2,486	15	1,399	30 10	60 14	000	10	623 953	980 622	5,0845
Totals	479	5,065	66	3,499	70	327	33	88	3,101	3,472	15,552
			TOT	TOTAL MEN	EMPLOYED	DYED					
				ground 291		Surface 1,490		O	l Wells 1,535		Totals 3,316
District 2 District 3 District 4				$     \begin{array}{r}       443 \\       1,953 \\       1,953     \end{array} $		929 2,870 2,870			335 980 622		1,707 5,084 5,445
Totals	*****		4,	4,191		7,889		1	3,472		15.552
			R	MEN EMPLOYED IN	LOYED	IN					•
Gold, Silver, Copper, Lead, Zinc 990		Molybdenum 2,280	Ţ	Uranium 5,000	ų	Petroleum 3,472		Ū	Other 3,810		Totals 15,552
			DIVI	DIVISION OF OPERATIONS	OPERA	TIONS					
	Base and	Base and Precious Metal Mines	al Mines						62		
	Other Mi	Mining, Drilling, Quarrying & Project Operations	Quarrying	& Project O	perations						

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# FIRST AID TRAINING

During the year first aid training was given by the Colorado Bureau of Mines inspectors to 176 men in Colorado's mineral industry. The standard United States Bureau of Mines training course was used.

# MINERAL SPECIMEN COLLECTIONS

One thousand and one separate small mineral collections were mailed out to students and other persons interested in Colorado minerals.

# Inspections

Of the 1,486 inspections made during the year, 914 represented inspections made on as many separate operations. This included oil wells, projects, quarries, plants and mines. Each operation was inspected for safety at least once during the year and those that required extra safety supervision were inspected several times. Inspections listed below were made primarily for general compliance with Colorado's safety rules and do not include specific inspections made for the control of radiation hazards in uranium mines. Some large properties required several days for one inspection while, on the other hand, several small properties were inspected in a single day.

### INSPECTIONS

196 <b>2</b>	District 1 Blake	Distric <b>t 2</b> Keating	District 3 Doyle	District 4 Ray & Pakka	Total
January	. 32	15	22	63	132
February		16	12	38	80
March	. 34	27	21	70	152
April	. 26	23	21	52	122
May	. 36	45	16	57	154
June		13	28	51	126
July	5	16	40	59	120
August	31	19	6	38	94
September	21	23	21	66	131
October	43	22	18	70	153
November	34	25	22	62	143
December	22	13		44	79
Totals	. 332	257	227	670	1,486

Made By

		Mills, Plants, Smel-	Pits	Placers &	Oil & Gas Wells,	P	rojects		
	Mines	ters	Quarries		Plants	Road 7	ſunnel	Dam	Total
District	1 92	50	75	7	91	15	1	1	332
District	2 60	37	89	1	31	23	9	7	257
District	3 95	40	17	3	51	9	4	8	227
District	4506	46	5		40	32	21	20	670
Totals	753	173	186	11	213	79	35	<b>3</b> 6	1,486

# **Information Reports**

In order to maintain a progressive record of the operations of each mine in the State, the district inspector submits an Information Report on the individual mine some time during the year. Where operations have not materially changed since the last report, only vital information such as labor and production is listed. These Information Reports give the correct property location, method of timbering, ground condition and a description of the underground workings. Their use is invaluable in determining the possible condition of mines that have been inactive for several years.

### INFORMATION REPORTS

1962	District 1 Blake	District 2 Keating	District 3 Doyle	District 4 Ray & Pakka	Total
January	8	3		38	49
February				15	16
March	3			63	66
April				33	33
May	5	4		26	35
June	15	7	8	31	61
July	7	3	3	36	49
August	25	17		7	49
September	17	10		42	69
October	б	4	••••	53	63
November	10	4		38	52
December	<b>3</b> 9	5	35	27	106
Totals	136	57	46	409	648

Made By

		Mills, Plants, Smel-	&c	Placers &	Oil & Gas Wells,		Projects		
	Mines	ters	Quarries	Bogs	Plants	Road	Tunnel	Dam	Total
District	1 48	18	42	<b>2</b> 6	2				136
District	2 23	6	23	2	3				57
District	3 16	11	10	3	2		1	3	46
District	4367	19	3	3	3	б	3	5	409
Totals	454	54	78	34	10	б	4	8	648

# **Radon Daughter Control**

The following illustrative tables and Radon Control statistics are supplemental to the Radon Daughter Control report in the front part of this 1962 Annual Report. The comparative figures illustrate the progress made in a year and a half of concentrated effort to reduce the radiation hazard in our Colorado uranium mines. They also illustrate that with the continual opening and closing of individual mines constant monitoring is required to keep radiation levels within tolerance.

### 1962

Number of Mines Sampled for Radon Daughter Products.	917
Number of Separate Mines Sampled	331
Number of Individual Samples Taken	2,705
Number of Men Catalogued for Exposure	3,003

### STATUS OF MINES DECEMBER 31, 1962

(1 WL Represent	s 300 Micromicroc	uries per Lit	er of Air)
Range 1.0 WL or less 1.0 WL to 3.0 WI 3.0 WL to 10.0 W 10. WL and over .	L 79 L 22	Per Cent 52% 38% 10% 0%	Cumulative Per Cent 52% 90% 100% 0%
Total		100%	

A comparison of progress in radiation control in Colorado uranium mines is listed in the following table:

	Per	Cent of Operating Mir Dec. 31, 1961	nes
1.0 WL or less	18%	45%	52%
1.0 WL to 3.0 WL	14%	27%	38%
3.0 WL to 10.0 WL	29%	23%	10%
10. WL and over		5%	0%
Total	100%	100%	100%

INDIVIDUAL SAMPLE AN	D INSPECTION	STATISTICS
Samples Taken by Number	er of Samples	Number of Inspections
Thomas High	1,005	327
William Horn	799	289
Calvin Warnica	901	301

CORRECTIVE ORDERS ISSUED FOR VENTILATION

General		126
Removal of	Men from Area	11
Compliance	by Specified Date	4

	Kind of Propert				00		bo
	Kind of	Plant Plant Plant Plant	Plant Plant		Quarry Peat Bog	Mine Plant Quarry	Mine Peat Bog Mine Mine
		Sand, Gravel, Gold Sand, Gravel, Gold Sand, Gravel, Gold Sand, Gravel, Gold				Gold, Silver, Copper, Lead. Sand, Gravel, Gold Stone	
lorado	Product	ravel Co., Co., 4800 Sand, Gravel, Gold owell Blvd., Sand, Gravel, Gold owell Blvd., Sand, Gravel, Gold owell Blvd., Sand, Gravel, Gold	rd., Sand, Gravel		Stone Peat	Gold, Silver, Copper, Sand, Gravel, Gold. Stone	Fluorspar Peat Gold Silver Clay
in Co	Pro		vd., San vd., San	ve., 3,	St., Sto 941 Pea		
<b>Mineral Operations by County in Colorado</b>	Operator's Name & Address ADAMS COUNTY	Boise Cascade Sand & Gravel Co., 7620 Madison St. Derby Co., 4800 Brannan Sand & Gravel Co., 4800 Brighton Blvd., Denver Cooley Gravel Co., 6101 Lowell Blvd., Cooley Gravel Co., 6101 Lowell Blvd., Cooley Gravel Co., 6101 Lowell Blvd., Denver	ARAPAHOE COUNTY Cooley Gravel Co., 6101 Lowell Blvd., Denver Cooley Gravel Co., 6101 Lowell Blvd., Denver	BOULDER COUNTY Pyramid Stone Co., 6071 W. 48th Ave., Wheatridge Joseph Puckett, c/o Joe Baker, Rt. 3, Longmont Taylor Brothers, Box 353, Lyons Jay, Morgan, Lyons	Wullard Trevarcon, Lyons Beaver Stone Company, Lyons Beaver Lake Peat Co., 2902 6th St., Peat Ruudler Mining & Land Co., 1941	Tyler Rd., Boulder Boulder Gravel Products, Inc., Box 229, Boulder Sterling Stone Quarries, Box 58, Lyons Allied Chemical Corp., General Chem-	Centennial Petat Moss, Box 420, Boulder Utex Exploration Co., Moab, Utah Utex Exploration Co., Maab, Utah Edvardo Clay Co., Rt. 1, Box 759, Golden
Mineral (	Location				Ba Ba Barver Dam LakeBa Grand IslandRu		
	Name of Property	Inland Derby Derby Mill at Pit No. 8 Denver Mill at Pit R Denver North Plant Denver	Englewood Plant Littleton Plant	Bakers Nos. 1-10Lyons	Beaver Lake Blue Bird	Boulder Gravel Products Valmont Brodies St. Vrain Lyons Burlington Jamestow	Caribou Caribou Caribou Cash Gold Hill Dodge Sugar Loaf Road Eldorado Pit Nos. 1 & 2 Eldorado Springs.

### COLORADO BUREAU OF MINES

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		BOULDER COUNTY-Continued		
Name of Property	Location	Operator's Name and Address Product		Kind of Proper
Green Thumb Harms	Nederland Ward	Caribou Ranch Corporation, Neder- land W.F. Harms, Rt. 2, Box 75A, Boulder-Peat.		Peat Bog Peat Bog
Hiel Ingersoll	.Jamestown Road Jamestown Road	Bud King Construction Co., Box 86, Rip Rap Lyons University of Colorado, Boulder Stone	RapQuarry eQuarry	rry rry
Jacobson & Lyons Jenkins	. Beach Hill	Jacobson & Lyons Stone Co., Inc., Stone Box C, Lyons Croud-Whisenhunt, 520 Anderson St., Clay Castle Rock	e Quarry Mine	rry e
King MountainLyonsLoukonen Brothers Quarries_Beach Hill MarionSugar Loai	Lyons. .Beach Hill .Sugar Loaf Road	I Rock Co., Box 1189, thers Stone Co., Box ey, Box 441, Boulder		Quarry & Plant Quarry Mill
McCall Quarries	. Steamboat Mtn	Walter A. Productions, Box 364, Lyons. Walter A. Prickering, c/o Mabel Lan-Stone	eQuarry	rry
Nations Treasure	Jamestown	et al, 1946 Walnut St., e Quarries, Box 124,	bar.	e rrv
Occidental	. Ward		er, Copper, Lead	
Rex Tungsten (18225A) Valmont Plant	Summerville Nederland Valmont	Mining Co., Moab. Utah Mining Co., 420 Pine St., Chemical Corp., General al Division, Box 228, Boul-		ນຄຸດ
Wano Washington Irving	Jamestown Glendale	der uors Williamson Mining Co., Jamestown Gold Colard & Dittberner, Ward Star Rt.,Gold JamestownGold		n n N
		CHAFFEE COUNTY		
Colorado Granite Grit Crystal Quarry	SalidaUte Trail	Colorado Granite Grit Corp., Box 426, Salida Colorado Granite Grit Corp., Box Granite Grinte Grit Corp., Box Granite	Granite Grits	ıt rrv
Homestake	Ute Trail	ox 671, Salida		rry

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	Kind of Property	Quarry	Mine Mill			Mine	Placer		Mine	dMine			Mine Mine
ued	Product	Limestone	Granite Silver, Lead, Zinc Feldspar			Llead, Zinc Silver Lead Zinc	Gold				Lead, Zinc	Lead, Zinc 	Beryl, Rare EarthsGold, Silver, Lead, Zinc
CHAFFEE COUNTY—Continued	Operator's Name and Address	Colorado ruel & Iron Corp., Box 316, Pueblo Colorado Granite Grit Corp., Box	426, Salida Harry Nylene, Leadville Western Feldspar Milling Co., Box 671, Salida	CLEAR CREEK COUNTY Alma Lincoln Mine, Box 781, Idaho	David Bdwards, Box 383, Brecken- ridge and & Gravel Co., Lawson- Walcott & Zorn, Box 552, George-	town Humphreys Engineering Co., 910 American National Bank Bldg., Denver	C. J., C. R., & E. A. Carlson, 1625 Cheyenne Blvd., Colorado Springs Idaho Springs Milling Co., c/o A. E.	Alva Carrett & Associates, 4612 S. Bannock St., Englewood	512 Skyline Drive, Fort Collins Jo Reynolds Mining, Milling, Drainage Tunnel & Transportation Co., c/o	School of Mines, Golden ison, Rt. 3, Box 367, Silver Age Mining Co		Carl Abrahamson, Lawson	Deaver Brook Deaver Drook Wide Awake GulchP & M Mining Co., 450 S. Broadway, Denver
	Location	Chalk Creek	St. Elmo Salida	Spanish Bar	1Lawson. Georgetown Silver Plume	Ute Creek	Fall River Ute Creek	Lawson	Lawson	Virginia Canyon Gilson Gulch	springs	Empire	Canyon Brook Canyon Wide Awake Gulcl
	Name of Property	Monarch Lime Quarry	Stonewall Western Feldspar Mill	Alma Lincoln	American Sisters No. 1 Booth & Smith Burleigh	Cascade (Hall Tunnel)	Centennial Mining PlacerFall River DixieUte Creek	Drummond	(Jo Rey	Forge Hill Franklin	Free American Extension	Gold Dirt Group.	Hammil Tunnel

COLORADO BUREAU OF MINES

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	CL	CLEAR CREEK COUNTY-Continued	ued	
Name of Property	Location	Operator's Name and Address	Product	Kind of Property
Humbolt No. 3	Ute Creek	R. E. Mackey, 15 S. Yukon St., Lakewood	Gold, Silver	Mine
Independence Tunnel	Empire		Lead, Zinc	Mine
Johnny Bull	Silver Plume	Globe Hill Mining Co., 5365 W. 3rd Place Denver	Silver. Lead. Zinc	Mine
King Cyrus Nos. 1, 2	Spanish Bar	7505 Clay St.,	Tourist	Mine
Lombard	Cumberland Gulch	St.,		
Mackey	Freeland		Lead, Zinc	Mine Mill
Mendota	Silver Plume	425, Olathe	Lead, Zinc Concentrates.	Mill
Miami & Edgar Tunnel	Dry Gulch.	Colorado School of Mines, Golden	Instruction.	Mine
Mill Creek	Dumont	Superior Acceptance Corp., 5365 W. 3rd Place, Denver	Lead, Zinc Concentrates	Mill
Poor John Adit	Idaho Springs	Rollinsville	Gold, Silver	Mine
Quickie Iron Mine	Canyon	Haef Leavitt & Associates, Box 822, Idaho Sorings	Tron	Mine
Sante Fe	Gilson Gulch	Co., 812 Em-	Cold Silvor	Mine
Saums	Lawson	Ex-		Diocer
Silver King	Silver Plume	change Didg., Denver 	Tourist	Mine
Silver Spruce	Idaho Springs	eys Engineering Co., 910 can National Bank Bldg.		
Urad	Woods Creek	C. Byan & Sons, 6001 McIntyre St., Golden	Gold, Silver Concentrates Molybdenum	
Antonito Plant	Antonito	CONEJOS COUNTY Great Lakes Carbon Corp., Mining & Minerals Products Division, Box 308, Antonito.	Perlite	Plant
Mesita Hill	Mesita	COSTILLA COUNTY Colorado Aggregate, Inc., Mesita	.Volcanic Scoria	Quarry & Plant
Buckeye-Holt Copper Reef	Ophir Creek Silver Cliff	CUSTER COUNTY Eisenhour & Decker, Wetmore Jack Best, Box 333, Silver Cliff	Gold, Silver Silver, Lead	Mine Mine

	Kind of Property	Mine & Plant	Quarry Mine	ta di cata	Plant	Mill Dam Drilling	Drilling and	Wine Mine	Plant	Mill	Mine Mine	Mine		Mine & Plant	Mine
đ	Product	.Clay Vermiculite	Perlite Gold, Silver	Sulphuric Acid.	Cadmium Suitate	.Gypsum.		Gold, Silver, Copper, Lead Zinc, Iron	Iron Pyrites, Sulphuric Acid	Gold, Silver, Copper, Lead. Zinc, Iron	Silver Gold, Silver, Copper, Lead Zinc Iron	Gold, Silver, Lead		Silica Sand, Limestone	Clay
CUSTER COUNTY-Continued	Operator's Name and Address	Elmore Gien, 1222 S. FITSU SU, Canon City Development of the Canon City Vermiculite Insublast Inc., Box 146, Canon City Vermiculite.	riorence George Wolfe, 916 E. 2nd St., Florence .Charles & Lyman Akin, Wetmore	DENVER COUNTY Allied Chemical Corp., General Chemical Division, Box 4040, South Denver Station, Denver	American Smelting & Refining Co., 495 E. 51st St., Denver		Fritz & Erickson Drilling Co., Box 365, Dove Creek	Rico Argentine Mining Co., Rico	Rico Argentine Mining Co., Rico.	Rico Argentine Mining Co., Rico	Bull Draw Mining Co., Telluride	Expectation Mining Co., Box 86, Rico.	DOUGLAS COUNTY	Helmer Bros., Rt. 1, Box 94, I ittleton	Robinson Brick & Tile Co., 500 S. Santa Fe Dr., Denver
	Location	Wetmore Westcliffe Rosita		Denver	Globeville	Pork. Crawford Fork. Crawford Area.		Rico	Rico	Rico	John Bull Gulch Rico	Rico		PlantWaterton	Waterton
	Name of Property	Lawson Ponderosa Rosita Quarry	Tomboy	Denver Works	Globe Plant	Chipeta Mill Crawford Dam-Smith F Kissner Drilling Co	Fritz & Erickson Drilling Co.	Mountain Springs	Ramco Acid Plant	Rico Mill	Rosebud St. Louis & Blaine	St. Louis & Iron Clad		Helmer Bros. Mine & PlantWaterton	Hogback Nos. 2 & 3

### COLORADO BUREAU OF MINES

		DOUGLAS COUNTY-Continued	
Name of Property	Location	Operator's Name and Address Product	Kind of Property
Pioneer	Parker	Robinson Brick & Tile Co., 500 S.	
Ringenberg	Waterton		Min
Stevens Ranch.	. Castle Rock	nhunt, 520 Anderson St.,	Allith
Stroh.	Parker	it, 520 Anderson St.,	autivi
Waterton	Waterton	Casue nock Waterton Sand & Clay, 5953 S. Rapp Clay, Sand, Limestone St. Littleton	Mine Plant
		EAGLE COUNTY	
Dotsero.	Dotsero	Lava Products, Inc., Box 390,	
Eagle Mine & Mill	Gilman	Glenwood Springs. Volcanic Ash. Lead, Zinc. New Jersey Zinc Co., Gilman	inc
Project.	Basalt	U.S. Bureau of Reclamation, Region 7, Denver	Project
		ELBERT COUNTY	
Buffalo	Kiowa	Robinson Brick & Tile Co., 500 S. Santa Fe Dr., Denver	Mine
		EL PASO COUNTY	
Castle	Colorado Springs	Castle Concrete Co., Box 2462, Colorado 7 Springs 54, 1 min. View Aggregate	Quarry
NORAD DI CEU	Cheyenne Cheyenne		
Ramah	Mountain Ramah		Project
Sand Pit No. 2	Colorado Springs	Limon Transit Mix Concrete Co., Daniels Sand Division, Box 181, Colorado Springs	Dam Dam Pit & Plant
		COUNTY	
Byzantine	Canon City. Howard	Colonna & Co. of Colorado, Inc., Box 337, Canon City Colorado Limestone Co., Box 8, Limestone, Byzantine Howard	Quarry Quarry

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Name of Property	Location	<b>Operator's Name and Address</b>	Product	Kind of Property
Canon Cream.	Eight Mile Creek	Colonna & Co. of Colorado, Inc., Box 387, Canon City	Limestone, Building MaterialQuarry	Quarry
Canon Dolomite	Canon City	Colorado Fuel & Iron Corp., Box 847,	Dolomito	
Coaldale	Coaldale	20		qually
Cotopaxi	Cotopaxi		Gypsum	
Cotter Mill	Canon City	Canon City Cotter Corp., Box 751, Canon City	Copper. Uranium	Mine
Cowan Travertine	Canon City	Cowan Bros., 227 Main St., Canon CityTravertine,	Travertine, Marble	Quarry
English.	English Siding	Colonna & Co. of Colorado, Inc.,		
Horney Ganister	Canon City	Box 387, Canon City C. O. Wallace, 1619 Park Ave.,	Marble	Quarry
		Canon City Elmo Gien, 1222 S. First St., Canon City De Visil 1011 W First St. Florence	Silica	Quarry
I&E	Salt Canyon	William R. Irvin, Rt. 1, Penrose	Clay	Mine
Insuplast	Canon City	Insuplast, Inc., Box 146, Canon City	Vermiculite	Mill
Joan	Tallahassee	Maxness & Bishop Mining Co., 826	ITranium	Mine
Last Chance	Tallahassee	Gunnison Mining Co., Box 539,		O I I I I I I
		Gunnison C. B. Johnson, Box S. Cortez	.Uranium	Mine
Little Abney No. 1	Tallahassee	Logan E. Shelhamer Mining Cont., 800 N 19th St Canon City	IIranium	Mine
Mary L No. 1	Tallahassee	Logan E. Shelhamer Mining Cont.,		
Mica Lode.	Royal Gorge Park	800 N. 19th St., Canon City	Uranium	ININe
Nour Iorson Zing Dlant	Concor City	St., Canon City	Quartz.	Quarry
Mew Jersey Zille Flant	Calloll City	Canon City	Zinc	Plant
Persolite	Florence	Persolite Products, Inc., Box 105, Florence	Derlite	Plant
Phantom Canyon	Beaver Creek Road	Beaver Creek Road. George Stroup, Eight Mile Park, Canon City,	Clay	Mine
Picnic Tree	Canon City		.Uranium	Mine
Pinnacle.	Salida	Frank H. Norberg Co., 703 Guaranty Bank Bldg., Denver	Limestone	Quarry
Portland	Portland	Ideal Cement Co., Box 231, FlorenceLimestone	Limestone	Quarry & Plant
Rare Earth	Canon City.	Uranium Mining & Development Corn Roy 388 Canon City	Rare Farth	Plant
Rock Products	Florence	Rock Products, Inc., Box 106,	Rock Products	Plant
				**** 4C44**

COLORADO BUREAU OF MINES

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	I	FREMONT COUNTY-Continued	led	
Name of Property	Location	Operator's Name and Address	Product	Kind of Propert
Saint John Salt Canvon	Skyline Drive Salt Canyon	Ray Sturbaum Mining, 225 Main St., Canon City C. O. Wallace, Box 434, Canon City	Sand, Ganister Clay	Quarry Mine
Skyline		Harbison-Walker Refractories Co., Box 150. Canon City	Sand	Quarry
Taylor Gulch.	Taylor Gulch	Frank H. Norberg Co., 703 Guaranty Bank Bldg., Denver	Limestone	Quarry
Thunder Mountain	Wellsville	U.S. Soil Conditioning Corp., Box 346, Salida	Soil Conditioner	Quarry
Wild Rose	Texas Creek	Ralph J. Pierce, 108 Penn Ave., Canon City	Mica, Quartz, Beryl	Quarry
Yellow Marble	Canon City	Rock Products, Inc., Box 106, Canon City.	Marble	Quarry
		GARFIELD COUNTY		
Basic Chemical Quarry	Glenwood Springs.	Glenwood Springs_Moab Drilling Co., Box 270, Glenwood Springs	Limestone	Quarry
Glenwood Springs Lime Quarry	Glenwood Springs	Frank H. Norberg Co., 703 Guaranty Bank Bldg Denver	Limestone	Quarry
Oil Shale Plant	Rifle	U.S. Bureau of Mines, Rifle	Oil Shale	Mine & Plant
Rifle Mill	Rifle	Union Carbide Nuclear Co., Rifle	Uranium, Vanadium	Mill
		GILPIN COUNTY		
Bob Tail	Black Hawk	Gus Bakos & Robert Hollenbeck, Black Hawk	Tourist	Mine
Braecher Ranch	Black Hawk	& Jensen, 9800 Morrison Rd.,	Doot	Doot Boa
Carroll	Central City	060 South Inca St.,	Gold. Silver. Lead. Zinc	Mine
Couch Placers Nos. 1 & 2	Black Hawk	Stancil Couch, Box 146, Black HawkGold	Gold	Placer
Darlene & Mary Nuisance	Elk Creek	ri		Discon
Diamond Lil	Central City	Central Gold Mine & Mining Museum,		Tacer Mino
Durand	Lump Gulch	Denver Duran City Durant Durant Burdens, 935 S. Patton Court,	Gold	Placer
Eagles Nest	Black Hawk	377 Eaton St.,	Denvtr. Gold, Silver	Mine
Fools Luck	Missouri Gulch	Ashcroft & Patrick,		
Conclott Discon No. 19670	doling transition of a class	Pat Green, Box 86, Black Hawk	Gold	Mine
		CO., 1/213 W.	.Peat	Peat Bog
			.Peat.	***********************

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Kind of Property	er, Lead, ZincMine & Mill	Mino	Cold Silver, Conner Mine		Mine	Peat Bog Mine Mine	perMine Mine	Mine	Placer Placer Placer	Placer Peat Bog	d, ZincMill perMine Mine Placer			Mine	DAMAN	d. Zinc Mine & Mill
d Product	Gold, Silver, Copi		Cold Silver, Cor		Tourist	Peat Gold, Silver Tourist	Gold, Silver, Copper Tourist		Gold Gold Gold	Gold Peat	Gold, Silver, Lead, Zinc Gold, Copper. Gold, Silver, Copper. Molybdenum Gold		t t	Silver, Copper		Gold. Silver. Lead. Zinc
GILPIN COUNTY—Continued Operator's Name and Address	Glory Hole, Inc., Central CityGold, Silver, Copper, Lead, Zinc. Mine & Mill	Faul J. Janes, 1010 Grand Ave., San	St.	Thayer & Meyers, 8241 Auburn Lane,	Mike McNulty, Black Hawk Harvev F. Kemp. 62 S. Kimball St	Lakewood	Ave., Phoenix, Ariz Faye Tyson, Box 201, Central City	Robert W. Patrick, Rt. 1, Spencer Graham & Eckholt, 3060 S. Ban-	nock St., Denver	Denver Linguetary of Long Long Long Long Long Long Long Long		GUNNISON COUNTY	Smokey Ward Mining Co., 418 E.	Virginia St., Gunnison Boyles Bros. Drilling Co., 2960 W.	Quad Construction, Inc., Box 116, Sapinero	Tecon Construction Co., Box 718, Gunnison O. A. Sutton. Box 95. Ohio City
Location	Central City	Silver Lake	Perigo	Black Hawk	Black Hawk Gilpin	Central City Black Hawk Central City	Central City.	Missouri Gulch North Bever Creek		Black Hawk	Perigo Merigo Missouri Gulch Jennie Lind Gulch Black Hawk		p).Between Iola and Powderhorn	Powderhorn	Sapinero	Gold Creek
Name of Property	Glory Hole	Gold Rock, Rotechield & Pocahontas	Golden Cycle	Green	Huddleston (Toll Gate) Kemp	La Crosse Little Colonel Mammoth	National Bank Lode (Lost Gold)	Patricks Enterprise Phoenix	Pojoe Red Cone Placer Reider & Lawson	Rudolph Ranch	Screet Stooks Tunnel Stephens Wilma Zacker		Anaconda (CopperGirlGroup). Between Iola and Powderhorn	Big Iron Hill Tunnel	Blue Mesa Project— Curecanti Unit	Carter Mine & Mill

	Kind of Property Mine Mine Mill	Quarry & Plant 2.Mine							
		Marble Quarry Gold, Silver, Copper, Lead, Zinc.Mine	Mine re Earth	Gold, Silver, Copper, Lead, Zinc.Mine Gold, Silver, Lead Gold, Silver, Lead	Gold, Silver, Copper, Lead, Zinc. Mine Gold, Silver, Copper, Lead, Zinc. Mine	Copper Mine Copper Mine e Metals Mine	Quarry Mine Mine	Gold, Silver, Uranium Mine Gold, Silver, Copper, Lead, Zinc. Mine	Gold, Silver, Copper, Lead, Zinc. Mine Gold, Silver, Copper, Lead, Zinc. Mine Gold, Silver, Lead
ued	Product Copper, Lead, Zinc Silver Gold, Silver, Lead, Zinc Uranium		Thorium. Thorium, Rare Earth	Gold, Silver, Gold, Silver,	Gold, Silver, Gold, Silver,	Gold Gold, Silver, Copper Fluorite, Rare Metals.	Stone Thorium Silina Tood		
GUNNISON COUNTY-Continued	Operator's Name and Address Karl Lambertson, Craig Forest Queen Mines, Inc., Box 396, Crested Butte H. L. Bird, 2656 4th St., Boulder Kermac Nuclear Fuels Corp., Box 539, Gunnison	H. L. Arbogast, 234 31.3 Rd., Grand Junction. American Smelting & Refining Co., Crested Butte	.John A. McGregor, Powderhorn George Grover, Iola Standard Metals, Moab., Utah	Wellington Mines Association, Breckenridge Association, Bud King Construction Co., Missoula, Montana Paradise Mining Corp., Crested Butte H R. Kone Boy, 155, Dombia Scrings	Cumberland Pass. Jack McClain, Parlin, Cumberland Pass. Jack McClain, Parlin, Control Gothic. Mike Hildreth, 606 W. New York Gothic. Area, Gunnison & Harry Downing, Crested Butte. Frank Hodgeson & Harry Downing,	Wanita Hot Springs. J. C. Ternahan, Doyleville Wanita Hot Springs. J. C. Ternahan, Doyleville Powderhorn	J. C. Wator, Dox, Soo, Vurthson, Hacker Stone Co. 336 W. 1st St., Loveland Co. 336 W. 1st St., Boyd Roberts, Iola	HINSDALE COUNTY W. J. Crain, Rt. 3, Box 83, Pueblo	Bob Watson & Carl Jensen, Monte Vista Ajax Syndicate, Santa Barbara, Calif Jim Ingram and G. E. Wetzel, Montrose
0	Location Haymaker Gulch Irwin Gold Creek Gunnison	Marble. Crested Butte	Powderhorn Powderhorn Crested Butte	Muddy Creek	Cumberland Pass. Gothic Crested Butte	Wanita Hot Spring Powderhorn	Powderhorn		
	Name of Property Doctor Forest Queen Group Gold Links Gunnison Mill	Italian Quarry & Crushing Plant Keystone Group	Little Johnnie No. 1 Lucretia, George & Marion Micawber	Paonia DamMuddy Ci Pennsylvania (Sunnybrook)Gothic	ò	Ternahan Titan Tomichi Village	(Sloss Quarry)	Childs Park Lode	Golconda Highland Chief Silver Jack & Conklin

		JEFFERSON COUNTY		
Name of Property	Location	Operator's Name and Address	Product	Kind of Propert
Aggregates, Inc.	Golden	Aggregates, Inc., 2120 S. Ash St.,	Critched Stone	Dlant
Ascension	Golden	Yellow Queen Uranium Co., 2027 E.	Tradium	Min.
Beryl Ores Co	Arvada	Beryl Ores Co., Box 105, Rt. 1,	Down Min.	Diameter de la company
Caldwell	Plainview	Denver Brick & Pipe Co., 4501	Deryi, Muca	Mino
Church	Rocky Flats	Wesley D. Conda, Box 110, Rt. 1,	CIdy	
Church's Shale Pit	Golden	Boulder Duane Bruno, 929 E. Ellsworth Ave.,	Clay	Mine
Clalite Aggregate Co	Golden	Clalife Aggregate Co., 4250 McIntyre	Shale.	Open Pit
Cooper	Foxton	Earl M. Cooper, 1232 S. Eaton Court,	Shale (Expanded)	Plant
Foothills	Idledale	Denver Magdelena Mining & Milling Co., Box	Quartz	Quarry
	Turin Codone	751, Canon City	Uranium.	Mine
Foster Green Mountain	Golden Ceuars	Geo. W. Parfet Estate, Inc.,	Qual 12	and the second s
Uomoor	Booky Rlate	Box 226, Golden	Clay	Mine
	min C-1-1	Lakewood with the burner	Clay	Mine
Janice Lucertia	I abound	Wildrog & Atchison, Woodland Fark.	ୁକ୍ଷ ଅଧିକ	quaily
WIRDLACK WICHTON		Paving Co., Inc.,		Dlont
Lakewood	Golden	Lakewood Brick & Tile Co., 1325	GIAVEL	11101
Lariat	Waterton	Jay St., Lakewood Robinson Brick & Tile Co., 500 S.	Clay	Mine
Last Dollar	Guy Gulch	Santa Fe Dr., Denver Carl Quist, Box 136, Lake George	.Clay Quartz	Mine Quarry
Lee	Golden	Whee Sand & Gravel Co., Box 128,	Cold Sand Gravel	Plant
Leyden & Leyden	Golden	G C Bennetts & Sons Rt 1		A
Tall Flashe		Box 759, Golden outs, ttt. 1,	Clay	Mine
McIntyre Plant	Golden	Aspnatt Faving Co., 9030 w. Collax Ave., Lakewood	Sand, Gravel	Plant
Mena Shaft	Golden		Uranium	Mine
Morrison	Morrison	Denver Gravel & Concrete Co., Box 100 Monicon	Sand Cravel	Plant
Mt. Carbon	Morrison		Clav	Mine
		Tellver		DITTEAT

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	Kind of Property	(	aulin	Mine	Mine	Quarry	Quarry	Plant	Dam	Mine	Plant	Mine	Quarry & Plant	Mine	Mine	Mine	Mine		anım	Mine	Plant	Mine	Quarry	Mine Quarry Quarry
iued	Product	IIrnincul		Clay	Clay	Quartz.	Shale	Golu, Sanu, Gravel		Clay	Gold, Sand, Gravel	Clay	Shale	Clay	Uranium	Clay	Clav		Clay	Clay	Gold, Sand, Gravel	Clay	Quartz	Clay Quartz Quartz
JEFFERSON COUNTY-Continued	Operator's Name and Address	L. D. Ohman, 800 Bonnie Brae Blvd., Denver	Robinson Brick & Tile Co., 500 S.	r Fire Clay	Forest Hamilton, 1415 N. 6th St.,	Clalite Aggregate Co., 4250 McIntyre	Brannan Sand & Gravel Co., 4800			Jay St., Lakewood Rio Grande Gravel Co., 44th &	Eldridge Ave., Denver. Geo. W. Parfet Estate, Inc., Box 226.	Golden Idealite Company, 806 Boston Bldg.	H. M. Rubev Clav Co., Box 226.	Golden Denver-Golden Corn 2138 Chamma	St. Denver Corp. 200 Champa Bobinore Deiole 6, frilo Co. 600 S	Santa Fe Dr., Denver		Colorado Brick Co.,	Denver Brick & Pipe Co	4501 Fox St., Denver Table Mountain, Inc., 2680 Young-	field Ave., Denver Lakewood Brick & Tile Co., 1325	Jay St., Lakewood John Toler, 506 S. 11th St.,	Colorado Springs Denver Fire Clay Co.,	3303 Blake St., Denver William Johnson, Fountain Herbert Crisler, Lake George
	Location	Golden Gate Canyon	Denver	Golden	Buffalo Creek	Golden	Ward Road	Waterton	Leyden	Golden	Golden	Boulder	Golden	Ralston Creek	Golden		Golden	Rocky Flats	Golden	N. Table Mtn	Golden	Twin Cedars	Golden	Raleigh Peak
	Name of Property	Nare Prospect	North Chieftain	North Golden	Oregon No. 3	Pattridge	Pit No. 11 Plant	Platte Canyon Intake Dam.	Red Clay (Lindsay)	Rio Grande	Rockwell	Rocky Flats	Rubey Standard	Schwartzwalder	South Chieftain		South Golden Open Pit	State	Strainland No. 1 & Pit	Table Mountain, Inc	Terra Cotta	Twin Cedars	Two Brothers.	White Cloud Yami Yogurt

Kind of Property Plant Mine Mine	liim Mill Weter Tunnel	Marcer	Mine	Mill Peat Bog			Mine Mine Mine Mine Mine
Product Sand, Gravel Sand, Gravel Molybdenum Malvbdenum	Molybdenum	Gold Tourist. San	Silver, Lead	go		Gold, Silver, Copper,	Lead, Zinc Silver Gold, Silver Uranium, Vanadium
LAKE COUNTY Operator's Name and Address Product C. Ryan & Son, Box 378, Climax Sand, Gravel. C. Ryan & Son, Box 378, Climax Sand, Gravel. American Metals Climax, Inc., Climax, Molybdenum.	American Metals Climax, Inc., Climax, Molybdenum J. A. Park's Construction Co., Box 426, Climax, 307 E. 7th St.,	nite eadville sh Street,	LA PLATA COUNTY Ralph Jason, 5252 Edinger St., Hunt- ington Beach, Calif.	ers, Box 1303, Duran est Ranch, Inc., ir Route, Durango ranium Co., Box	Copper Age Uranium Co., Box Copper Age Uranium Co., Box 124, Marvel Steward Brothers, Box 1303, DurangoGold, Lead Canon Diamond Drill Co., 1464 W.	A. S. Horner Construction Co., Inc., Box 1887, Durango Colorado Constructors, Inc., 735 W. 39th Ave., Denver C. Z. Reed 1755 Conrad Ave., San Jose 24, Calif.	Charles C. Goulding, Star Route, Lead, Z Box 210, Durango, Star Route, Silver B.T. Mining Co., Box 83, Monti- Silver cello, Utah Vanadium Corporation of America, Uranium. Durango DurangoGold, Silv
Location Climax Climax Climax	1 I TA I I	Granite Leadville Tennessee Pass	La Plata Canyon	Lewis Mtn	Marvel	La Plata Canyon	Hermosa La Plata Canyon Durango Wall Gulch
Name of Property Arkansas Plant Buffer's Lake Sand Plant	8	Luna Placer Granite Matchless Tunnel Tennessee Pass.	Blackhawk	Brawner Mill Columbine Pit Copper Age	Copper Age Leach PlantMarvel enny LindWall Gulch. Lemon DamFlorida Cre	Mars.	Sarah G Small Hope Group V.C.A. Mill Western Bell

COLORADO BUREAU OF MINES

		LARIMER COUNTY		
Name of Property	Location	Operator's Name and Address	Product	Kind of Property
Berthoud Varigated No. 20	Carter Lake	Colorado Stone Co., 1635 N. Main St.,		
Big Boulder	Crystal Mtn.	W. R. & Helen S. Allphine, Box 292, Jamestown	stone Bervl. Mica	Quarry Mine
Boettcher Plant & Quarry Chance	La Porte Masonville	0., Box 579, Fort Collins Quarries, 759 S. York	Limestone	
Colorado Stone Nos. 4, 10	East Beach Hill	Colorado Stone Co., 1635 N. Main St.,	Stone	Quarry
Corral Pole Nos. 1, 2	Crystal Mtn.	Arthur Johnson, 625 Mathews St., Fort	Stone	Quarry
Goodwin	Payne Ranch	V. Munroe, Rt. 2, Box 273,	Deryi, Mica	Mine
Holly	Owl Canyon.	Frank H. Norberg, 703 Guaranty	Times bound	ዲuarry
Jolex No. 2. Langston	Columbine Columbine	Jolex Mica Co., Box 575, Fort Collins Mica, Beryl.	Limestone Mica, Beryl Mica, Beryl	Plant
Lodge Pole	Crystal Mtn.	George G. Young, 395 Grape St.,		INIIne
Loveland Quarry	Loveland	n Co., Estes Park Rt.,	Mica, Beryl	Mine
Masonville	Masonville	Quarries, Box 58,	Gypsum	Quarry
Mincon Berthoud Plant	Berthoud	Concentrates & Chemical Co., 30 First National Bank Bldg.,	Stone	Quarry
Mincon Loveland Plant	Loveland	Concentrate & Chemical Co., 30 First National Bank Bldg.,	Beryllium Oxide	Plant
Munroe	Payne Ranch	Ψ	.Beryllium Hydroxide	Plant
Munroe Pioneer	Fort Collins	Pinion Grove Lime Co., Rt. 2, Box	Gypsum	Plant
Olin	Masonville		Limestone	Plant
Pinion Grove	Fort Collins	Вох	Stone	Quarry
Rex	Owl Canyon		Limestone	Plant
Spears Sprague C	Beach Hill Carter Lake		Limestone Stone	Quarry
		1		Quarry

Continued	
COUNTY-	
LARIMER	

Name of Property	Location	Operator's Name and Address Starling Sand & Gravel Co. Bt 3	Product	Kind of Property
	Beach Hill	Stewart Ledge Stone Co., AN, 9, Stewart Ledge Stone Co., Box 193, Rt. 1, Longmont	Sand, Gravel	Quarry
weaver Wild South	Masonville		Stone. Stone	.Quarry Quarry
Yaqunina Green Quartz No. 2	Forest Service Road 1652	ngree Park,	Quartz	Quarry
		LAS ANIMAS COUNTY		
Floyd Pit No. 4 Pit Nos. 1, 2, 3 Sante Fe	Floyd Ranch Trinidad Starkville	Empire Clay Products, Inc., Box 156, Trinidad Empire Clay Products, Inc., Box 156, Trinidad Scott Mining Co., Starkville	.Clay .Clay .Clay	Mine Mine Mine
		MESA COUNTY		
Arrowhead No. 5 Arrowhead No. 12	Arrowhead Mesa	"Arrowhead Mesa Ira Adamson, 226 29 Road, Grand Junction "Calamity Mesa Ralph Sterry, 415 30% Road, Grand	Uranium, Vanadium	
Arrowhead No. 23	Calamity Mesa	Howard Sterry, 2482 F Road, Grand	Uranium, Vanadium	Mine
Arrowhead No. 25	Calamity Mesa	27631/2	Uranium, Vanadium	Mine
Arrowhead No. 26	Calamity Mesa	Junction.	Uranium, Vanadium	Mine
Arrowhead No. 27	Calamity Mesa	Norman Wellman, 2975 Craig St., Grand Junction 2015 F Road	Uranium, Vanadium	Mine
Arrownead No. 232 Austin	Beaver Mesa		Uranium, Vanadium Uranium, Vanadium	Mine Mine
Belmont No. 2	Calamity Mesa	Norman Wellman, 2975 Craig St., Grand Junction	.Uranium, Vanadium	Mine
Big 7	Blue Mesa	Lee Hetzel, Box 455, Clifton	Uranium, Vanadium	Mine

COLORADO BUREAU OF MINES

	Kind of Property										
	Kind of	Mine	Mine	Mine	Mine Mine Mine	Mine	Quarry	Mine	Mine Mine	Mine	Mine Quarry Mine
		Uranium, Vanadium	Uranium, vanadium Uranium, Vanadium	Vanadium	Uranium, Vanadium Uranium, Vanadium Uranium, Vanadium	Vanadium Vanadium		Uranium, Vanadium	Uranium, Vanadium	.Uranium, Vanadium .Uranium, Vanadium	
_	Product	Uranium,	Uranium, vanadium Uranium, Vanadium	Uranium, Vanadium Uranium Vanadium	Uranium, Uranium, Uranium,	Uranium, Vanadium Uranium, Vanadium	Quartz	Uranium,	. Uranium, Clay	Uranium, Uranium,	
MESA COUNTY—Continued	Operator's Name and Address Ira Adamson, 226 29 Road, Grand Junction Omore Mining Co., c,o J. F.	Ortmayer, Grand Junction Edward Kryizley, 2763 <sup>1</sup> / <sub>2</sub> B Road, Grand Junction Argo Mining Co., Box 1698, Grand	Climax Uranium Co., Box 989, Grand	Junction Low 1030, Grand Junction Co., 606 Partee Dr., Grand Junction	Climax Uranium Co., Box 989, Grand Junction James D. Gibson, Box 372, Palisade Harold Price, Box 74, Nucla George Liverman, Box 431, Grand	Junction H. O. & L. A. Willison, 3038 F- <sup>3</sup> / <sub>4</sub> Road, Grand Junction. Junction W. Mesa Ave., Grand	United Stone Products Co., Inc., 1620 N. Ist St., Grand Junction E. E. Lewis, Inc., Box 1481. Grand	Junction H. L. Arbogast, 234 31.3 Road, Grand Junction Robert Morrison Clifton	Eugene Bonner, Box 855, Grand Junction Junction Brick & Supply Co., 2400 N. 17th St. Grand Junction Fdward Knizley. 2783, B Road	Grand Junction Mark Shipman, Box 861, Grand Junction E. Lewis, Inc., Box 1481, Grand	Junction United Stone Products Co., 1622 N. 1st St., Grand Junction Argo Mining Co., Box 1698, Grand Junction
	Location Calamity Mesa	Beaver Mesa	Beaver Mesa	Beaver Mesa	Grand Junction Flat Top Mesa Outlaw Mesa Mesa Creek		Jacob's Ladder Road Tenderfoot Mesa	Outlaw Mesa	Grand Junction Beaver Mesa	Beaver Mesa	Loma Beaver Mesa
	Name of Property Blue Ribbon No. 4	Bonanza	Bonanza Shaft No. 2.	Century Junnel	Climax Mill Depression Nos. 5, 6 Economy Nos. 1, 2 Elizabeth Nos. 10, 17	Hubbard Drift & PackratBeaver Mesa	Jacob's Ladder Joe	July	Junction Brick & SupplyGrand Junction. Karns	y Bell	Loma Lost Duţchman No. 1

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Location
Lucius Pitkin, IncGrand JunctionLucius Pitkin, Inc., Box 1351, Grand Junction
Gateway
a
Beaver MesaH. O. L. Mining Co., 606 Partee Dr., Tenderfoot MesaPhil Bunker, Box 227, Nucla
Beaver Mesa
Grand Junction Outlaw Mesa Ralph Foster & Sons, 2950 A <sup>1/2</sup> Road,
Grand Junction Beaver Mesa Charles V. Woodward, 2909 U.S. 50, Crand Tunction
Grand Junction United Sand & Gravel, 1714 S. 6th, Grand Junction
GravelWhitewaterWhitewater_Sand & Gravel, Box 1751, Grand Junction
MINERAL COUNTY
West Willow Creek
West Willow CreekEmperius Mining Co., Creede
Creede
East Willow Creek. Outlet Mining Co., Creede

Kind of Property Mill Mine	ğ			
Kind Mill Mine	Mine Drilling Mine	Mine	Mine Mine Mine Mine Mine Mine	
	pper.	Uranium, Vanadium	Vanadium Vanadium Vanadium Vanadium Vanadium Vanadium	
Product LUranium Uranium	Silver, Copper	Uranium, Uranium,	Uranium, Uranium, Uranium, Uranium, Uranium, Uranium,	Uranium, Uranium, Uranium, Uranium,
MOFFAT COUNTY Operator's Name and Address Product Union Carbide Nuclear Co., MaybellUranium. Hoyt Deaver & Son, Craig Ralph Flesh & Son, Walden Hopkins Mining Co., 1340 S. Lipan St., Art Reas, c/o Union Carbide Nuclear Co., Maybell Grover Williams, c/o Union Carbide Nuclear Co., Maybell Nuclear Co., Maybell Nuclear Co., Maybell	Hardway Mining Co., c/o Bert Thompson, Box 1269, Durango Sexton Bros. Drilling Co., Box 506, Cortez & Wesley Potts, Mancos	MONTROSE COUNTY Lee Moores, Jr., 2129 S. Broadway, Grand Junction McClure & John Cate, Box 71, Eldon Harker & John Cate, Box 71, Cle & Bond Mining Co. Box 188	Nucla Nucla Albert L. Bell, Box 612, Nucla Cole & Bond Mining Co., Box 188, Nucla Nucla Cole Bunker, Box 27, Nucla James Lammert, Park Creek Road, Moab, Utah Moab, Utah C. C. Sanders, Box 296, Nucla C. C. Sanders, Box 296, Nucla Olathe Olathe	David Pace, Naturita Ennest Berry, Box 237, Naturita Entrest Berry, Naturita Levi B. Barnes, Box 156, Nucla Loyd Rainwater, Nucla O. E. Smart, Box 296, Naturita O. E. Pitchford, 381 West Miguel Blvd, Moab, Utah
Location Maybell Maybell	Mancos Montezuma Twin Canyon	Monogram Mesa	Bull Canyon Bull Canyon Long Park Monogram Mesa Bull Canyon Bull Canyon Bull Canyon Long Park	Martin Mesa Martin Mesa Monogram Bench Bitter Creek Bitter Creek
Name of Property Maybell Mill Trace Elements Pits	Discovery Level (Red Arrow Group) Sexton Bros. Drilling Twin Canyon Group	Alta American Eagle Anna Mav	Aprila May Arrowhead Arrowhead Baby Fawn Baby Ruth Badger No. 1	Betty Jean (Lower) Betty Jean (Upper) Bill Batey Bitter Creek Nos. 300, 400

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COUNTY	
MONTROSE	

Name of Dronouts	T contion	Onomoton's Mamo and Address	Ducduct		Tring of December
Black Rock	Dolores Bench	Githon Reid, Naturita	FIOUUCI		ALLADEL TO DUTY
Blackburn Bluebell	Monogram Mesa Long Park	Reid Brothers, Naturita. Lowell Staats, Box 350, Nucla Dave Blake & Frank Power Box 91	.Uranium, Uranium,	Uranium, Vanadium Uranium, Vanadium	Mine Mine
Bluebird Bob Nos. 6, 7, 8 Dob Nos.	Dolores Rim Bull Canyon	Uravan Cecil Bunker, Box 27, Nucla Oral Clark, Box 728, Nucla	Uranium, Uranium, Uranium,	Vanadium Vanadium Vanadium	Mine Mine Mine
Bogus	Mesa Creek		Uranium,	Uranium, Vanadium	Mine
Bowen Shaft	Atkinson Mesa	Uravan Golden Cycle Corporation, Box 86,	.Uranium,	Vanadium	Mine
Buckeye Buckshot Butterfly Group	Long Park Club Mesa Yellowbird Bench		Uranıum, Uranium, Uranium,	Vanadium Vanadium Vanadium	Mine Mine Mine
C. F. C. Canopus Group	Long ParkLark Monogram BenchLark	Long Park. Lark Washburn, Box 850, Uravan. Monogram Bench. Lark Washburn, Box 850, Uravan	.Uranium, Uranium, Uranium,	Uranium, Vanadium Uranium, Vanadium Uranium, Vanadium	Mine Mine Mine
Carpetta Carpathia Cashin	Long Park	Uravan	Uranium, Vanadium Uranium, Vanadium	Uranium, Vanadium Uranium, Vanadium	Mine
Cliff Dweller.	Dolores Rim	4th South, Room 404, Salt Lake City, Utah. Glen Gardner, Box 202, Naturita	.Uranium, Uranium,	Vanadium Vanadium	Mine
Club Group Club Mine Club Sandwich Group	Club Mesa Club Mesa Dolores Bench	Washburn, Box 850, row Gripe, Box 225, row Gripe, Box 225,	Uranium, Uranium,	Vanadium. Vanadium	Mine
Coloradium	Long Park	Jerry Mayfield, Box 222, Naturita. Cole & Bond Mining Co., Box 188,	.Uranium,	Vanadium	Mine
Cripple Creek No. 1	Bull Canyon Long Park	Nucla Brothers, Box 951, Uravan Daguerre Brothers, Box 951, Uravan O'Bryant & Powell, Box 124, Uravan	.Uranium, .Uranium, .Uranium,	Vanadium Vanadium Vanadium	Mine Mine
Cripple Creek No.2 (Arrowhead)	Long Park				
Deer Shaft Diana Doagy No. 2 (Last Dollar) Dolores	Monogram Bench. Bull Canyon Monogram Bench. Dolores Bench	Nucla Booth Eckman, Box 127, Nucla E. J. Alongo, Box 42, Naturita D. C. Bunker, Box 27, Nucla Dave Blake & Frank Power Uravan	Uranium, Uranium, Uranium, Uranium,	Vanadium Vanadium Vanadium Vanadium	Mine Mine Mine Mine
Donald L Dorothy	Long Park Long Park	Loyd Rainwater, Nucla Rainwater & Bond, Nucla C. C. Sanders, Nucla	Uranium, Uranium,	Vanadium Vanadium	Mine

COLORADO BUREAU OF MINES

	Kind of Property																	
	Kind of	Mine	Mine Mine	Mine	Mine	Mine	Mine Mine	Mine Mine Mine	Mine Mine	Mine	Mine Mine	Mine	Mine	Mine	Mine	Mine	Mine	Mine
		Vanadium	Vanadium Vanadium	Vanadium Vanadium	Vanadium	Vanadium	Vanadium Vanadium	Vanadium Vanadium Vanadium	Uranium, Vanadium Uranium, Vanadium	Uranium, Vanadium	Uranium, Vanadium Uranium, Vanadium	Vanadium	Vanadıum	Vanadium	Vanadium	Vanadium	Vanadium	Vanadium
ued	Product	Uranium, Vanadium.	Uranium, Uranium,	Uranium, Vanadium. Uranium, Vanadium.	Uranium, Vanadium.	Uranium,	Uranium,	Uranium, Vanadium. Uranium, Vanadium. Uranium, Vanadium.	Uranium, Vanadium Uranium, Vanadium	Uranium,	Uranium,	Uranium, Vanadium	Uranium, Vanadium. Ilranium Vanadium	Uranium, Vanadium.	Uranium, Vanadium.	Uranium, Vanadium.	Uranium,	Uranium, Vanadium.
MONTROSE COUNTY-Continued	Operator's Name and Address	Woodrow Gripe, Box 225, Naturita	Junction Jerry Mayfield, Box 222, Naturita O. E. Smart, Box 296, Naturita	Boyd Castor, Nucla Clifford Goforth, Uravan Stafn Oliver, Norwood	American Eagle Leasing Co., Box 343, Norwood		Naturita Kennedy & Herring, Box 194, Nucla-Uranium, Vanadium. Fay Lambert, 814 S. 2nd St, MontroseUranium, Vanadium.	Oral Clark, Box 728, Nucla, Delbert Burbridge, Box 187, Nucla Guy Mulanax, Box 465, Nucla Vanadium Ocrporation of America,	Durango Andress Brothers, Box 333, Norwood Andress Brothers, Box 333, Norwood Andress Brothers, Box 187, Nucla Dave Blake & Frank Power Box 91	Uravan Dave Blake & Frank Power, Box 91, Uravan	Douglass Cleghorn, 623 26 Road, Grand Junction	Rex Holland, Box 234, Naturita Neilson & Klingensmith, Box 337,	Uravan Cole & Bond Mining Co., Box 188, Nucle	Dade & Shumway, 215 Landsdown Road, Grand Junction Lark Washburn, Box 850, Uravan	D. C. Bunker, Box 27, Nucla	Jim Butt, Dove Creek	O'Bryant & Powell, Box 124, UravanUranium, Vanadium.	Roy Franklin, Box 119, Uravan
N	Location	Martin Mesa Monogram Mesa	Long Park Long Park	Bull Canyon Dolores Rim		Mesa Creek	Olathe	Bull Canyon Bull Canyon Bull Canyon Long Park	Long Park Dolores Rim	Dolores Rim	Eagle Basin	Bull Canyon Long Park	Monogram Bench.	Long Park	Long Park	Gyp Valley	Long Park	Long Park
	Name of Property	Duchess No.2 Duggan Adit	Dusty No. 2 Dynamite	Echo No. 3		Eula Belle Eureka & Buckhorn	1	rawn springs Nos. z, 9, 11, 12, 18, 21 Fawn Springs No. 5 Fawn Springs No. 29 Firecracker No. 2	Firecracker Nos. 3, 4 Fox	Fraction	Golden Eagle	Greagor Group Great Western	Greenback	Ground Hog	Guadalcanal	Gyp	Happy	Henry Clay

MONTROSE COUNTY-Continued

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MONTROSE COUNTY-Continued

Name of Property	Location	Operator's Name and Address	Address Product	act	Kind of Propert
Hidden Basin	Long Park	', Naturita Corporation	of America, Itanium	ITonodium	
Himes Drilling Honeymoon Hummer	Four Corners Middle Long Park Monogram Mesa	Himes Drilling Co., Box 727, Nucla C. C. Sanders, Box 396, Nucla Lowell Statats, Box 337, Nucla			Mine Mine Mine
Joe Joe & Youvan, Inc	Dolores Rim Four Corners	Johnson & Youvan, 219 Januarowu Road, Grand Junction Douglas Cleghorn, Box 502, Uravan Johnson & Youvan, Inc., Box O,		Uranium, Vanadium Uranium, Vanadium	Mine Mine
Lark No. 7 Lark No. 8 Lion Creek	Bull Canyon Bull Canyon Lion Creek	Naturita Everett Blackburn, Placerville James F. Galyean, Box 474, Nucla Four Corners Oil & Mineral Co.		Uranium, Vanadium Uranium, Vanadium Uranium, Vanadium	Mine Mine Mine
Little Alice Little Buckhorn Little Dick	Wild Steer Canyon Martin Mesa Dolores Bench	Farmers Union Bldg, Denver Woodrow Gripe, Box 225, Naturita. Lathrop & McCullah, Nucla Delbert Burbridge, Box 187, Nucla		Uranium, Vanadium Uranium, Vanadium Uranium, Vanadium	Mine Mine Mine
Little Gyp Group Long Park No. 1	Little Gyp Valley Long Park	Dave blake & Frank Fower, box 91, Uravan Lever, Box 224, Dove Creek Benny Martinez, Box 224, Dove Creek Walter F. Burnett, Box 386, Nucla			Mine Mine
Long Park No. 2 Long Park No. 6 Lower Oversite	Middle Long Park Long Park	J. R. Bond, Nucla C. C. Sanders, Box 396, Lark Washburn, Box 850, Lark Washburn, Box 850,	Nucla Uranium, Uravan Uranium, Uravan Uranium,	m, Vanadium m, Vanadium m, Vanadium m, Vanadium	Mine Mine Mine
	Kittimac Mines	MacPherson Drilling Co., I Montrose	Co., Box 447,		Drilling
Maggie C. Group	Middle Long Park	ਮੁੱਖ		ITranium Vanadium	Mine
Marjorie Ann	Lion Creek	Dade & Shumway, 215 Landsdown Road, Grand Junction		Uranium, Vanadium	Mine
Mary Ann No. 4.	Monogram Bench	H		Uranium, Vanadium	Mine
Maybe	Bench Monogram Mesa	Homer Woods, Uravan Union Carbide Nuclear Co., Uravan		Uranium, Vanadium Uranium, Vanadium	Mine
Media Group	Middle Long Park	Middle Long ParkJerry Mayfield, Box 222, Naturita		Uranium, Vanadium	
Meek Tunnel	Crawford	Gordon & Carton Meek, Box 7, Mahei			Water Tunnel
Merry Widow	Eagle Basin	C. N. Athey, Naturita		Uranium, Vanadium	Mine
Mesa	Upper Bull Canyon	Upper Bull Canyon.Orval Care, Box 286, Naturita.		Uranium, Vanadium	Mine
WILL INUS. 2, *	CIUD MESA	Box 484, Uravan		Uranium, Vanadium	Mine

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Name of Property	Location	<b>Operator's Name and Address</b>	Product		Kind of Property
Mineral Joe Nos. 1, 4, 11	Monogram Mesa	.Climax Uranium Co., Box 989, Grand Junction	Uranium.	Vanadium	Mine
Mineral Joe Nos. 2, 3 Mineral Park Nos. 1, 2 Modene	Monogram Mesa Long Park Sylvia's Pocket	84, Nucla 5, Naturita 398, Dove Creek		Vanadium Vanadium Vanadium	Mine Mine Mine
Monogram (Lower & Upper)	Monogram Bench	Cole & Bond Mining Co., Box 188, 11 Nucle	Iranium	IIranium Vanadium	Mine
Monogram	Martin Mesa	teed & Edward Smith, Box	Tranium.	Vanadium	Mino
Monster	Saucer Basin	& J. C. Hise, Box		Vanadium	Mine
Mustard	Dolores Rim		Uranium,	Vanadium	Mine
Nil No. 2	East Paradox	Union Carbide Nuclear Co., UravanU	Uranium,	Vanadium	Mine
North Star	Dolores Rim		Uranium,	vanadium Vanadium	Mine
Nucla	Dolores Rim	Mayfield, Box 222, Naturita		Vanadium	Mine
Opera Box	Monogram Bench	-		Vanadium	Mine
Ophir	Dolores Rim	Bunker, Box 27, Nucla	Uranium,	Vanadium	Mine
Oversite	Monogram Mesa	Washburn, Box 850, Uravan	Uranium,	Vanadium	Mine
Paradox Nos. 5, 6	Monogram Mesa	Nuclear Co., Uravan		Vanadium	Mine
Paradox D	Monogram Mesa	van	Uranium,	Vanadıum	Mine
ray Day	Martin Mesa	O'Bryant & Dowell IIrayan	mininer	Ilranium Vanadium	Mine
Peanut No. 1	Bull Canvon	urita	Jranium.	Uranium, Vanadium	Mine
Peanut No. 3	Upper Bull				
	Canyon	. Warren Wright & A. C. Rinderle, 404			
Peanut No. 4	Bull Canvon		ranium, '	Uranium, Vanadium	Mine
Doratio Current	Canada Davin		Jranium,	Uranium, Vanadium	Mine
Phonograph	Middle	Ernest Berry, Dox 231, Naturita	oranium,	v anaqıum	autur
	Long Park	nith, Box 875,			
Pi Warren	Lion Creek	Dade & Shiimway 215 Landsdown	Jranium,	Uranium, Vanadium	Mine
Picket Corral	Lower Bull		Uranium,	Vanadium	Mine
	Canyon			Vanadium	Mine
Point Empire Radium Hill	Bull Canvon	Pete Daguerre, Box 951, UravanU Morrison & Morrison. Box 195. NuclaU	Uranium, Uranium,	Vanadium Vanadium	Mine
Radium Hill No. 10	Bull Canyon		Uranium.	Vanadium	Mine
Rajah	Rock Creek		Uranium,	Vanadium	Mine
Raven	Little Gyp Valley.	cla			
Red Flag	Lower Bull	la	Jranium,	Uranium, Vanadium	Mine
	Canyon	Rex Holland, Box 234, NaturitaU	Uranium,	Vanadium.	Mine

Kind of Property	Mine Mine Mine Mine	Mine Mine	Mine Mine	Mine	Mine	Mine Mine Mine	Mine Mine	Mine	Mine	Mine Mill Mine	Mine	
	Vanaduum Vanadium Vanadium Vanadium Vanadium	Uranium, Vanadium .Uranium, Vanadium	, Vanadium , Vanadium , Vanadium	Uranium, Vanadium Uranium, Vanadium Tranium, Vanadium	Vanadium			Uranium, Vanadium	, Vanadium	, Vanadium , Vanadium , Vanadium , Vanadium	, Vanadium	Uranium, Vanadium Uranium, Vanadium
-Continued ddress Product Montrose Uranium,	Naturita Uranium Naturita Uranium, Uravan Uranium, ita Uranium,		Jelivery, Uravan Uranium, ita Uranium,	ucla.						u	2	
MONTROSE COUNTY—Continued Operator's Name and Address Pr Albert Nickerson, Box 171, MontroseUra	Herring & Kennedy, Box 194, Naturita Herring & Kennedy, Box 194, Naturita Williams Minning Partnership, Naturita Union Carbide Nuclear Co., Uravan Ciyde Jones, Box 183, Naturita	OBryant & Pox 4, Naurrian OBryant & Powell, Box 124, Uravan Dave Blake, Box 91, Nucla Cole & Bond Mining Co., Box 188, Nucla	William Morrison, General Delivery, Douglas Cleghorn, Box 502, Uravan Rex Holland, Box 243, Naturita	Morrison & Morrison, Box 195, Nucla. Albert L. Bell, Box 614, Nucla. Neiton & Klingensmith, Box 337,	Neilson & Klingensmith, Box 337, Travan	Lark Washburn, Box 850, Uravan Rex Holland, Box 243, Naturita Dale Souther Redvale	Rex Holland, Box 234, Natu Roy Franklin, Box 911, Urava Morrison & Mulanov Nucla	Norman Morrison, Box 195, Nucla Ernest Berry, Box 237, Naturita Dade & Shurway, 215 Landsdown	Polar Mesa Mining Co., Box 859, Moab. Utah	Box 850 uclear ox 313, ning Cc	Wayne Howelett & Edwin Scheuer- man, Box 271, Naturita	Leonard Construction Co., 37 S. Wabash Ave., Chicago 3, Illinois. Vanadium Corporation of America, Naturta.
	ench		Dolores Rim Dolores Rim Bull Canyon	Bull Canyon	Middle Long Park	Dolores Rim Bull Canyon Fadle Basin	et	ench	Monogram Mesa	Saucer Basin Uravan Yellowbird Bench Monogram Bench	/phic n	
Name of Property Red Rock No. 5	Red Sox Republican Rex No. 38 Rigel Rim Rock No. 5	Rim Rock Blues No. 5 Rim Rock Blues No. 17	Rosebud Sandy School Marm	September Morn & Radium Hill No. 31 Sesmo. Sharkey	Sphinx	Star No. 6. Starlight	Sunrise Nos. 3, 4 Sylvia 7 M 7 Mo 3	Three Jacks	Thunderbolt	Tramp No. 1 U.C.N.C. Mill Uranium Girl Uranus	Uravan No. 2	Uravan Acid Plant V.C.A. Concentrator

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Name of Property	Location	<b>Operator's Name and Address</b>	Product Kind of Property	operty
Vaden View	Wild Steer	Woodrow Gripe, Box 222, Naturita Woodrow Gripe, Box 225, Naturita	.Uranium. Vanadium	
Valley View	Carpenter Ridge East Paradox Valley	d Sox	Vanadium	
Vanadate	Long Park		Vanadium	
Vanadium King Virgin Wanda No. 3.	Long Park Long Park Long Park	115, Rt. 2, Olathe K. C. Mining Co., Box 294, Naturita E. C. Mining Co., Box 294, Naturita Delmar Bunker, Nucla Jim Patterson, Box 427, Uravan	. Uranium, VanadiumMine . Uranium, VanadiumMine . Uranium, VanadiumMine . Uranium, VanadiumMine	
Whitney Shaft	Canyon Canyon Long Park		Uranium, VanadiumMine	
Worcester	Dolores Bench	on Mining Co., Box 171, See Mines, 2512 Mira Vista Croud Tunotion	.Uranium, Vanadium	
Yellow Bird	Monogram Bench	°,	Vanadium	
		OTERO COUNTY		
Rocky Ford (Valley Concrete)	Rocky Ford	Valley Concrete Co., Box 550, Rocky Ford	Sand, Gravel	
		OURAY COUNTY		
Alma	Stony Peak	Green Rock Mining Co., Box 444, Aztec, New Mexico	Gold. Silver	
Bi-Metallist.	Canon Creek	Bi-Metallist Mining Co., Inc., Box 86. Ourav		
Camp Bird Mine & Mill Edna Nos. 1 - 6.	.Canon Creek Ironton Park	Camp Bird Colorado, Inc., Ouray Saint Germain Foundation, Box 549,	,Silver,Copper,Lead,ZincMine &	Mill
Frank Hough	Engineer Mtn	W. I. Gray, 743 E. Costilla Ave.,		
Hidden Treasure	Imogene Basin	Colorado Springs	Gold, Silver, Copper, Lead, ZincMine Gold, Silver, Copper, Lead, ZincMine	
Idarado Mayflower Group	Red Mtn	Idarado Mining Co., Ouray Bear Creek Mining Co., Box 438,	, Lead, Zinc	
Mineral Farms	Ouray	Ouray M. W. Waldrum, Box 526, Ouray	Silver, Copper	

d Product Kind of Property Gold,Silver,Copper,Lead,ZincMine	.Gold, Silver, Copper, Lead, ZincMine .Gold, Silver, Copper, Lead, ZincMine	Gold. Gold, Silver, Copper, Lead, Zinc. Mine Beryllium. Gold, Silver, Copper, Lead, Zinc. Mine	Peat. Peat Bog Beryllium Mine Uranium Mine Oranium Placer		BerylliumMill Gold, SilverMine Gold, SilverMine PeatPeat_Bog	Iron
OURAY COUNTY—Continued Operator's Name and Address 1 Rouville Mining Co., Box 388, Go	W. R. Nichols & O. C. Baker, 502 Main St., Montrose Warren Kuykendall, Ouray G. C. Baker, 502 G. G. G. C. Baker, 502 G. C. Baker, 502 G. G. G. C. Baker, 502 G. G. C. Baker, 502 G. G. G	6, 5.,	ບົ	Hesser, Drake & Cole, Fairpay Buckskin Joe Mines, Ltd., Alma Progressive Mill & Smelter Co., North Fork Mining & Mfg. Co., Box 34, Bailey		PITKIN COUNTY Morrison & Knudsen Co., Inc., In Carbondale Morrison & Knudsen Co., Inc., In Carbondale
Location Red Mtn	Group)Gold Hill	South Alma	Alma Tarryall Tarryall Hartsel	Penn Mtn		Ashcroft
Name of Property Rouville	Seaburg Tunnel (American Nettie Group) Wewissi Group	Alma Pits. Black Prince Boomer Trinnol	Cork Screw Tunnel Ducommun Hazel-Marie Janice No. 2 Lucky Jim	Penn Mountain Placer Phillips Progressive Mill & Smelter Shawnee No. 1	Tarryall Mill Twin Sisters Union No. 5. Universal Peat Co	Pitkin Iron Mine Woody Creek Crusher

Kind of Property Plant		Mine Mine Placer Quarry	Mine Mine Mine Mine & Mill
Product Sand, Gravel	or Sand, Gravel Clay Sand Uranium Clay Clay Clay	Uranium Uranium Gold Cinders	Uranium Uranium Uranium Uranium Silver, Lead, Zinc
PROWERS COUNTY Operator's Name and Address Valley Concrete Co., 4th & Washing- ton Sts., Lamar. PUEBLO COUNTY	Certified Concrete Co., First & Daytor Sts., Pueblo. Standard Fire Brick Co., 24th & Abany Sis., Pueblo. Fountain Sand & Gravel, Joplin St. & Arkansas River, Pueblo. Magdalena Mining Co., Box 751, Arthur L. Wands, Stone City Rt., Pueblo. General Refractories Co., Box 192, Pueblo. Pueblo. Fueblo. Anthur L. Pueblo. General Refractories Co., Box 192, Pueblo. Anthany Sts., Pueblo.	RIO BLANCO COUNTY Devereaux Brothers, Box 373, Meeker J & H Mining Co., Box 643, Meeker ROUTT COUNTY Philip Ward, Route 1, Rifle McCoy Aggregate Co., McCoy	SAGUACHE COUNTY         Gunnison Mining Co., Box 539,         Gunnison Mining Co., Box 114,         Gibralter Mining Co., Box 114,         Col-Tex, 725 N. Zarzamora St., San         Antonio, Texas         Primacle Exploration       Company,         Pinnacle Exploration       Company,         Box 598, Gunnison       Dyn 127, Salida. Silver, Lead, Zinc.
Location Lamar	Pueblo Mustang Pueblo Turkey Creek Stone City Stone City Beulah		Cochetopa Creek Harry Creek Westcliffe Indian Creek Bonanza
Name of Property Lamar Valley Concrete	Certified Crushing Plant & Pit Chamblin Fountain Sand & Gravel Kathryn Nellie Helen Number Two Open Pit Mine Rock Creek	Coal Creek No. 1 Midnight Canary Placer McCoy Cinder Pit	East Lookout Mercury Alpine Pitch Tunnel Rawley No. 12

	01	SAGUACHE COUNTY-Continued	iued	
Name of Property	Location	Operator's Name and Address	Product	Kind of Propert
Saltwash Saltwash Thornburg Nos. 1, 2	Cochetopa	Gunnison Mining Co., Box 539, Gunnison Gunnison Mining Co., Box 539,		Mine
		SAN JUAN COUNTY		2117747
American Tunnel Blackhawk	Gladstone Cement Creek		Gold, Silver, Copper, Lead, ZincMine	line
Blanchard Placer	Pickeyune Gulch	U.S.	Gold, Silver, Copper, Lead, ZincMine	incMine Placer
Copper Queen	Sultan Mtn.		. Copper	line
Delano-Jer Bar Group	Cement Creek	Jerry Matten, Box 534, Gallup, New Mexico	per, Lead,	line
Elk Park Group (Long Mine)	Elk Park	Gaddis Mining Co., 1500 Mile High Conter Denver	ITraniium	Mine
Graysill Group	Hermosa Creek	Vanadium Corporation of America, Box 760. Durango	n	Mine
Kittimac	Crown Mtn.	U.S. Minerals Corp., 19 Rector St., New York City.		
		MacPherson Drilling Co., Box 447, Montrose	Gold, Silver, Copper, Lead, ZincMine	line
Longfellow	Red Mtn. Pass	George, Thornburg, & Pecchio, Box 220, Ouray	Gold, Silver, Lead	line
Louis Lynn (Illinois)	Howardsville	Jerry Dalla, 425 6th Ave., Durango	Gold, Silver, Copper, Lead, ZincMine	line
Mighty Monarch Group	Silverton	Butler, Box 451, Silverton	Gold, Silver, Copper, Lead, ZincMine	line
Pride Mill	Howardsville	G.W.C., Inc., Box 193, Silverton	Gold, Silver, Copper, Lead, ZincMill	ci ll
Richardson No. 1	Emporium Gulch	Frank Richardson, Box 546, Ouray	Gold, Silver, Copper, Lead, ZincMine	line
Shenandoah Mill	Silverton	Standard Metals Corp., Box 247, Silverton	Gold, Silver, Copper, Lead, ZincMill	liil
Silent Friend Group	Cinnamon Pass	Cross & Sons, Inc., General De- livery, Cortez	Gold, Silver, Copper, Lead, ZincMine	line
Silver Cloud	Mill Creek	T. B. Gilliland, Box 392, Silverton	Gold, Copper, LeadI	Mine
Silver Wing	Jones Mtn	Silver Wing Mining Co., Box 535, Silverton	Gold, Silver, Copper, Lead, Zinc. Mine	ine

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COLORADO BUREAU OF MINES

	Ś	SAN MIGUEL COUNTY-Continued	nued		
Name of Property	Location	Operator's Name and Address	Product		Kind of Proper
Frankie Adit	Legin Area	Pete Franks, Box 594, Nucla	Uranium,	.Uranium, Vanadium	Mine
Frenchie No. 2 Garibaldi	Slick Rock	E. E. Lewis, Inc., Box 1481, Grand Junction Silver Hat Mining, Inc., Box 664,	.Uranium,	Uranium, VanadiumMine	Mine
Governor No. 2	Bishop Canyon	James C. Butt, Ucolo Rt., Dove Creek. Uranium, Vanadium.	Uranium,	Vanadium	Mine
Groundhog	Hamm Canyon	Dade & Shumway, 215 Landsdown Road, Grand Junction	Uranium,	.Uranium, Vanadium	Mine
Hangover	Legin Area	Junction Dade & Shumway, 215 Landsdown Road, Grand Junction James C. Butt. Ucolo Rt., Dove Creek	Uranium,	Uranium, Vanadium	Mine
Transchoo Moo 9 4 E	Uorrochoo Bond	Laverne Ray, Box 256, Uravan	Uranium,	Uranium, Vanadium	Mine
Indresnoe Nos. 2, 4, 9	Pandora	M. J. Mining Co., Box 266, Cortez Idarado Mining Co., Ouray	Gold, Silve	Uranium, VanadiumMine Gold, Silver, Copper, Lead, Zinc Mine	Mine nc.Mine
Iron Springs.	Old Ophir	Earl Stuller, Grand Junction	Bog Iron		Mine
Jack Knife No. 1.	Wedding Bell	Dade & Shumway, 215 Landsdown	IImoninum	Toundinum	Mino
Jack Pot Group	Gyp Valley	Road, Grand Junction Alex Herrera, Box 10, Rt. 1, Dollows		Ulanum, Vanaum	Mino
Jim No. 2.	Spud Patch	Dolores. Benny Martinez, Box 224, Dove	Uranıum, IIrənium	Uranium, Vanaduum Itranium Vanadium	Mine
Joe Dandy	Sawpit	Neilson & Klingensmith, Box 875, Uravan	Uranium,	Uranium, Vanadium	Mine
Keystone	Slick Rock Hill	Burwell Mining Co., Egnar.	Uranium,	Uranium, Vanadium	Mine
King No. 2, Incline Nos. 3, 5	Slick Rock	E. E. Lewis, Inc., Box 1481, Grand	ITmonin	IImonium Woundinum	Mino
Lake View Group	Matterhorn	Silver Hat Mining, Inc., Box 664,	Gold. Silve	Gold Silver Copper Lead. Zinc Mine	nc Mine
Little Jimmy.	Telluride	Jim Dalpez, Telluride	Gold, Silver.	er	Mine
Lone Star No. 1	Slick Rock		Uranium,	Uranium, Vanadium	Mine
Magpie	Middle Gyp Valley	Laverne Ray, Nucla	Uranium,	Uranium, Vanadium	Mine
Mainstreet	Wedding Bell	Dade & Shumway, 215 Landsdown Road, Grand Junction	Uranium,	.Uranium, Vanadium	Mine

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Name of Property	Location	Operator's Name and Address Product Kin	Kind of Property
Mame	Spud Patch	iez, Box 224, Dove IIranium Vanadium	Mine
May Nos. 1, 2, 3.	Slick Rock	c., Box 1481, Grand II	Mine
Mickey (New Hangover)	Slick Rock	Tronium Vonadium	Mine
North Slope	Hayden Peak	ig Co., Hotel Moab, Cold Silver Conner Lond Zin	Mine
Norther No. 6 Ortmaver Lease	Horse Range. Slick Rock	Rudab, UdanBox 117, Nucla Uranium, VanadiumMin E. J. Johannsen, Box 117, Nucla Uranium, Vanadium	Mine
Pandora Mill	Telluride	de	Mine
Parrot No. 1 Penigal	Mineral Mtn. Spud Patch	g, Egnar 314, Dove Uranium, Vanadium	Mine
Penju	Gyp Valley	Creek Uranium, Vanadium	Mine
Pitch Fork	Gyp Valley	, Utranium. Vanadium	Mine
Pond Radium Nos. 4, 5, 9, 10	.Gyp Valley Bean Patch	ing Co., Box 117, Nucla. Uranium, Vanadium.	Mine
11-1 1-11	Trabach		Mine
Red Rock No. 5	Hogback Mule Shoe	James C. Bukt, Ucoto Kt., Dove CreekUranum, vanauum	Mine
Rock of Ages. Roy Lee			Mine Mine
Roy Quinn Drilling S. B. Group	Four Corners Are North Pine Hill	ta. Uranium, Vanadium Box 60, Uranium. Vanadium	Drilling Mine
Sage No. 11 Savage	Bishop Canyon La Junta Basin	552, Durango Uranium, Vanadium	Mine
Skidmore	Slick Rock	Box 125, Telluride	Mine
Silver Pick Mill	Mt. Wilson District	ing & Milling Co., Box Gold, Silver	Mill
Slick Rock Concentrator	Slick Rock	Carbide Nuclear Co., Uravan	Plant

	Ś	SAN MIGUEL COUNTY-Continued	pen	
Name of Property	Location	Operator's Name and Address	Product	Kind of Property
Strawberry Roan	Bishop Canyon Slick Rock	Corey Mining Co., Box 652, Durango] Burwell Mining Co., Egnar	Uranium, Vanadium	Mine Mine
Summit Group	Slick Rock		Uranium, Vanadium	Mine
Sunday	Gyp Valley	Lyle Francis, Box 577, Meeker	Uranium, Vanadium	Mine
Sunnyside & Jack O'Lantern	Slick Rock	., Dove Creek	Uranium, Vanadium	Mine
Tailholt	Slick Rock. Bridal Vail		Uranium, Vanadium	Mine
ant mita t	Basin		Gold, Silver	Mine
Uintah	Slick Rock	rita	Uranium, Vanadium	Mine
Uncle Sam	Gyp Valley	Allan & Stewart Cross, Cortez	Uranium, Vanadium.	Mine
Vanadium Queen & Civit Cat	MacIntyre Canyon	Lyle Francis, Box 204, Moab, Utah	.Uranium, Vanadium	Mine
Veta Glad & Veta Mad	Slick Rock	Gayno Mining Co., Box 541, Montrose	Uranium, Vanadium	Mine
Victor No. 3	Egnar		Uranium, Vanadium	Mine
Windswept	Gyp Valley	la	.Uranium, Vanadium	Mine
Yellow Bird	Slick Rock		IIranium Vanadium	Mine
Yellow Jacket Group	Old Ophir	хо	Gold	Mine
		SUMMIT COUNTY		
Ballard	Boreas Pass.	Burton, O'Dowd, Burkholder, & Tom	Cold Silver Lead	Mine
Baron Placer	Tiger		Cold	Discor
Boss	Farncomb Hill	James P. Webb & Earl W. Knight,	Cold	Mine
Dillon Dam	Dillon	ction Co., Box		Dam
Gagen Tunnel	Kokomo	1808 19th St.,	Silver Lead, Zinc	Mine
Jumbo	Gibson Hill	Inc., Box 134, Grand	Gold	Mine
Montezuma Shaft	Montezuma	Constructors, Inc., Box		Project
Ryan & Son Screening Plant	Kokomo	C. Ryan & Son, Climax	Sand, Gravel	Plant
	Kokomo		Silver, Lead, Zinc	Mine
Wellington Mine & Mill	French Gulch	Wellington Mine Association, Box 392, Breckenridge	Silver, Lead, Zinc	Mine & Mill

SAN MIGUEL COUNTY-Continued

Name of Property	Location	TELLER COUNTY Operator's Name & Address	Product	Kind of Property
Alpen Meadows Black Cloud	Gillette Divide	Alpen Meadows, Inc., Box 1074, Colorado Springs. Wayne Bangert, Box 633, Wood-	Peat	Peat Bog
Carlton Mill	Victor		Quartz. Gold	Quarry Mill
El Paso	Beacon Hill	El Paso Gold Tours, Inc., c/o Dale Seiders, Antlers Hotel, Colorado Springs	Tourist	Mine
Link Peat Moss	pivide	Robert Wilson, Box 51, Divide	Peat.	Peat Bog
Mollie Kathleen	Tenderfoot Hill	Black Diamond Mining Co., Box 998, Cripple Creek	t, Tourist	Mine
ose-Rosemont Dam	Colorado Springs	Penrose-Rosemont Dam		
Pikes Peak	Florissant		Granite	Quarry
		WELD COUNTY		
Gamer	Greeley	Eay Garner & Co., Box 913, Greeley	Sand, Gravel	Plant

									.Bridge				Bridge	
	Project	Highway	Highway	Highway	Highway	Highway	Highway Highway Highway Highway	Highway	Highway Highway-Bridge Highway	Highway	Highway Highway	rHighway Highway		Highway
HIGHWAY PROJECTS	Operator's Name & Address	Bailey Construction Co., 6130 S. Windermere Ave., Littleton	Wallace Beard Construction Co., 2041 N. 8th Ave., Grand Junction	Brothers, Norwood	Broderick & Gibbons, Inc., Box 1741, Colorado Springs	Bryson Construction Co., 2918 Country Club, Fueblo		Corn Construction Co., Box 1051, Grand JunctionHighway			Herron & Strong, Inc., Platteville		Peter Kiewit & Sons, Box 22167, Welshire Branch, Denver	J. S. Kloberdanz Contractors, Inc., Rt. 1, Box 106, Henderson
	Location	West of Penrose	Grand Junction	Grand Mesa & Four Corners	South of Colorado Springs	Southeast of Colorado Springs	East of Westcliffe East of Toponas Cochetopa Pass Frisco-Dillon-Breckenridge	Delta-Pea Green-Olathe	North of Lake City Palisade Lizardhead Pass	Jackson Ranger Station	North of Palisade & Clifton	East Portal Access Road Breckenridge	Pagosa Springs to Chromo North of Colorado Springs Disappointment Valley	Doyleville-Sargents
	County	Fremont	Mesa	San Miguel	El Paso	El Paso	Custer Routt Saguache Summit	Montrose	Gunnison & Hinsdale Mesa San Miguel	Gunnison	Mesa Summit	Clear Creek Park	Archuleta El Paso San Miguel	Saguache

## COLORADO BUREAU OF MINES

	Project	Highway Highway Highway	.Highway Highway-Bridge Highway	.Highway Highway Highway Highway	.Highway Gravel Crusher	Gravel Crusher Highway Highway Highway	Highway	.Highway Highway Highway	Highway-Bridge Highway	Highway	.Highway	.Highway Highway Highway Highway	Highway	Highway
HIGHWAY PROJECTS-Continued	Operator's Name & Address	Trinidad Construction Co., 818 Oak St., Trinidad	H. E. Lowdermilk, 1950 W. Dartmouth Ave., Englewood	Z. H. Lowdermilk, Inc., 1950 W. Dartmouth Ave., Englewood	C. E. Mills Contractor, Box 231, Rt. 2, Montrose	Nielson, Inc., Box 684, Dolores	Northwestern Engineering Co., 6001 Dexter St., Denver	0	E. J. Rippey & Sons Construction Co., Box 638, New Castle			Siegrist Construction Co., 7000 York St., Denver	J. D. Simmons, Box 176, Rt. 3, Durango	Theo Wood Construction Co., Salt Lake City, Utah Highway
HIGHWAY	Location	Fountain North of Walsenburg Highway 50	Northeast of Nederland Sapinero East of Aspen	Raymond Rabbit Ears Pass La Veta Pass West of Morrison	North of Montrose	North side of Durango Towaoc to Cortez South of Ouray, around Mother Cline Area	North of Four Corners	North of San Luis. Westchiffe to Wetmore South & North of Pueblo	Unaweep Canyon	North Slope of Grand Mesa	Cochetopa Creek to Parlin	West of Antonito Highway 115 Bayfield	Durango Area	GarfieldDouglas Pass Area
	County	El Paso Huerfano Prowers	Boulder Gunnison Pitkin	Boulder Grand Huerfano Jefferson	Montrose Ouray	Gunnison La Plata Montezuma Ouray	Montezuma	Costilla Custer Pueblo	Mesa Montezuma	Mesa	Gunnison	Conejos El Paso Fremont LaPlata	LaPlata	Garfield

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COMPANIES
PRODUCING
DRILLING &
OIL & GAS

Name & Address of Company	County	Operation
Alamosa Drilling Company, Box 211, Alamosa	Costilla	Drilling
	Adams	Drilling
	Morgan Washington	0
Arapahoe Drilling Company, 2472 U.S. Highway 6 & 50. Grand Junction	Garfield	Drilling
Atlas Well Service. Inc., Box 387, Fort Morgan	Adams	Drilling
	Jackson	0
	Washington	
Baker Well Service, Rangely	Rio Blanco	Drilling
Baney Well Service, Box 588, Sterling	Morgan	Drilling
Brinkerhoff Drilling Company, 870 Denver Club Building, Denver	Washington	Drilling
Bueno Drilling Company, Continental Oil Building, Denver	Rio Blanco	Drilling
Cactus Drilling Company, Drawer 71, San Angelo, Texas	La Plata	Drilling
	Montezuma	
California Oil Company, Rangely	Rio Blanco	Producing
Calvert Exploration Drilling Company, Tulsa, Oklahoma	Dolores.	Drilling
Commu Deilling Commune 1535 Danvor Club Building Danvor	Dio Blanco	Duilling
Contral Dilling Company, Tow Deliver Data and the Contral Contral Dilling Company.	Morgan	Drilling
Control Duting Company, 1100 Burdian	Die Diese	Summer
Carmack Drilling Company, 1100 Broauway, Denver	KIO BIANCO	Buining
Circle A Drilling Company, 1515 Cleveland Place, Denver	Archuleta La Plata	Drilling
Colorado Well Service Bangely	Mesa	Drilling
	Moffat Rio Blanco	0
Colorado & Western Drilling Company, 1119 Mile High Center, Denver	Mesa	Drilling
Davis Drilling Company, 202 McBride Building, Great Bend, Kansas	Baca	Drilling
	Bent Kiowa	
Denver Drilling Company, Box 285, Fort Morgan	Morgan Weld	Drilling
John Dixon Drilling & Well Servicing Company, Box 467, Sterling	Washington	Drilling
B. A. Dodgen, Route 1, Alamosa	La Plata.	Drilling
Donnelly Casing & Pulling Company, Sterling	Washington	Drilling
Etman Drilling Company, Box 141, Kimball, Nebraska	Washington	Drilling

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Name & Address of Company	County	Operation
Exeter Drilling Company, 1730 Glenarm Place, Denver	Adams La Plata	Drilling
	Logan Morgan Washington	
Garvev Drilling Company. Route 2. Great Bend. Kansas.	Baca	Drilling
J. W. Gibson Well Service, Inc., 316 Pine Street, Fort Morgan	Washington Weld	Drilling
Gist Exploration Company, Box 1731, Casper, Wyoming	Moffat	Drilling
Graham-Michaelis Drilling Company, Box 896, Liberal, Kansas	Baca	Drilling
Great Western Drilling Company, Box 1659, Midland, Texas	Archuleta La Plata	Drilling
Grossman Drilling Company, Farmington, New Mexico	La Plata	Drilling
H & B Construction Company, Box 363, Sterling	Logan	Drilling
H & H Drilling Company, Grand Junction	Mesa	Drilling
Hathaway Company, Box 2371, Santa Fe Springs, California	La Plata	Drilling
Horizon Oil & Gas Company, 500 Republic Bank Building, Dallas, Texas	Baca	Drilling
O. B. Hubbard, Rangely	Rio Blanco	Drilling
Huron Drilling Company, Farmington, New Mexico	La Plata	Drilling
Jet Drilling Company, 820 Central Building, Wichita, Kansas	Weld	Drilling
S. D. Johnson, 219 Midland Savings Building, Denver	Washington	Drilling
K. D. Drilling Company, 301 Bondurant Building, Pueblo	Fremont	Drilling
Kerr-McGee Oil Industries, Inc., Kerr-McGee Building, Oklahoma City, Oklahoma	Baca Montrose	Drilling
Kimbark Exploration Company. 201 University Building, Denver.	Washington	Drilling
Layne Western Company, 8301 East Iliff Avenue, Denver	Jefferson	Drilling
Le Mans Drilling Company, 1700 Broadway, Denver	Washington Weld	Drilling
Lohmann Oil Well Service, Box 1530, Farmington, New Mexico	La Plata	Drilling
Love Miller Drilling Company, 712 Patterson Building, Denver	Larimer	Drilling
R. L. Manning Company, 1700 Broadway, Denver	Dolores. Moffat	Drilling
Marken Drilling Company, Casper, Wyoming	Moffat	Drilling
McClinton Drilling Company, Route 1, Box 34C, Broomfield	Larimer	Drilling
McKibben Construction Company, Craig	Rio Blanco	Pump Unit Construction

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Name & Address of Company	County	Operation
Mead Drilling Company, Rangely	Rio Blanco	Drilling
Miers Well Service, Box 325, Sterling	Logan Morgan Yuma	Drilling
Miracle & Fifer Drilling Company, 1225 First National Bank Building, Denver.	Weld	Drilling
Miracle & Wooster Drilling Company, Vernal, Utah	Moffat Routt	Drilling
Monsanto Chemical Company, 1310 Denver Club Building, Denver	Jackson	Producing
Moran Brothers, Inc., Oil & Gas Building, Wichita Falls, Texas	Baca La Plata	Drilling
Mountain Fuel Supply Company, Powder Wash	Moffat	Producing
Mountain States Drilling Company, 622 Patterson Building, Denver	Mesa Rio Blanco	Drilling
Murfin Drilling Company, 617 Union Building, Wichita, Kansas	Logan Washington	Drilling
Nebraska Drillers, Inc., 844 First National Bank Building, Denver	Weld	Drilling
Noble Drilling Company, 321 Pan American Building, Tulsa, Oklahoma	Moffat Rio Blanco	Drilling
O'Quinn & Murray, Inc., Box 312, Fort Morgan	Washington	Drilling
Oriental Refining Company, Box 118, Denver	Archuleta	Producing
P. M. Oil Corporation, 1825 Applewood Drive, Lakewood	Boulder	Drilling
Peacock Well Service, Rangely	Rio Blanco	Drilling
Willard Pease Drilling Company, Grand Junction	Mesa Rio Blanco	Drilling
Pioneer Drilling, Inc., Box 2211, Casper, Wyoming	Mesa	Drilling
Production Completions, Inc., 914 Patterson Building, Denver	Washington	Drilling
Rayco Drilling Company, Farmington, New Mexico	La Plata	Drilling
Red Cliff Oil Company, 517 Colorado Avenue, Pueblo	Fremont	Producing
Regal Drilling Company, Continental Oil Building, Denver	Morgan Washington	Drilling
San Miguel Drilling Company, Box 185, Naturita	San Miguel	Drilling

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Name & Address of Company	County	Operation
Sentinel Oil Company, Box 424, Craig	Moffat	Drilling
Sierra Petroleum Company, Inc., Box 232, Russell, Kansas	Bent	Drilling
Signal Drilling & Exploration Inc., Box 614, Casper, Wyoming	Jackson Rio Blanco	Drilling
Smith Boor Drilling Company, Box 1232, Shawnee, Oklahoma	Baca	Drilling
I. M. Spangler et al, 910 Greenwood Street, Canon City	Fremont	Drilling
Stearns Drilling Company, May Day, Hesperus	Montezuma	Drilling
Steward Well Service, Box 247, Kimball, Nebraska	Boulder	Drilling
Stone Drilling Company, 1807 Charo Avenue, Farmington, New Mexico	La Plata	Drilling
Summit Drilling Company, 1516 Zuni Drive, Farmington, New Mexico	La Plata	Drilling
Texaco Inc., Meeker	Rio Blanco Routt	Producing
Tipps Drilling Company, Inc., 914 Patterson Building, Denver	Washington	Drilling
Twin Completion Company, 418 South Elm Street, Casper, Wyoming	Jackson	Producing
Uinta Oil Refining Company, Rangely	Rio Blanco	Drilling
Victor Drilling Company, 722 Patterson Building, Denver	Jackson	Drilling
Wakefield Drilling Company, 515 Union Building, Wichita, Kansas	Baca	Drilling
Well Completion, Inc., Box 1356, Denver	Gunnison	Drilling
Wells Drilling Company, Rangely	Rio Blanco	Drilling
Western Drilling Company, Hayden	Routt	Drilling
Wes-Tex Drilling Company, Box 2058, Abilene, Texas	Washington Weld	Drilling
Wyoming Western Oil Company, Box 645, Pine Bluffs, Wyoming	Weld	Drilling

