# Minister of Mines and Petroleum Resources

PROVINCE OF BRITISH COLUMBIA

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# ANNUAL REPORT

for the Year Ended December 31

1973

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1974

# BRITISH COLUMBIA DEPARTMENT OF MINES AND PETROLEUM RESOURCES

VICTORIA, B.C.

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*The Honourable* WALTER S. OWEN, Q.C., LL.D.,
*Lieutenant-Governor of British Columbia.*

MAY IT PLEASE YOUR HONOUR:

The Annual Report of the Mineral Industry of the Province for the year 1973 is herewith respectfully submitted.

LEO T. NIMSICK
*Minister of Mines and Petroleum Resources*

*Minister of Mines and Petroleum Resources Office,*
*March 31, 1974*

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# ANNUAL REPORT OF THE MINISTER OF MINES AND PETROLEUM RESOURCES, 1973

**CHAPTER 1**

## Introduction

A Departmental report on the mineral industry in the Province has been published annually since 1874. From 1874 to 1959 it was the Annual Report of the Minister of Mines, and since 1960 it has been the Annual Report of the Minister of Mines and Petroleum Resources.

Starting with 1969, the Annual Report of the Minister of Mines and Petroleum Resources contains a review of the mineral industry, and chapters dealing with Statistics, Departmental Work, Petroleum and Natural Gas, and Inspection of Mines. Technical reports on geology, mineral exploration, metal mines, placer, industrial minerals and structural materials, and coal which formerly were included in the Annual Report are published separately in a volume entitled *Geology, Exploration, and Mining in British Columbia.* A new series of annual publications of that name began with the 1969 volume.

This Annual Report contains a general review of the mineral industry. The chapter on Statistics records in considerable detail all phases of the mineral production of the Province. Current and past practices in arriving at quantities and in calculating the values of products are described.

The organization of the Department and the work of its various branches are outlined in the chapter on Departmental Work.

The chapter on Petroleum and Natural Gas contains a general review and records in considerable detail the development and production statistics of that important industry.

Information concerning mine safety, fatal accidents, dangerous occurrences, etc., and the activities of the Inspection Branch are contained in the chapter on Inspection of Mines.

# Review of the Mineral Industry

By Stuart S. Holland

*Production*—It seems appropriate in the 100th year of publication of the Annual Report to record that for the first time the annual value of mineral production of the Province has exceeded $1 billion.

In 1973 the value of British Columbia's mineral production amounted to $1,113,580,034. A new record was established for the 12th consecutive year and the previous year's total was exceeded by $477,362,258 or 75 per cent. The cumulative value to date now amounts to $9,926,698,273, 11.2 per cent of which was contributed in 1973.

The values of the several classes of products are as follows:

| | 1972 $ | 1973 $ | Change (Per Cent) |
|---|---|---|---|
| Metals | 372,032,770 | 808,155,982 | +117.2 |
| Industrial minerals | 25,764,120 | 27,969,664 | +8.6 |
| Structural materials | 66,745,698 | 73,447,031 | +10.0 |
| Coal | 66,030,210 | 87,976,105 | +33.2 |
| Petroleum and natural gas | 105,644,978 | 116,031,252 | +9.8 |

The outstanding feature of the year was the enormous gain (53.0 per cent) in quantity of copper produced, 1973 being the climax year for all the porphyry copper mines recently brought into production. There were significant increases in amounts of gold, molybdenum, zinc, coal, and natural gas. On the other hand, production of lead and crude oil diminished although their values were up.

Metal prices increased during the year and their higher average values were an important factor contributing to the record total production. Notable increases were gold from $57.52 to $97.41 per ounce, silver from $1.663 to $2.566 per ounce, copper from 44.84 cents to 83.23 cents per pound; lead from 14.87 cents to 16.28 cents per pound; and zinc from 15.58 cents to 20.66 cents per pound. The average price received for molybdenum increased from $1.54 to $1.72 per pound primarily because discounts below the established list price were gradually reduced and an increased proportion was sold as molybdic oxide.

The increase of $436,123,212 or 117.2 per cent in value of total metal production was largely due to the enormous increase in quantity and value of copper. It is the most important commodity produced, contributing 73.6 per cent of the value of all metal production and 53.4 per cent of the value of the total mineral production. There were significant increases in values of zinc, gold, and molybdenum production as a result of increased quantities and average price of these metals.

The increase of $2,205,544 or 8.6 per cent in total value of industrial minerals was largely the result of increased sales of sulphur.

The increase of $6,701,333 or 10.0 per cent in value of structural materials is the result of the increase in value of cement, sand, and gravel.

The value of coal increased by $21,945,895 or 33.2 per cent because of increased volume of sales and a small increase in price received. Coal, next to copper, is the second ranking mineral commodity and its production is expected to continue to rise.

The value of petroleum and natural gas increased by $10,386,274 or 9.8 per cent, both crude oil and natural gas were up in total value despite an actual decrease in quaitity of crude oil produced.

It is anticipated that the total value of mineral production should increase further in 1974. Any possibility of a slight decline in copper production should be compensated by a higher average price. Higher average prices for the other major metals are also anticipated. Production and average unit value of coal are expected to rise during the year, and increased prices of crude oil and natural gas should enhance the value of these commodities in 1974.

*Provincial revenue*—Direct revenue to the Provincial Government derived from the entire mineral industry in 1973 was as follows:

| | $ |
|---|---|
| Free miners' certificate, recording fees, lease rentals, assessment payments, etc. | 1,663,859.29 |
| Royalties on iron concentrates | 156,292.47 |
| Rentals and royalties on industrial minerals and structural materials | 386,606.27 |
| Fifteen-per-cent mining tax | 6,071,613.00 |
| Coal licences and annual rentals | 453,094.31 |
| Petroleum and natural gas rentals, fees, etc. | 8,103,408.00 |
| Sale of Crown reserves | 17,776,441.00 |
| Royalties on oil, gas, and processed products | 20,647,546.00 |
| Miscellaneous petroleum and natural gas fees | 27,028.00 |
| Total | 55,285,888.34 |

*Expenditure by the industry*—The total expenditures in 1973 by the mineral industry for exploration, development, and production were $653,650,160. Companies involved in the exploration, development, and production of metals, minerals, and coal spent $507,265,160 and companies involved in the exploration and production of petroleum and natural gas spent $146,385,000.

*Metal mining*—In 1973, 66 mines produced more than 91.75 million tons of ore. Fifteen, of which 11 were open-pit mines, produced more than 1 million tons each, and eight, of which two were open-pit mines, produced between 100,000 and 1 million tons each. The 13 open-pit mines produced 81.875 million tons of ore or 89 per cent of the total tonnage of ore mined.

During the year, mining operations were terminated by Placid Oil Company at their Bull River copper mine at Wardner, by Canex Placer Ltd. (Tungsten Division) at their Invincible and East Dodger tungsten mines at Salmo, by the Bradina Joint Venture at the Silver Queen mine at Owen Lake, and by King Resources Company at their Mount Copeland molybdenum mine near Revelstoke.

During the year, Noranda Mines, Limited in December reopened their Boss Mountain molybdenum mine which had been closed since December 1971; Cominco reopened their HB zinc lead mine at Salmo which had been closed since November 1966; Consolidated Churchill Copper Corporation Ltd. in November reopened their Magnum copper mine on Delano Creek which had been closed since October 1971; and Consolidated Columbia River Mines Ltd. reopened the Ruth Vermont mine in October, but the concentrator was closed for the winter to resume milling early in 1974.

The Trail smelter treated 8,174 tons of crude ore and 370,488 tons of concentrates from British Columbia mines as well as a large tonnage of concentrates, crude ore, and scrap from sources outside the Province. A total of 2,858,065 tons of concentrates was shipped to foreign smelters. Of the total metal production of the Province, concentrates representing 74.7 per cent of the total value were shipped to Japanese smelters and 4.8 per cent of the total value were shipped to smelters in the United States.

*Destination of British Columbia Concentrates in 1973*

| | Lead | Zinc | Copper | Nickel-copper | Iron | Tungsten |
|---|---|---|---|---|---|---|
| | Tons | Tons | Tons | Tons | Tons | Tons |
| Trail | 143,050 | 227,438 | | | | |
| Other Canadian | | | 30,681 | 7,982 | 53,196 | |
| United States | 4,223 | 41,162 | 37,291 | | 210,661 | 803 |
| Japan | | 32,647 | 1,214,598 | 6,764 | 1,291,478 | 283 |
| Other foreign | | | 4,578 | | 13,577 | |
| Totals | 147,273 | 301,247 | 1,287,148 | 14,746 | 1,568,912 | 1,086 |

*Exploration and development*—Since 1968 the trend of prospecting activity and exploration for coal, mineral, and metallic properties is displayed by the following tabulated statistics.

| | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 |
|---|---|---|---|---|---|---|
| Exploration cost | $34,665,000 | $44,378,000 | $52,182,630 | $40,877,745 | $39,066,798 | $38,087,571 |
| Number of companies or properties | 389 | 422 | 493 | 419 | 403 | 363 |
| Claims recorded | 60,384 | 84,665 | 69,546 | 57,778 | 78,901 | 35,659 |
| Certificates of work | 66,229 | 88,954 | 118,633 | 106,704 | 97,573 | 128,641 |
| Free miners' certificates— | | | | | | |
| Individual | 9,305 | 9,880 | 10,034 | 9,351 | 9,032 | 7,084 |
| Companies | 761 | 1,060 | 911 | 930 | 927 | 563 |

The number of mineral claims located in 1973 was 35,659, a decrease of 43,242 claims or 54.8 per cent from 78,901 in 1972. The most active area was in the Omineca Mining Division, where copper mineralization in volcanic rocks at the head of Sustut River received considerable attention. Claim staking was done in every mining division of the Province and especially so in Kamloops and Liard Divisions.

Footage of surface and underground diamond drilling was 777,040 feet, an increase of 363,696 feet or 80.0 per cent, and of percussion drilling was 206,950 feet, an increase of 42,155 feet or 25.6 per cent.

About 715 geological, geochemical, and geophysical reports were accepted in 1973 by the Department for assessment work credit. They represent approximately $4.6 million in exploration work done on claims.

The following statistics of expenditures on exploration and development of coal, mineral and metallic deposits, and mines are summarized from data recorded on Statistics Canada forms. They represent minimum amounts, but the response of the industry is sufficiently complete to provide figures that are substantially correct. Comparable figures for petroleum and natural gas operations are not available.

EXPLORATION AND DEVELOPMENT EXPENDITURES, 1973

| | Number of Mines Reporting | Physical Work and Surveys | Administration, Overhead, Land Costs, Etc. | Total |
|---|---|---|---|---|
| | | $ | $ | $ |
| A. Prospecting and exploration on undeclared mines— | | | | |
| 1. Metal mines | 352 | 29,724,158 | 7,613,314 | 37,337,472 |
| 2. Coal mines | 6 | 406,497 | 179,315 | 585,812 |
| 3. Others | 5 | 124,164 | 40,123 | 164,287 |
| Totals | 363 | 30,254,819 | 7,832,752 | 38,087,571 |
| B. Exploration on declared or operating mines— | | | | |
| 1. Metal mines | 19 | 2,775,290 | 845,885 | 3,630,175 |
| 2. Coal mines | 3 | 1,749,497 | 491,327 | 2,240,824 |
| 3. Others | — | — | — | — |
| Totals | 22 | 4,524,787 | 1,346,212 | 5,870,999 |
| C. Development on declared mines— | | | | |
| 1. Metal mines | — | — | — | — |
| 2. Coal mines | — | — | — | — |
| 3. Others | 1 | 665,000 | — | 665,000 |
| Totals | 1 | 665,000 | — | 665,000 |
| D. Development on operating mines— | | | | |
| 1. Metal mines | 21 | 37,450,195 | 1,412,760 | 38,862,955 |
| 2. Coal mines | 1 | 11,371,568 | — | 11,371,568 |
| 3. Others | 5 | 9,026,693 | 24,490 | 9,051,183 |
| Totals | 27 | 57,848,456 | 1,437,250 | 59,285,706 |
| E. Total expenditures on exploration and development— | | | | |
| 1. Metal mines—A(1)+B(1)+C(1)+D(1) | — | 69,949,643 | 9,880,959 | 79,830,602 |
| 2. Coal mines—A(2)+B(2)+C(2)+D(2) | — | 13,527,562 | 670,642 | 14,198,204 |
| 3. Others—A(3)+B(3)+C(3)+D(3) | — | 9,815,857 | 64,613 | — |
| Grand totals | — | 93,293,062 | 10,616,214 | 103,909,276 |

Exploration includes all work done up to the time when a company declares its intention of proceeding to production, after that date the work is classed as development.

Major expenditures in 1973 by companies involved in the exploration, development, and mining of metals, minerals, and coal were as follows:

| | | |
|---|---|---|
| | | $ |
| Mining operations (metals, minerals, coal) | | 292,657,005 |
| Mining operations (structural materials) | | 23,421,523 |
| Repairs expenditures | | 87,277,356 |
| | $ | |
| Capital expenditures | 47,219,711 | |
| Exploration and development | 56,689,505 | |
| | | 103,909,276 |
| | | 507,265,160 |

Capital and repair expenditures are listed separately because of difficulties in allocating them consistently. Actually, most of the repair expenditures should be applied to mining operations, and most of the capital expenditures to exploration and development.

*Industrial minerals and structural materials*—Activity in the industrial minerals and structural materials sector of the mining industry was about normal in British Columbia in 1973.

New work reported consisted of exploration of barite deposits along the Alaska Highway, exploration of an asbestos showing in the Menatatuline Range 75 miles southeast of Atlin, some diamond drilling on limestone deposits on Texada Island and near Kelly Lake, some trenching on pyrophyllite near Princeton, and geological examinations of silica near Greenwood and of talc near Keefers.

*Coal mining*—Total raw coal producing during 1973 was 10.85 million short tons, which at aggregate minehead value of $87.97 million ranked second after copper in terms of British Columbia mineral commodity value. These coal production and value figures represent increases of 20 per cent and 33 per cent respectively, compared to 1972 output, which in itself had established all-time records for the Province. The effect of a national railway strike during August and September, and problems with port handling equipment during the latter part of 1973, curtailed product output during the year.

Five companies operated coal mines in the Province during 1973; of these, however, two companies (Kaiser Resources Ltd. and Fording Coal Limited) accounted for 99 per cent of output. Mine production statistics are stated on Table 8B (page A 48); several of the more significant factors derived from these are as follows:

(1) Eighty-eight per cent of raw coal production was derived from surface mining operations, with the balance of 12 per cent from underground mines.
(2) Clean coal output, which totalled 7.77 million short tons, averaged 71 per cent of total raw coal mined. This average recovery compares closely with that for 1972 (70 per cent) but differs in detail.
(3) Increased minehead value for 1973 coal sales ($87.97 million) resulted principally from increased product output, combined with an average value increase of 5 per cent.
(4) About 96 per cent of total coal product output was exported to Japan. Domestic coke production, which accounted for some 3 per cent of output, represented the second largest market.

The principal British Columbia coal producer, Kaiser Resources Ltd., continued surface mining operations at the Harmer Ridge open-pit complex north of Sparwood, and in the North and South Balmer colliery at Michel. Surface mining accounted for 82.4 per cent of total raw coal production of 7.00 million tons; underground output of some 1.24 million tons was derived mostly from the South Balmer hydraulic mine, where continued experience and success with this technique resulted in increased productivity.

For the first time since commencement of export shipments in 1970, the Company's financial position stabilized during the latter part of 1973. This improvement resulted from major equity refinancing, increased export price, and improved operational profitability. An extensive exploration programme for evaluation of Crows Nest Industries' lands continued through most of the year.

Open-pit operations of Fording Coal Limited, situated some 40 miles north of Sparwood, attained total raw coal production of some 3.8 million short tons,

yielding 2.4 million tons product coal. The latter output, representing over 100 per cent increase compared to 1972, nevertheless fell short of the 3.4 million short tons export commitment. General start-up problems associated with full mine production and preparation plant throughput were experienced; however, the main factors affecting shortfall in offshore shipments were rail transportation, and particularly port handling equipment shut-downs. Contract price, effective at year-end and retroactive to April 1, 1973, was $21.55 per long ton FOB Roberts Bank terminal.

Production at Fording Coal Limited is derived from two major synclinal limbs, each containing up to 10 Kootenay Formation seams of significant thickness. The westerly Greenhills pit is mined by dragline and the easterly Clode pit by truck-shovel method. Exploration and development work during 1973 concentrated on extension of reserves in the vicinity of these pits.

Coleman Collieries Ltd. was a relatively minor producer in British Columbia during 1973. Production of 65,735 tons was taken from the westerly portion of the Tent Mountain open pit which straddles the British Columbia-Alberta boundary.

The property of Coalition Mining Limited occurs in high relief foothills terrain, east of the Sukunka Valley, some 38 miles by road south of Chetwynd. Exploration of two seams of metallurgical grade coal which occur in the Upper Gething Formation has been proceeding since 1971. During 1973 a three-entry slope was advanced to about 2,500 feet in the Chamberlain seam. Coal produced during this trial mining programme (32,674 tons) was stockpiled at the mine. Although proven mineable reserves are in excess of 45 million short tons, development work was terminated, and the property put on a caretaker basis, pending resolution of financing and infrastructure development.

Bulkley Valley Coal Sales Ltd. operates a small underground mine near Telkwa, and produces a limited amount of coal during winter months for local domestic consumption.

Although the metallurgical coking coal market accounted for almost the entire sales volume during 1973, growing demand for thermal power requirements resulted in improved market outlook for steam coal. In response to this, Byron Creek Collieries commenced development of the Coal Mountain deposit at Corbin, and at year-end had negotiated sale of a 250,000-ton test shipment to Ontario Hydro.

Exploration work in the East Kootenay and northeastern Foothills areas continued at a fairly steady level during 1973. In addition to Kaiser and Fording development programmes previously noted, Rio Tinto Canadian Exploration Limited carried out a drilling and bulk-sampling programme at their Cabin Creek prospect in the Flathead district, and Byron Creek Collieries commenced drilling at Corbin. In northeastern British Columbia, Utah Mines Ltd. carried out an extensive drilling programme at their Carbon Creek prospect, and to a limited extent, in the Mount Gething and Dunlevy areas near Lake Williston. Further south, Denison Mines Limited reactivated their Quintette property with a detailed drilling and trenching programme at Babcock Mountain, and McIntyre Porcupine Mines Limited commenced geological mapping and limited trenching in the Kinuseo Creek area.

At year-end, 1,562 coal licences, covering approximately 900,000 acres, were held by some 32 companies or partnerships.

*Petroleum and natural gas*—The values of production of oil and natural gas increased substantially during 1973, up 10 and 12 per cent respectively over 1972. Crude oil production was 21,189,758 barrels, down 11 per cent. The major oil-producing fields, all decreased from 1972 and all under active water-flood programmes, were Boundary Lake, Peejay, Inga, and Milligan Creek.

Natural gas delivered to pipe-lines was 427,586,208 MSCF, an increase of 12 per cent, and the value to gas producers was $46,688,912. The major gas-producing fields were Clarke Lake, Yoyo, and Beaver River, although the latter field experienced production problems during the second half of the year.

Footage drilled decreased 24 per cent, the first annual decline in four years. All the drilling operations were conducted in the northeastern corner of the Province, except for one abandonment in the Bowser Basin area and a wildcat venture near Fernie that was still drilling at year-end. Considerable interest was evident in a shallow Mississippian gas play north of Fort Nelson, with only limited success reported.

Expenditures in 1973 by companies involved in the exploration and production of petroleum and natural gas were:

| | $ |
|---|---|
| Exploration, land acquisition, and drilling | 81,608,000 |
| Development drilling | 8,068,000 |
| Capital expenditures | 9,245,000 |
| Natural gas plant operations | 15,794,000 |
| Field, well, and pipe-line operations | 5,327,000 |
| General (excluding income tax) | 26,325,000 |
| Total | 146,385,000 |

# Statistics

## CHAPTER 2

CONTENTS

## INTRODUCTION

The statistics of the mineral industry are collected, compiled, and tabulated for this Report by the Economics and Statistics Branch, Department of Industrial Development, Trade, and Commerce, Victoria.

In the interests of uniformity and to avoid duplication of effort, beginning with the statistics for 1925, Statistics Canada and the Provincial departments have co-operated in collecting and processing mineral statistics.

Producers of metals, industrial minerals, structural materials, coal, and petroleum and natural gas are requested to submit returns in duplicate on forms prepared for use by the Province and by Statistics Canada.

As far as possible, both organizations follow the same practice in processing the data. The final compilation by Statistics Canada is usually published considerably later than the Annual Report of the Minister of Mines and Petroleum Resources for British Columbia. Differences between the values of production published by the two organizations arise mainly because Statistics Canada uses average prices considered applicable to the total Canadian production, whereas the British Columbia mining statistician uses prices considered applicable to British Columbia production.

Peat, classified as a fuel by Statistics Canada, is not included in the British Columbia statistics of mineral production being regarded as neither a fuel nor a mineral.

## METHODS OF COMPUTING PRODUCTION

The tabulated statistics are arranged so as to facilitate comparison of the production records for the various mining divisions, and from year to year. From time to time, revisions have been made to figures published in earlier reports as additional data became available or errors become known.

Data are obtained from the certified returns made by producers of metals, industrial minerals and structural materials, and coal, and are augmented by data obtained from custom smelters. For placer gold, returns from operators are augmented by data obtained from the Royal Canadian Mint. For petroleum, natural gas, and liquid by-products, production figures supplied by the Petroleum and Natural Gas Branch of the Department of Mines and Petroleum Resources are compiled from the monthly disposition reports and the Crown royalty statement filed with the Department by the producers.

Values are in Canadian funds. Weights are avoirdupois pounds and short tons (2,000 pounds), and troy ounces. Barrels are 35 imperial gallons.

### METALS

#### *Average Prices*

The prices used in the valuation of current and past production of gold, silver, copper, lead, and zinc are shown in the table on page A 26.

The price of gold used is the average Canadian Mint buying-price for fine gold. In 1973 this was $97.41 per ounce.

The price used for placer gold originally was established arbitrarily at $17 per ounce, when the price of fine gold was $20.67 per ounce. Between 1931 and 1962 the price was proportionately increased with the continuously changing price of fine gold. Since 1962, Canadian Mint reports giving the fine-gold content have been available for all but a very small part of the placer gold produced, and the average price listed is derived by dividing ounces of placer gold into total amount received.

Prior to 1949 the prices used for silver, copper, lead, and zinc were the average prices of the markets indicated in the table on page A 26, converted into Canadian funds. The abbreviations in the table are Mont.=Montreal; N.Y.=New York; Lond.=London; E. St. L.=East St. Louis; and U.S.=United States.

Latterly the prices of silver, copper, lead, and zinc are average United States prices converted into Canadian funds. Average monthly prices are supplied by Statistics Canada from figures published in the Metal Markets section of *Metals Week*. Specifically, for silver it is the New York price; for lead it is the New York price; for zinc it is the price at East St. Louis of Prime Western; for copper it is the United States export refinery price. However, commencing in 1970 the copper price is the average of prices received by the various British Columbia shippers.

For antimony the average price for the year and for cadmium, the New York producers' price to consumers are used. For nickel the price used is the Canadian price set by the International Nickel Company of Canada Ltd. The value per ton of the iron ore used in making pig iron at Kimberley is an arbitrary figure, being the average of several ores of comparable grade at their points of export from British Columbia.

### *Gross and Net Content*

The gross content of a metal in ore, concencrate, or bullion is the amount of that metal calculated from an assay of the material, and the gross metal contents are the sum of individual metal assay contents. The net contents are the gross contents less smelter and refinery losses.

In past years there have been different methods used in calculating net contents, particularly in the case of one metal contained in the concentrate of another. The present method was established in 1963 and is outlined in the following table. For example, the net content of silver in copper concentrates is 98 per cent of the gross content, of cadmium in zinc concentrates is 70 per cent of the gross content, etc.

| | Lead Concentrates | Zinc Concentrates | Copper Concentrates | Copper-Nickel Concentrates | Copper Matte |
|---|---|---|---|---|---|
| | Per Cent | Per Cent | Per Cent | Per Cent | Per Cent |
| Silver | 98 | 98 | 98 | — | 98 |
| Copper | *Less* 26 lb./ton | — | *Less* 10 lb./ton | 85 | *Less* 10 lb./ton |
| Lead | 98 | 50 | — | — | 50 |
| Zinc | 50 | 90 | — | — | — |
| Cadmium | — | 70 | — | — | — |
| Nickel | — | — | — | 88 | — |

### *Value of Production*

For indium, iron concentrate, mercury, molybdenum, rhenium, and tin the value of production is the amount received by the shippers.

For gold, silver, copper, lead, zinc, antimony, bismuth, cadmium, some iron concentrate, and nickel the value of production is calculated from the assay content of the ore, concentrate, or bullion less appropriate smelter losses, and an average price per unit of weight.

Prior to 1925 the value of gold and copper produced was calculated by using their true average prices and, in addition, for copper the smelter loss was taken into account.

The value of other metals was calculated from the gross metal content of ores or concentrates by using a metal price which was an arbitrary percentage of the average price, as follows: Silver, 95 per cent; lead, 90 per cent; and zinc, 85 per cent.

It is these percentages of the average price that are listed in the table on page A 26.

For 1925 and subsequent years the value has been calculated by using the true average price (*see* p. A 26) and the net metal contents, in accordance with the procedures adopted by Statistics Canada and the Department of Mines and Petroleum Resources.

In the statistical tables, for gold the values are calculated by multiplying the gross contents of gold by the average price for the year; for the other metals, by multiplying the net contents of metals as determined by means of the above table by the average price for the year.

### Industrial Minerals and Structural Materials

The values of production of industrial minerals and structural materials are approximately the amounts received at the point of origin.

### Fuel

The value of production of coal is calculated using a price per ton (*see* p. A 26) which is the weighted average of the f.o.b. prices at the mine for the coal sold.

The values of production of natural gas, natural gas liquid by-products, and petroleum including condensate/pentanes plus are the amounts received for the products at the well-head.

## NOTES ON PRODUCTS LISTED IN THE TABLES

*Antimony*—Antimony metal was produced at the Trail smelter from 1939 to 1944; since 1944 it has been marketed alloyed with lead. The antimony is a by-product of silver-lead ores. In 1907 the first recorded antimonial ore mined in British Columbia was shipped from the Slocan area to England. Since then other out-of-Province shipments have originated in the Bridge River, North Lardeau, Slocan, Spillimacheen, and Stuart Lake areas. In Table 7C the antimony assigned to individual mining divisions is the reported content of ore exported to foreign smelters; the antimony "not assigned" is that recovered at the Trail smelter from various ores received there. *See* Table 1, 3, and 7C.

*Arsenious oxide*—Arsenious oxide was recovered at foreign smelters from arsenical gold ores from Hedley between 1917 and 1931, and in 1942, and from the Victoria property on Rocher Déboulé Mountain in 1928. No production has been recorded since 1942. *See* Tables 1 and 7D.

*Asbestos*—British Columbia has produced asbestos since 1952 when the Cassiar mine was opened. All British Columbia production consists of chrysotile from the Cassiar mine near the Yukon border. This deposit is noted for its high percentage of valuable long fibre and for the low iron content of the fibre. The original claims were located at Cassiar in 1950, and the first fibre was shipped two years later. The fibre is milled from the ore at Cassiar, shipped by truck to Whitehorse, and then moved by rail to tidewater at Skagway. From 1953 to 1961 the fibre was valued at the shipping point in North Vancouver, but beginning in 1962 it has been valued at the mine, and values for the preceding years have been recalculated on that basis. *See* Tables 1, 3, and 7D.

*Barite*—Barite production began in 1940 and has been continuous since then, coming from several operations in the upper Columbia River valley. Some barite

is mined from lode deposits and the rest is recovered from the mill-tailings ponds of the former Silver Giant and Mineral King silver-lead-zinc mines. *See* Tables 1, 3, and 7D.

*Bentonite*—Small amounts of bentonite were produced between 1926 and 1944 from deposits in the coal measures near Princeton. There has been no production since 1944. *See* Tables 1 and 7D.

*Bismuth*—Since 1929 the Trail smelter has produced bismuth. It is a by-product of lead refining and thus the production cannot be assigned to specific properties or mining divisions. *See* Tables 1, 3, and 7C.

*Brick*—*See* Clay and shale products.

*Building-stone*—Dimensional stone for building purposes is quarried when required from a granite deposit on Nelson Island and an andesite deposit on Haddington Island. Other stone close to local markets is quarried periodically or as needed for special building projects. *See* Table 7E.

*Butane*—Butane is recovered as a by-product at the gas-processing plant at Taylor and at oil refineries. *See* Tables 1, 3, and 7A.

*Cadmium*—Cadmium has been recovered as a by-product at the Trail zinc refinery since 1928. It occurs in variable amounts in the sphalerite of most British Columbia silver-lead-zinc ores. In Table 7C the cadmium assigned to individual mining divisions is the reported content of custom shipments to the Trail and foreign smelters; that "not assigned" is the remainder of the reported estimated recovery at the Trail smelter from British Columbia concentrates. *See* Tables 1, 3, and 7C.

*Cement*—Cement is manufactured from carefully proportioned mixtures of limestone, gypsum, and other mineral materials. It has been produced in British Columbia since 1905. Present producers are British Columbia Cement Company Limited, with a 700,000-tons-per-year plant at Bamberton, and Canada Cement Lafarge Ltd. with a 612,500-tons-per-year plant on Lulu Island and a 210,000-tons-per-year plant at Kamloops. *See* Tables 1, 3, and 7E.

*Chromite*—Two shipments of chromite are on record, 670 tons from Cascade in 1918 and 126 tons from Scottie Creek in 1929. *See* Tables 1 and 7C.

*Clay and shale products*—These include brick, blocks, tile, pipe, pottery, light-weight aggregate, and pozzolan manufactured from British Columbia clays and shales. Common red-burning clays and shales are widespread in the Province, but better grade clays are rare. The first recorded production was of bricks at Craigflower in 1853 and since then plants have operated in most towns and cities for short periods. Local surface clay is used at Haney to make common red brick, tile, and flower pots. Shale and fireclay from Abbotsford Mountain are used to make firebrick, facebrick, sewer pipe, flue lining, and special fireclay shapes in plants at Kilgard, Abbotsford, and South Vancouver. A plant on Saturna Island makes light-weight expanded shale aggregate and pozzolan clinker from a local shale deposit. A plant at Quesnel makes pozzolan from burnt shale quarried south of Quesnel. Common clays and shales are abundant in British Columbia, but fireclay and other high-grade clays are rare. Several hobby and art potteries and a sanitary-ware plant are in operation, but these use mainly imported raw materials and their production is not included in the tables. *See* Tables 1, 3, and 7E.

*Coal*—Coal is almost as closely associated with British Columbia's earliest history as is placer gold. Coal was discovered at Suquash on Vancouver Island in 1835 and at Nanaimo in 1850. The yearly value of coal production passed that of placer gold in 1883 and contributed a major part of the total mineral wealth for the next 30 years.

First production, by Mining Divisions: Cariboo, 1942; Fort Steele, 1898; Kamloops, 1893; Liard, 1923; Nanaimo, 1836; Nicola, 1907; Omineca, 1918; Osoyoos, 1926; Similkameen, 1909; and Skeena, 1912.

The Nanaimo and Comox fields produced virtually all of the coal until production started from the Crowsnest field in 1898. The Crowsnest field contains coking-coal and prospered in the early years of smelting and railroad-building. Mining started in the Nicola-Princeton coalfield in 1907, at Telkwa in 1918, and on the Peace River in 1923. The Nanaimo field was exhausted in 1953 when the last large mines closed, and only small operations on remnants were left. The colliery at Merrit closed in 1945 and at Coalmont in 1940. The closing of the last large mine at Tsable River in 1966, and of the last small one, near Wellington in 1968, marked the end of production from the once important Vancouver Island deposits.

Undeveloped fields include basins in the foothills of the Rocky Mountains north and south of the Peace River, the Groundhog basin in north-central British Columbia, the Hat Creek basin west of Ashcroft, and basins on Graham Island.

The enormous requirements for coking-coal in Japan created great activity in coal prospecting in various areas of British Columbia since 1968. The signing of large contracts with the Japanese resulted in preparations for production at several deposits in the East Kootenays. First shipments to Japan via special port facilities at North Vancouver and Roberts Bank began in 1970.

All the coal produced, including that used in making coke, is shown as primary mine production. Quantity from 1836 to 1909 is gross mine output and includes material lost in picking and washing. From 1910 the quantity is the amount sold and used, which includes sales to retail and wholesale dealers, industrial users, and company employees; coal used under company boilers, including steam locomotives; and coal used in making coke. *See* Tables 1, 3, 7A, 8A, and 8B.

*Cobalt*—In 1928 a recovery of 1,730 pounds of cobalt was made from a shipment of arsenical gold ore from the Victoria mine on Rocher Déboulé Mountain. In 1971, 113,545 pounds of cobalt were shipped from the Pride of Emory mine at Hope. *See* Tables 1 and 7C.

*Coke*—Coke is made from special types of coal. It has been produced in British Columbia since 1895. Being a manufactured product, its value does not contribute to the total mineral production as shown in Table 1. Up to 1966, coke statistics had been included in the Annual Report as Table 9, but this table has been discontinued. The coal used in making coke is still recorded in Table 8B.

*Copper*—Copper concentrates are shipped to Japanese and American smelters because no copper smelter has operated in British Columbia since 1935. Small amounts of gold and silver are commonly present and add value to the ore, but some ores contain important amounts of gold (as at Rossland), silver (Silver King mine), lead and zinc (Tulsequah), or zinc (Britannia mine). Most of the smelting in British Columbia in early years was done on ore shipped direct from the mines without concentration, but modern practice is to concentrate the ore first.

Ore was smelted in British Columbia first in 1896 at Nelson (from Silver King mine) and at Trail (from Rossland mines), and four and five years later at Grand Forks (from Phoenix mine) and Greenwood (from Mother Lode mine). Later, small smelters were built in the Boundary district and on Vancouver and Texada Islands, and in 1914 the Anyox smelter was blown in. Copper smelting ceased in the Boundary district in 1919, at Trail in 1929, and at Anyox in 1935. British Columbia copper concentrates were then smelted mainly at Tacoma, and since 1961 have gone chiefly to Japan.

Most of the production has come from southern British Columbia—from Britannia, Copper Mountain, Greenwood, Highland Valley, Merritt, Nelson, Rossland, Texada Island, and Vancouver Island, although a sizeable amount came from Anyox and some from Tulsequah. During recent years exploration for copper has been intense, interest being especially directed toward finding very large, low-grade deposits suitable for open-pit mining. This activity has resulted in the establishment of operating mines at Merritt (Craigmont) in 1961, in Highland Valley (Bethlehem) in 1962, on Babine Lake (Granisle) in 1966, near Peachland (Brenda) in 1970, Stewart (Granduc) and near Port Hardy (Island Copper) in 1971, near Babine Lake (Bell), McLeese Lake (Gibraltar), Highland Valley (Lornex), and Princeton (Ingerbelle) in 1972.

After a lapse of many years, copper has been produced comparatively recently on Vancouver Island at Jordan River, Courtenay, Benson Lake, Quatsino, and also at Buttle Lake, together with zinc and silver. At Tasu Harbour on Moresby Island and at Texada Island copper is produced as a by-product of iron-mining.

Copper is now the most valuable single commodity of the industry. Production in 1973 was 714.648 million pounds. *See* Tables 1, 3, 6, and 7B.

*Crude oil*—Production of crude oil in British Columbia began in 1955 from the Fort St. John field, but was not significant until late in 1961, when the 12-inch oil pipe-line was built to connect the oil-gathering terminal at Taylor to the Trans Mountain Oil Pipe Line Company pipe-line near Kamloops. In 1973, oil was produced from 27 separate fields, of which the Boundary Lake, Peejay, Milligan Creek, and Inga fields were the most productive.

In Tables 1, 3, and 7A, quantities given prior to 1962 under "petroleum, crude" are total sales, and from 1962 to 1965 include field and plant condensate listed separately. Full details are given in tables in the Petroleum and Natural Gas chapter of this Report.

*Diatomite*—Relatively large deposits of diatomite are found near the Fraser River in the Quesnel area, and small deposits are widespread throughout the Province. Small amounts of diatomite have been shipped from Quesnel periodically since 1928. A plant to process the material locally is located in Quesnel. *See* Tables 1, 3, and 7D.

*Field condensate*—Field condensate is the liquid hydrocarbons separated and recovered from natural gas in the field before gas processing. *See* Tables 1, 3, and 7A.

*Fluorite (fluorspar)*—Between 1918 and 1929, fluorite was mined at the Rock Candy mine north of Grand Forks for use in the Trail lead refinery. From 1958 to 1968, small quantities were produced as a by-product at the Oliver silica quarry. *See* Tables 1, 3, and 7D.

*Flux*—Silica and limestone are added to smelter furnaces as flux to combine with impurities in the ore and form a slag which separates from the valuable metal. In the past silica was shipped from Grand Forks, Oliver, and the Sheep Creek area. Today silica from near Oliver and Sheep Creek and limestone, chiefly from Texada Island, are produced for flux. Quantities have been recorded since 1911. *See* Tables 1, 3, and 7D.

*Gold, lode*—Gold has played an important part in mining in the Province. The first discovery of lode gold was on Moresby Island in 1852, when some gold was recovered from a small quartz vein. The first stamp mill was built in the Cariboo in 1876, and it seems certain that some arrastras—primitive grinding-mills—were built even earlier. These and other early attempts were short lived, and the successful milling of gold ores began about 1890 in the southern part of the Province. The

value of production was second only to that of coal by 1900 and continued to be very important. At the start of World War II, gold-mining attained a peak yearly value of more than $22 million, but since the war it dwindled, owing to the fact that the price for gold was fixed and the cost of mining rose and continues to rise.

In the early years, lode gold came mostly from the camps of Rossland, Nelson, McKinney, Fairview, Hedley, and also from the copper and other ores of the Boundary district. A somewhat later major producer was the Premier mine at Stewart. In the 1930's the price of gold increased and the value of production soared, new discoveries were made and old mines were revived. The principal gold camps, in order of output of gold, have been Bridge River, Rossland, Portland Canal, Hedley, Wells, and Sheep Creek. In 1971 the Bralorne mine in Bridge River closed; it was the last gold mine in the Province to operate. To date the gold mines have paid a total of about $82 million in dividends.

With the closing of the Bralorne mine, all lode gold is produced as a by-product of copper, copper-zinc-silver, and other base-metal mining. *See* Tables 1, 3, 6, and 7B.

*Gold, placer*—The early explorations and settlement of the Province followed rapidly on the discovery of gold-bearing placer creeks throughout the country. The first placer miners came in 1858 to mine the lower Fraser River bars upstream from Yale.

The year of greatest placer-gold production was 1863, shortly after the discovery of placer in the Cariboo. Another peak year in 1875 marked the discovery of placer on creeks in the Cassiar. A minor peak year was occasioned by the discovery of placer gold in the Granite Creek in the Tulameen in 1885. A high level of production ensued after 1899, when the Atlin placers reached their peak output. Other important placer-gold camps were established at Goldstream, Fort Steele, Rock Creek, Omineca River, and Quesnel River. The last important strike was made on Cedar Creek in 1921, and coarse gold was found on Squaw Creek in 1927 and on Wheaton Creek in 1932.

Mining in the old placer camps revived during the 1930's under the stimulus of an increase in the price of fine gold from $20.67 per ounce to $35 per ounce in United States funds. Since World War II, placer-mining declined under conditions of steadily rising costs and a fixed price for gold but is showing sign of revival in response to freely floating gold price since 1972. Since 1858, more than 5.2 million ounces valued at almost $97 million has been recovered.

A substantial part of the production, including much of the gold recovered from the Fraser River upstream from Yale (in the present New Westminster, Kamloops, and Lillooet Mining Divisions) and much of the early Cariboo production, was mined before the original organization of the Department of Mines in 1874. Consequently, the amounts recorded are based on early estimates and cannot be accurately assigned to individual mining divisions.

The first year of production for major placer-producing mining divisions was: Atlin, 1898; Cariboo, 1859; Liard, 1873; Lillooet, 1858; Omineca, 1869.

In 1965, changes were made in the allocation of placer gold to the New Westminister and Similkameen Mining Divisions and "not assigned," to reconcile those figures with data incorporated in Bulletin 28, *Placer Gold Production of British Columbia*. *See* Tables 1, 3, 6 and 7A.

*Granules*—Rock chips used for bird grits, exposed aggregate, roofing, stucco dash, terrazzo, etc., have been produced in constantly increasing quantities since 1930. Plants operate in Burnaby and near Grand Forks, Sirdar, Vananda, and Armstrong. *See* Tables 1, 3, and 7D.

*Gypsum and gypsite*—Production of gypsum and gypsite has been recorded since 1911. Between 1925 and 1956 more than 1,000,000 tons was shipped from Falkland and some was quarried near Cranbrook and Windermere. Since 1956 all production has come from Windermere. *See* Tables 1, 3, and 7D.

*Hydromagnesite*—Small shipments of hydromagnesite were made from Atlin between 1904 and 1916 and from Clinton in 1921. *See* Tables 1 and 7D.

*Indium*—Production of indium as a by-product of zinc-refining at the Trail smelter began in 1942. Production figures have not been disclosed since 1958.

*Iron*—Iron ore was produced in small quantities as early as 1885, commonly under special circumstances or as test shipment. Steady production started in 1951 with shipments of magnetite concentrates to Japan from Vancouver and Texada Islands.

Most of the known iron-ore deposits are magnetite, and occur in the coastal area. On the average they are low in grade and need to be concentrated. Producing mines have operated on Texada Island, at Benson Lake and Zeballos on Vancouver Island, and at Tasu and Jedway on Moresby Island. At Texada Island copper is a by-product of iron-mining, and in the Coast Copper mine at Benson Lake iron was a by-product of copper-mining. The latest operation, and to date the largest, is that of Wesfrob Mines Limited at Tasu, begun at the end of 1967; copper is produced as a by-product.

From January 1961 to August 1972, calcined iron sulphide from the tailings of the Sullivan mine was used for making pig iron at Kimberley. This was the first manufacture of pig iron in British Columbia. The iron occurs as pyrrhotite and pyrite in the lead-zinc ore of the Sullivan mine. In the process of milling, the lead and zinc minerals are separated for shipment to the Trail smelter, and the iron sulphides are separated from the waste rock. Over the years a stockpile had been built containing a reserve of about 20 million tons or iron ore.

The sulphur was removed in making pig iron and was converted to sulphuric acid, which was used in making fertilizer. A plant built at Kimberley converted the pig iron to steel, and a fabricating plant was acquired in Vancouver. The iron smelter at Kimberley closed in August 1972. The entire production, credited to the Fort Steele Mining Division in Table 7C, is of calcine. *See* Tables 1, 3, 6, and 7C.

*Iron oxide*—Iron oxide, ochre, and bog iron were mined as early as 1918 from several occurrences, but mainly from limonite deposits north of Squamish. None has been produced since 1950. *See* Tables 1 and 7D.

*Jade (nephrite)*—Production of jade (nephrite) has been recorded only since 1959 despite there being several years of significant production prior to that date. The jade is recovered from bedrock occurrences on Mount Ogden and near Dease Lake and as alluvial boulders from the Fraser River; the Bridge River and its tributaries, Marshall, Hell, and Cadwallader Creeks; O'Ne-ell, Ogden, Kwanika, and Wheaton Creeks. *See* Tables 1, 3, and 7D.

*Lead*—Lead was the most valuable single commodity for many years, but it was surpassed in value of annual production by zinc in 1950, by copper in 1966, and in total production by zinc in 1966. Lead and zinc usually occur together in nature although not necessarily in equal amounts in a single deposit. Zinc is the more abundant metal, but lead ore usually is more valuable than zinc ore because it contains more silver as a by-product. For a long time British Columbia produced almost all of Canada's lead, but now produces only about one-quarter of it. Most of the concentrated ore is smelted and the metal refined at Trail, but some concentrate is shipped to American and Japanese smelters.

Almost all of British Columbia's lead comes from the southeastern part of the Province. The Sullivan mine at Kimberley is now producing about 93 per cent of the Province's lead and has produced about 86 per cent of the grand total. This is one of the largest mines in the world and supports the great metallurgical works at Trail. Other mines are at the Pend d'Oreille River, North Kootenay Lake, Slocan, and southwest of Golden. In northwestern British Columbia less important parts of the total output have come from Tulsequah, the Premier mine, and several small mines in the general region of Hazelton.

A small amount of high-grade lead ore is shipped directly to the smelter, but most of the ore is concentrated by flotation and the zinc content is separated from the lead. All output from the Sullivan and other mines in British Columbia owned by Cominco Ltd. goes to the Trail smelter, but part of the output of other mines goes to American smelters. Lead was first produced in 1887, and the total production amounts to approximately 8 million tons.

In 1958, revisions were made in some yearly totals for lead to adjust them for recovery of lead from slag treated at the Trail smelter. *See* Tables 1, 3, 6, and 7B.

*Limestone*—Besides being used for flux and granules (where it is recorded separately), limestone is used in agriculture, cement manufacture, the pulp and paper industry, and for making lime. It has been produced since 1886. Quarries now operate at Cobble Hill, near Prince George, at Kamloops, and on the north end of Texada Island. *See* Tables 1, 3, and 7E.

*Magnesium*—In 1941 and 1942, Cominco Ltd. produced magnesium from magnesite mined from a large deposit at Marysville. *See* Tables 1 and 7C.

*Magnesium sulphate*—Magnesium sulphate was recovered in minor amounts at various times between 1915 and 1942 from small alkali lakes near Basque, Clinton, and Osoyoos. *See* Tables 1 and 7D.

*Manganese*—From 1918 to 1920 manganese ore was shipped from a bog deposit near Kaslo and from Hill 60 near Cowichan Lake, and in 1956 a test shipment was made from Olalla. *See* Tables 1 and 7C.

*Mercury*—Mercury was first produced near Savona in 1895. Since then small amounts have been recovered from the same area and from the Bridge River district. The main production to date was between 1940 and 1944 from the Pinchi Lake and Takla mines near Fort St. James. In 1968 the Pinchi Lake mine reopened and continues in operation. *See* Tables 1 and 7C.

*Mica*—No sheet mica has been produced commercially in British Columbia. Between 1932 and 1961 small amounts of mica schist for grinding were mined near Albreda, Armstrong, Oliver, Prince Rupert, and Sicamous. *See* Tables 1, 3, 7D.

*Molybdenum*—Molybdenum ore in small amounts was produced from high-grade deposits between 1914 and 1918. Recently, mining of large low-grade molybdenum and copper-molybdenum deposits has increased production to the point that molybdenum now ranks third in importance in annual value of metals produced in British Columbia. The upswing began when the Bethlehem mine recovered by-product molybdenum from 1964 to 1966. In 1965, the Endako and Boss Mountain mines, followed by the Coxey in 1966, and British Columbia Molybdenum mine in 1967, all began operations as straight molybdenum producers. In 1970, the Brenda mine, a combined copper-molybdenum producer, started operating, and Island Copper in 1971. Large-scale combined metal deposits at Lornex and Gibraltar mines were brought into production in 1972. *See* Tables 1, 3, 6, and 7C.

*Natro-alunite*—In 1912 and 1913, 400 tons of natro-alunite was mined from a small low-grade deposit at Kyuquot Sound. There has been no subsequent production. *See* Tables 1 and 7D.

*Natural gas*—Commercial production of natural gas began in 1954 to supply the community of Fort St. John. Since the completion in 1957 of the gas plant at Taylor and the 30-inch pipe-line to serve British Columbia and the northwestern United States, the daily average volume of production has increased to more than 1,200,000,000 cubic feet. In 1973 there were 37 producing gas fields, of which the Yoyo, Clarke Lake, and Beaver River were the most productive.

The production shown in Tables 1, 3, and 7A is the total amount sold of residential gas from processing plants plus dry and associated gas from the gas-gathering system; that is, the quantity delivered to the main transmission-line. The quantity is net after deducting gas used on leases, metering difference, and gas used or lost in the cleaning plant. The quantity is reported as thousands of cubic feet at standard conditions (14.4 pounds per square inch pressure, 60°F temperature, up to and including the year 1960, and thereafter 14.65 pounds per square inch pressure, 60°F temperature).

Full details of gross well output, other production, delivery, and sales are given in tables in the Petroleum and Natural Gas chapter of this Report.

*Nickel*—One mine, the Pride of Emory near Hope, shipped nickel ore in 1936 and 1937 and began continuous production in 1958. Since 1960, bulk copper-nickel concentrates have been shipped to Japan for smelting. *See* Tables 1, 3, and 7C.

*Palladium*—Palladium was recovered in 1928, 1929, and 1930 as a by-product of the Trail refinery and is presumed to have originated in copper concentrates shipped to the smelter from the Copper Mountain mine. *See* Tables 1 and 7C.

*Perlite*—In 1953 a test shipment of 1,112 tons was made from a quarry on François Lake. There has been no further production. *See* Tables 1 and 7D.

*Petroleum, crude*—*See* Crude oil.

*Phosphate rock*—Between 1927 and 1933, Cominco Ltd. produced 3,842 tons of phosphate rock for test purposes, but the grade proved to be too low for commercial use. More test shipments were made in 1964 but there has been no commercial production. *See* Tables 1 and 7D.

*Plant condensate*—Plant condensate is the hydrocarbon liquid extracted from natural gas at gas-processing plants. *See* Tables 1, 3, and 7A.

*Platinum*—Platinum has been produced intermittently from placer streams in small amounts since 1887, mostly from the Tulameen and Similkameen Rivers. Placer platinum also has been recovered from Pine, Thibert, McConnell, Rainbow, Tranquille, Rock, and Government Creeks; from Quesnel, Fraser, Cottonwood, Peace, and Coquihalla Rivers; and from beach placers on Graham Island. Some platinum recovered between 1928 and 1930 as a by-product at the Trail refinery is presumed to have originated in copper concentrates shipped to the smelter from the Copper Mountain mine. *See* Tables 1, 3, and 7C.

*Propane*—Propane is recovered from gas-processing plants at Taylor and Boundary Lake, and at oil refineries. *See* Tables 1, 3, and 7A.

*Rhenium*—Rhenium occurs in significant quantities only with molybdenite associated with porphyry copper deposits. It was first produced in 1972 by the Island Copper mine and is extracted as rhenium oxide from fumes produced during roasting of the molybdenite concentrate.

*Rock*—Production of rubble, riprap, and crushed rock has been recorded since 1909. *See* Tables 1, 3, and 7E.

*Sand and gravel*—Sand and gravel are used as aggregate in concrete work of all kinds. The output varies from year to year according to the state of activity of the construction industry. *See* Tables 1, 3, and 7E.

*Selenium*—The only recorded production of selenium, 731 pounds, was in 1931 from the refining of blister copper from the Anyox smelter. *See* Tables 1 and 7C.

*Silver*—Silver is recovered from silver ores or as a by-product of other ores. Most of it is refined in Trail, some goes to the Mint in gold bullion, and some is exported in concentrated ores of copper, lead, and zinc to American and Japanese smelters. Silver bullion was produced by the Torbrit mine from 1949 to 1959.

Invariably some silver is associated with galena, so that even low-grade lead ores, if mined in quantity, produce a significant amount of silver. Some silver is recovered from gold ores and some from copper ores, and although the silver in such ores is usually no more than a fraction of an ounce per ton, even that amount is important in a large-tonnage operation.

Silver-bearing ores were intensively sought in the early days. A metal of high unit value was the only one worth finding in regions remote from market, and in the 1880's and 1890's there was little point in prospecting for ores that did not contain values in silver or gold. Prospecting for silver ores started in southeastern British Columbia in about 1883, and from 1894 to 1905 British Columbia produced most of Canada's silver, many of the early ores being mined primarily for their silver content.

Production of silver began in 1887 from silver-copper and silver-lead ores in the Kootenays and has continued in this area to the present. Now, most of the silver is a by-product of lead-zinc ores and nearly all is refined at Trail, although some is exported with concentrates to American and Japanese smelters, or may go to the Mint in gold bullion. Today the greatest single source of silver is the Sullivan mine, which has been in production since 1900. By 1973 the Sullivan mine has accounted for 47 per cent of the total silver production of the Province. A significant total amount is contributed by the Lynx, Silmonac, Phoenix, Bethlehem, Granisle, Brenda, and Granduc mines. The only steady producer that is strictly a silver mine is the Highland Bell mine at Beaverdell, in operation since 1922. A former important mine, the Premier near Stewart, produced more than 41 million ounces of silver between 1918 and 1968. *See* Tables 1, 3, 6, and 7B.

*Sodium carbonate*—Sodium carbonate was recovered between 1921 and 1949 from alkali lakes in the Clinton area and around Kamloops. There has been no further production. *See* Tables 1 and 7D.

*Stone* (*see* Building-stone)—Cut stone for building purposes is prepared from rock produced at quarries in various parts of the Province when required. Two of the most productive quarries have operated on Haddington and Nelson Islands. *See* Tables 1, 3, and 7E.

*Structural materials*—In Table 7E the value of $5,972,171 for unclassified materials is the total for structural materials in the period 1886–1919 that cannot be allotted to particular classes of structural materials or assigned to mining divisions, and includes $726,323 shown against 1896 in Table 2 that includes unclassified structural materials in that and previous years not assignable to particular years. The figure $3,180,828 in Table 7E under "Other Clay Products" is the value in the

period 1886–1910 that cannot be alloted to particular clay products or assigned to mining divisions. *See* Tables 1, 2, 3, 7A, and 7E.

*Sulphur*—The production of sulphur has been recorded since 1916. From 1916 to 1927 the amounts include the sulphur content of pyrite shipped. From 1928 the amounts include the estimated sulphur content of pyrite shipped, plus the sulphur contained in sulphuric acid made from waste smelter gases. The sulphur content of pyrrhotite roasted at the Kimberley fertilizer plant is included since 1953. Since 1958, elemental sulphur recovered from the Canadian Occidental Petroleum Ltd. plant at Taylor has been included. *See* Tables 1, 3, and 7D.

*Talc*—Between 1916 and 1936, talc was quarried at Leech River and at Anderson Lake to make dust for asphalt roofing. There has been no production since 1936. *See* Tables 1, 3, and 7D.

*Tin*—Tin, as cassiterite, is a by-product of the Sullivan mine, where it has been produced since 1941. The tin concentrate is shipped to an American smelter for treatment. *See* Tables 1, 3, and 7C.

*Tungsten*—Tungsten, very largely as scheelite concentrates, was produced from 1937 to 1958, first from the Columbia Tungstens (Hardscrabble) mine in the Cariboo in 1937 and during World War II from the Red Rose mine near Hazelton and the Emerald mine near Salmo. The Red Rose closed in 1954 and the Emerald in 1958. Small amounts of scheelite have been produced from the Bridge River, Revelstoke, and other areas where demand was high. In 1970 production began from the Invincible mine near Salmo, which closed in 1973.

A very small amount of wolframite came from Boulder Creek near Atlin. *See* Tables 1, 3, and 7C.

*Volcanic Ash*—The only recorded production of volcanic ash is 30 tons from the Cariboo Mining Division in 1954. *See* Tables 1 and 7D.

*Zinc*—Zinc was first produced in 1905. For many years lead was the most valuable single metal, but in 1950 the annual value of production of zinc surpassed that of lead and in 1966 the total value of zinc production exceeded that of lead. In 1972 the annual production of zinc is exceeded by that of copper, coal, and crude oil. Zinc is invariably associated with lead, and most ores are mined for their combined values in zinc, lead, and silver, and rarely for their zinc content alone. Some zinc ores contain a valuable amount of gold, and zinc is associated with copper at the Lynx mine. Modern practice is to concentrate and separate the zinc mineral (sphalerite) from the lead mineral (galena). Most of the zinc concentrates go to the zinc-recovery plant at Trail, are roasted, and are converted electrolytically to refined metal. Some concentrates are shipped to American or Japanese smelters.

More than 86 per cent of the zinc has been mined in southeastern British Columbia, at the Sullivan mine, and at mines near Ainsworth, Invermere, Moyie Lake, Riondel, Salmo, Slocan, and Spillimacheen. Other production has come from mines at Portland Canal and Tulsequah and is coming from Buttle Lake. The greatest zinc mine is the Sullivan, which has contributed about 74 per cent of the total zinc production of the Province.

Records for the period 1905 to 1908 show shipments totalling 18,845 tons of zinc ore and zinc concentrates of unstated zinc content. In 1918, revisions were made to some yearly totals for zinc to adjust them for recovery of zinc from slag treated at the Trail smelter. *See* Tables 1, 3, 6, and 7B.

## *Prices[1] Used in Valuing Production of Gold, Silver, Copper, Lead, Zinc, and Coal*

| Year | Gold, Placer, Oz. | Gold, Fine, Oz. | Silver, Fine, Oz. | Copper, Lb. | Lead, Lb. | Zinc, Lb. | Coal, Short Ton |
|---|---|---|---|---|---|---|---|
| | $ | $ | Cents | Cents | Cents | Cents | $ |
| 1901 | 17.00 | 20.67 | 56.002 N.Y. | 16.11 N.Y. | 2.577 N.Y. | ——— | 2.65 |
| 1902 | ——— | ——— | 49.55 „ | 11.70 „ | 3.66 „ | ——— | 2.63 |
| 1903 | ——— | ——— | 50.78 „ | 13.24 „ | 3.81 „ | ——— | 2.67 |
| 1904 | ——— | ——— | 53.36 „ | 12.82 „ | 3.88 „ | ——— | 2.62 |
| 1905 | ——— | ——— | 51.33 „ | 15.59 „ | 4.24 „ | ——— | 2.70 |
| 1906 | ——— | ——— | 63.45 „ | 19.28 „ | 4.81 „ | ——— | 2.61 |
| 1907 | ——— | ——— | 62.06 „ | 20.00 „ | 4.80 „ | ——— | 3.07 |
| 1908 | ——— | ——— | 50.22 „ | 13.20 „ | 3.78 „ | ——— | 3.11 |
| 1909 | ——— | ——— | 48.93 „ | 12.98 „ | 3.85 „ | ——— | 3.19 |
| 1910 | ——— | ——— | 50.812 „ | 12.738 „ | 4.00 „ | 4.60 E. St. L. | 3.35 |
| 1911 | ——— | ——— | 50.64 „ | 12.38 „ | 3.98 „ | 4.90 „ | 3.18 |
| 1912 | ——— | ——— | 57.79 „ | 16.341 „ | 4.024 „ | 5.90 „ | 3.36 |
| 1913 | ——— | ——— | 56.80 „ | 15.27 „ | 3.93 „ | 4.80 „ | 3.39 |
| 1914 | ——— | ——— | 52.10 „ | 13.60 „ | 3.50 „ | 4.40 „ | 3.46 |
| 1915 | ——— | ——— | 47.20 „ | 17.28 „ | 4.17 „ | 11.25 „ | 3.43 |
| 1916 | ——— | ——— | 62.38 „ | 27.202 „ | 6.172 „ | 10.88 „ | 3.45 |
| 1917 | ——— | ——— | 77.35 „ | 27.18 „ | 7.91 „ | 7.566 „ | 3.48 |
| 1918 | ——— | ——— | 91.93 „ | 24.63 „ | 6.67 „ | 6.94 „ | 4.99 |
| 1919 | ——— | ——— | 105.57 „ | 18.70 „ | 5.19 „ | 6.24 „ | 4.92 |
| 1920 | ——— | ——— | 95.80 „ | 17.45 „ | 7.16 „ | 6.52 „ | 4.72 |
| 1921 | ——— | ——— | 59.52 „ | 12.50 „ | 4.09 „ | 3.95 „ | 4.81 |
| 1922 | ——— | ——— | 64.14 „ | 13.38 „ | 5.16 „ | 4.86 „ | 4.72 |
| 1923 | ——— | ——— | 61.63 „ | 14.42 „ | 6.54 „ | 5.62 „ | 4.81 |
| 1924 | ——— | ——— | 63.442 „ | 13.02 „ | 7.287 „ | 5.39 „ | 4.89 |
| 1925 | ——— | ——— | 69.065 „ | 14.042 „ | 7.848 Lond. | 7.892 Lond. | 4.79 |
| 1926 | ——— | ——— | 62.107 „ | 13.795 „ | 6.751 „ | 7.409 „ | 4.84 |
| 1927 | ——— | ——— | 56.370 „ | 12.920 „ | 5.256 „ | 6.194 „ | 4.81 |
| 1928 | ——— | ——— | 58.176 „ | 14.570 „ | 4.575 „ | 5.493 „ | 4.71 |
| 1929 | ——— | ——— | 52.993 „ | 18.107 „ | 5.050 „ | 5.385 „ | 4.74 |
| 1930 | ——— | ——— | 38.154 „ | 12.982 „ | 3.927 „ | 3.599 „ | 4.73 |
| 1931 | ——— | ——— | 28.700 „ | 8.116 „ | 2.710 „ | 2.554 „ | 4.35 |
| 1932 | 19.30 | 23.47 | 31.671 „ | 6.380 Lond. | 2.113 „ | 2.405 „ | 4.04 |
| 1933 | 23.02 | 28.60 | 37.832 „ | 7.454 „ | 2.391 „ | 3.210 „ | 3.90 |
| 1934 | 28.37 | 34.50 | 47.461 „ | 7.419 „ | 2.436 „ | 3.044 „ | 4.00 |
| 1935 | 28.94 | 35.19 | 64.790 „ | 7.795 „ | 3.133 „ | 3.099 „ | 3.95 |
| 1936 | 28.81 | 35.03 | 45.127 „ | 9.477 „ | 3.913 „ | 3.315 „ | 4.23 |
| 1937 | 28.77 | 34.99 | 44.881 „ | 13.078 „ | 5.110 „ | 4.902 „ | 4.25 |
| 1938 | 28.93 | 35.18 | 43.477 „ | 9.972 „ | 3.344 „ | 3.073 „ | 4.01 |
| 1939 | 29.72 | 36.14 | 40.488 „ | 10.092 „ | 3.169 „ | 3.069 „ | 4.02 |
| 1940 | 31.66 | 38.50 | 38.249 „ | 10.086 „ | 3.362 „ | 3.411 „ | 4.26 |
| 1941 | 31.66 | 38.50 | 38.261 „ | 10.086 „ | 3.362 „ | 3.411 „ | 4.15 |
| 1942 | 31.66 | 38.50 | 41.166 „ | 10.086 „ | 3.362 „ | 3.411 „ | 4.13 |
| 1943 | 31.66 | 38.50 | 45.254 „ | 11.750 „ | 3.754 „ | 4.000 „ | 4.17 |
| 1944 | 31.66 | 38.50 | 43.000 „ | 12.000 „ | 4.500 „ | 4.300 „ | 4.25 |
| 1945 | 31.66 | 38.50 | 47.000 „ | 12.550 „ | 5.000 „ | 6.440 „ | 4.24 |
| 1946 | 30.22 | 36.75 | 83.650 „ | 12.800 „ | 6.750 „ | 7.810 „ | 4.68 |
| 1947 | 28.78 | 35.00 | 72.000 „ | 20.390 „ | 13.670 „ | 11.230 „ | 5.12 |
| 1948 | 28.78 | 35.00 | 75.000 Mont. | 22.350 U.S. | 18.040 „ | 13.930 „ | 6.09 |
| 1949 | 29.60 | 36.00 | 74.250 U.S. | 19.973 „ | 15.800 U.S. | 13.247 U.S. | 6.51 |
| 1950 | 31.29 | 38.05 | 80.635 „ | 23.428 „ | 14.454 „ | 15.075 „ | 6.43 |
| 1951 | 30.30 | 36.85 | 94.550 „ | 27.700 „ | 18.400 „ | 19.900 „ | 6.46 |
| 1952 | 28.18 | 34.27 | 83.157 „ | 31.079 „ | 16.121 „ | 15.874 „ | 6.94 |
| 1953 | 28.31 | 34.42 | 83.774 „ | 30.333 „ | 13.265 „ | 10.675 „ | 6.88 |
| 1954 | 27.52 | 34.07 | 82.982 „ | 29.112 „ | 13.680 „ | 10.417 „ | 7.00 |
| 1955 | 28.39 | 34.52 | 87.851 „ | 38.276 „ | 14.926 „ | 12.127 „ | 6.74 |
| 1956 | 28.32 | 34.44 | 89.373 „ | 39.787 „ | 15.756 „ | 13.278 „ | 6.59 |
| 1957 | 27.59 | 33.55 | 87.057 „ | 26.031 „ | 14.051 „ | 11.175 „ | 6.76 |
| 1958 | 27.94 | 33.98 | 86.448 „ | 23.419 „ | 11.755 „ | 10.009 „ | 7.45 |
| 1959 | 27.61 | 33.57 | 87.469 „ | 27.708 „ | 11.670 „ | 10.978 „ | 7.93 |
| 1960 | 27.92 | 33.95 | 88.633 „ | 28.985 „ | 11.589 „ | 12.557 „ | 6.64 |
| 1961 | 29.24 | 35.46 | 93.696 „ | 28.288 „ | 11.011 „ | 11.695 „ | 7.40 |
| 1962 | 29.25 | 37.41 | 116.029 „ | 30.473 „ | 10.301 „ | 12.422 „ | 7.43 |
| 1963 | 29.31 | 37.75 | 137.965 „ | 30.646 „ | 12.012 „ | 13.173 „ | 7.33 |
| 1964 | 29.96 | 37.75 | 139.458 „ | 33.412 „ | 14.662 „ | 14.633 „ | 6.94 |
| 1965 | 28.93 | 37.73 | 139.374 „ | 38.377 „ | 17.247 „ | 15.636 „ | 7.03 |
| 1966 | 29.08 | 37.71 | 139.300 „ | 53.344 „ | 16.283 „ | 15.622 „ | 7.28 |
| 1967 | 28.77 | 37.76 | 167.111 „ | 51.022 „ | 15.102 „ | 14.933 „ | 7.75 |
| 1968 | 29.21 | 37.71 | 231.049 „ | 54.216 „ | 14.546 „ | 14.153 „ | 7.91 |
| 1969 | 29.37 | 37.69 | 192.699 „ | 66.656 „ | 16.039 „ | 15.721 „ | 8.00 |
| 1970 | 28.89 | 36.56 | 184.927 „ | 58.698[2] | 16.336 „ | 16.006 „ | 7.40 |
| 1971 | 26.25 | 35.34 | 155.965 „ | 46.696[2] | 13.950 „ | 16.286 „ | 10.03 |
| 1972 | 38.94 | 57.52 | 166.324 „ | 44.839[2] | 14.876 „ | 15.579 „ | 10.96 |
| 1973 | 81.32 | 97.41 | 256.620 „ | 83.234[2] | 16.285 „ | 20.657 „ | 11.53 |

[1] *See* page A 14 for detailed explanation.
[2] *See* page A 15 for explanation.

## *Table 1—Mineral Production: Total to Date, Past Year, and Latest Year*

| Products[1] | Total Quantity to Date | Total Value to Date | Quantity 1972 | Value 1972 | Quantity 1973 | Value 1973 |
|---|---|---|---|---|---|---|
| | | $ | | $ | | $ |
| ***Metals*** | | | | | | |
| Antimony lb. | 55,229,839 | 18,735,987 | 679,601 | 419,042 | 1,660,331 | 1,192,118 |
| Bismuth lb. | 6,925,647 | 14,476,457 | 93,820 | 324,617 | 2,851 | 13,058 |
| Cadmium lb. | 41,964,653 | 79,049,923 | 695,650 | 1,759,995 | 810,779 | 2,951,236 |
| Chromite tons | 796 | 32,295 | | | | |
| Cobalt lb. | 311,921 | 376,661 | 155,739 | 155,739 | 40,907 | 117,403 |
| Copper lb. | 5,721,958,926 | 2,047,380,171 | 467,012,694 | 209,403,822 | 714,648,946 | 594,830,904 |
| Gold—placer oz. | 5,240,107 | 97,300,473 | 691 | 26,905 | 3,831 | 311,524 |
| lode, fine oz. | 17,419,872 | 531,960,049 | 121,624 | 6,995,448 | 185,986 | 18,117,268 |
| Iron concentrates tons | 31,061,008 | 281,470,018 | 1,256,308 | 11,642,379 | 1,568,912 | 12,906,063 |
| Lead lb. | 16,458,073,374 | 1,441,949,395 | 194,249,571 | 28,896,566 | 186,680,656 | 30,400,945 |
| Magnesium lb. | 204,632 | 88,184 | | | | |
| Manganese tons | 1,724 | 32,668 | | | | |
| Mercury[2] lb. | 4,171,110 | 10,447,358 | | | | |
| Molybdenum lb. | 199,952,170 | 336,877,117 | 28,041,603 | 43,260,349 | 30,390,928 | 52,260,232 |
| Nickel lb. | 49,933,039 | 49,347,348 | 3,240,483 | 4,601,486 | 2,467,472 | 3,775,232 |
| Palladium oz. | 749 | 30,462 | | | | |
| Platinum oz. | 1,407 | 135,008 | | | | |
| Selenium lb. | 731 | 1,389 | | | | |
| Silver oz. | 507,543,315 | 396,374,754 | 6,926,036 | 11,519,650 | 7,681,514 | 19,712,301 |
| Tin lb. | 19,159,752 | 17,691,492 | 351,043 | 473,908 | 304,727 | 597,265 |
| Tungsten ($WO_3$) lb. | 20,040,128 | 48,087,713 | 1,273,196 | 2,167,663 | 1,411,800 | 4,243,759 |
| Zinc lb. | 15,297,732,440 | 1,549,368,185 | 268,347,996 | 47,172,894 | 302,874,331 | 62,564,751 |
| Others | | 47,023,282 | | 3,212,297 | | 4,161,923 |
| Totals | | 6,968,236,389 | | 372,032,770 | | 808,155,982 |
| ***Industrial Minerals*** | | | | | | |
| Arsenious oxide lb. | 22,019,420 | 273,201 | | | | |
| Asbestos tons | 1,227,098 | 239,205,584 | 105,807 | 20,870,241 | 108,966 | 21,102,892 |
| Bentonite tons | 791 | 16,858 | | | | |
| Fluxes tons | 4,188,899 | 7,839,947 | 31,600 | 59,246 | 46,228 | 106,371 |
| Granules tons | 490,335 | 8,143,884 | 37,158 | 757,924 | 34,321 | 857,643 |
| Gypsum and gypsite tons | 5,183,650 | 17,557,457 | 388,315 | 1,087,196 | 365,249 | 1,114,009 |
| Hydromagnesite tons | 2,253 | 27,536 | | | | |
| Iron oxide and ochre tons | 18,108 | 155,050 | | | | |
| Jade lb. | 1,162,130 | 1,270,028 | 243,725 | 235,218 | 154,251 | 306,808 |
| Magnesium sulphate tons | 13,894 | 254,352 | | | | |
| Mica lb. | 12,822,050 | 185,818 | | | | |
| Natro-alunite tons | 522 | 9,398 | | | | |
| Perlite tons | 1,112 | 11,120 | | | | |
| Phosphate rock tons | 3,842 | 16,894 | | | | |
| Sodium carbonate tons | 10,492 | 118,983 | | | | |
| Sulphur tons | 8,197,669 | 104,175,417 | 297,707 | 2,306,933 | 316,035 | 4,187,387 |
| Talc tons | 1,085 | 34,871 | | | | |
| Others | | 5,876,819 | | 447,362 | | 294,554 |
| Totals | | 385,173,217 | | 25,764,120 | | 27,969,664 |
| ***Structural Materials*** | | | | | | |
| Cement tons | 15,702,225 | 281,387,434 | 890,926 | 21,014,112 | 950,772 | 24,935,624 |
| Clay products | | 94,527,407 | | 5,263,749 | | 5,590,290 |
| Rubble, riprap, crushed rock tons | | 61,774,442 | 3,321,764 | 4,032,548 | 2,843,010 | 4,160,009 |
| Lime and limestone tons | | 63,735,329 | 2,026,309 | 3,357,927 | 2,153,936 | 3,633,870 |
| Sand and gravel tons | | 347,223,788 | 34,826,518 | 33,076,196 | 33,898,934 | 35,119,590 |
| Building-stone tons | 1,164,719 | 9,224,579 | 194 | 1,166 | 204 | 7,648 |
| Not assigned | | 5,972,171 | | | | |
| Totals | | 863,845,150 | | 66,745,698 | | 73,447,031 |
| ***Coal*** | | | | | | |
| Coal—sold and used tons | 163,313,793 | 836,091,796 | 6,026,198 | 66,030,210 | 7,633,251 | 87,976,105 |
| ***Petroleum and Natural Gas*** | | | | | | |
| Crude oil bbl. | 229,436,516 | 548,525,353 | 23,831,144 | 63,166,717 | 21,189,758 | 68,306,032 |
| Field condensate bbl. | 741,353 | 1,908,854 | 104,531 | 277,069 | 126,509 | 407,807 |
| Plant condensate bbl. | 14,068,549 | 6,507,612 | 1,018,012 | 327,820 | 1,132,701 | 222,463 |
| Nat'l gas to pipe-line MSCF | 2,990,984,716 | 312,820,618 | 379,969,499 | 41,616,824 | 427,586,208 | 46,688,912 |
| Butane bbl. | 6,327,982 | 2,015,537 | 340,904 | 106,533 | 685,936 | 212,640 |
| Propane bbl. | 4,948,717 | 1,573,747 | 480,047 | 150,015 | 623,866 | 193,398 |
| Totals | | 873,351,721 | | 105,644,978 | | 116,031,252 |
| Grand totals | | 9,926,698,273 | | 636,217,776 | | 1,113,580,034 |

[1] *See* notes on individual products listed alphabetically on pages A 16 to A 25.
[2] From 1968, excludes production which is confidential.

*Table 2—Total Value of Mineral Production, 1836–1973*

| Year | Metals | Industrial Minerals | Structural Materials | Coal | Petroleum and Natural Gas | Total |
|---|---|---|---|---|---|---|
| | $ | $ | $ | $ | $ | $ |
| 1836–86 | 52,808,750 | ——— | 43,650 | 10,758,565 | ——— | 63,610,965 |
| 1887 | 729,381 | ——— | 22,168 | 1,240,080 | ——— | 1,991,629 |
| 1888 | 745,794 | ——— | 46,432 | 1,467,903 | ——— | 2,260,129 |
| 1889 | 685,512 | ——— | 77,517 | 1,739,490 | ——— | 2,502,519 |
| 1890 | 572,884 | ——— | 75,201 | 2,034,420 | ——— | 2,682,505 |
| 1891 | 447,136 | ——— | 79,475 | 3,087,291 | ——— | 3,613,902 |
| 1892 | 511,075 | ——— | 129,234 | 2,479,005 | ——— | 3,119,314 |
| 1893 | 659,969 | ——— | ——— | 2,934,882 | ——— | 3,594,851 |
| 1894 | 1,191,728 | ——— | ——— | 3,038,859 | ——— | 4,230,587 |
| 1895 | 2,834,629 | ——— | ——— | 2,824,687 | ——— | 5,659,316 |
| 1896 | 4,973,769 | ——— | 726,323 | 2,693,961 | ——— | 8,394,053 |
| 1897 | 7,575,262 | ——— | 150,000 | 2,734,522 | ——— | 10,459,784 |
| 1898 | 7,176,870 | ——— | 150,000 | 3,582,595 | ——— | 10,909,465 |
| 1899 | 8,107,509 | ——— | 200,000 | 4,126,803 | ——— | 12,434,312 |
| 1900 | 11,360,546 | ——— | 250,000 | 4,744,530 | ——— | 16,355,076 |
| 1901 | 14,258,455 | ——— | 400,000 | 5,016,398 | ——— | 19,674,853 |
| 1902 | 12,163,561 | ——— | 450,000 | 4,832,257 | ——— | 17,445,818 |
| 1903 | 12,640,083 | ——— | 525,000 | 4,332,297 | ——— | 17,497,380 |
| 1904 | 13,424,755 | 2,400 | 575,000 | 4,953,024 | ——— | 18,955,179 |
| 1905 | 16,289,165 | ——— | 660,800 | 5,511,861 | ——— | 22,461,826 |
| 1906 | 18,449,602 | ——— | 982,900 | 5,548,044 | ——— | 24,980,546 |
| 1907 | 17,101,305 | ——— | 1,149,400 | 7,637,713 | ——— | 25,888,418 |
| 1908 | 15,227,991 | ——— | 1,200,000 | 7,356,866 | ——— | 23,784,857 |
| 1909 | 14,668,141 | ——— | 1,270,559 | 8,574,884 | ——— | 24,513,584 |
| 1910 | 13,768,731 | ——— | 1,500,000 | 11,108,335 | ——— | 26,377,066 |
| 1911 | 11,880,062 | 46,345 | 3,500,917 | 8,071,747 | ——— | 23,499,071 |
| 1912 | 18,218,266 | 17,500 | 3,436,222 | 10,786,812 | ——— | 32,458,800 |
| 1913 | 17,701,432 | 46,446 | 3,249,605 | 9,197,460 | ——— | 30,194,943 |
| 1914 | 15,790,727 | 51,810 | 2,794,107 | 7,745,847 | ——— | 26,382,491 |
| 1915 | 20,765,212 | 133,114 | 1,509,235 | 7,114,178 | ——— | 29,521,739 |
| 1916 | 32,092,648 | 150,718 | 1,247,912 | 8,900,675 | ——— | 42,391,953 |
| 1917 | 27,299,934 | 174,107 | 1,097,900 | 8,484,343 | ——— | 37,056,284 |
| 1918 | 27,957,302 | 281,131 | 783,280 | 12,833,994 | ——— | 41,855,707 |
| 1919 | 20,058,217 | 289,426 | 980,790 | 11,975,671 | ——— | 33,304,104 |
| 1920 | 19,687,532 | 508,601 | 1,962,824 | 13,450,169 | ——— | 35,609,126 |
| 1921 | 13,160,417 | 330,503 | 1,808,392 | 12,836,013 | ——— | 28,135,325 |
| 1922 | 19,605,401 | 251,922 | 2,469,967 | 12,880,060 | ——— | 35,207,350 |
| 1923 | 25,769,215 | 140,409 | 2,742,388 | 12,678,548 | ——— | 41,330,560 |
| 1924 | 35,959,566 | 116,932 | 2,764,013 | 9,911,935 | ——— | 48,752,446 |
| 1925 | 46,480,742 | 101,319 | 2,766,838 | 12,168,905 | ——— | 61,517,804 |
| 1926 | 51,867,792 | 223,748 | 3,335,885 | 11,650,180 | ——— | 67,077,605 |
| 1927 | 45,134,289 | 437,729 | 2,879,160 | 12,269,135 | ——— | 60,720,313 |
| 1928 | 48,640,158 | 544,192 | 3,409,142 | 12,633,510 | ——— | 65,227,002 |
| 1929 | 52,805,345 | 807,502 | 3,820,732 | 11,256,260 | ——— | 68,689,839 |
| 1930 | 41,785,380 | 457,225 | 4,085,105 | 9,435,650 | ——— | 55,763,360 |
| 1931 | 23,530,469 | 480,319 | 3,538,519 | 7,684,155 | ——— | 35,233,462 |
| 1932 | 20,129,869 | 447,495 | 1,705,708 | 6,523,644 | ——— | 28,806,716 |
| 1933 | 25,777,723 | 460,683 | 1,025,586 | 5,375,171 | ——— | 32,639,163 |
| 1934 | 35,177,224 | 486,554 | 1,018,719 | 5,725,133 | ——— | 42,407,630 |
| 1935 | 42,006,618 | 543,583 | 1,238,718 | 5,048,864 | ——— | 48,837,783 |
| 1936 | 45,889,944 | 724,362 | 1,796,677 | 5,722,502 | ——— | 54,133,485 |
| 1937 | 65,224,245 | 976,171 | 2,098,339 | 6,139,920 | ——— | 74,438,675 |
| 1938 | 55,959,713 | 916,841 | 1,974,976 | 5,565,069 | ——— | 64,416,599 |
| 1939 | 56,216,049 | 1,381,720 | 1,832,464 | 6,280,956 | ——— | 65,711,189 |
| 1940 | 64,332,166 | 1,073,023 | 2,534,840 | 7,088,265 | ——— | 75,028,294 |
| 1941 | 65,807,630 | 1,253,561 | 2,845,262 | 7,660,000 | ——— | 77,566,453 |
| 1942 | 63,626,140 | 1,434,382 | 3,173,635 | 8,237,172 | ——— | 76,471,329 |
| 1943 | 55,005,394 | 1,378,337 | 3,025,255 | 7,742,030 | ——— | 67,151,016 |
| 1944 | 42,095,013 | 1,419,248 | 3,010,088 | 8,217,966 | ——— | 54,742,315 |
| 1945 | 50,673,592 | 1,497,720 | 3,401,229 | 6,454,360 | ——— | 62,026,901 |
| 1946 | 58,834,747 | 1,783,010 | 5,199,563 | 6,732,470 | ——— | 72,549,790 |
| 1947 | 95,729,867 | 2,275,972 | 5,896,803 | 8,680,440 | ——— | 112,583,082 |
| 1948 | 124,091,753 | 2,358,877 | 8,968,222 | 9,765,395 | ——— | 145,184,247 |
| 1949 | 110,219,917 | 2,500,799 | 9,955,790 | 10,549,924 | ——— | 133,226,430 |
| 1950 | 117,166,836 | 2,462,340 | 10,246,939 | 10,119,303 | ——— | 139,995,418 |

*Table 2—Total Value of Mineral Production, 1836–1973*—Continued

| Year | Metals | Minerals Industrial | Structural Materials | Coal | Petroleum and Natural Gas | Total |
|---|---|---|---|---|---|---|
| | $ | $ | $ | $ | $ | $ |
| 1951 | 153,598,411 | 2,493,840 | 10,606,048 | 10,169,617 | ——— | 176,867,916 |
| 1952 | 147,857,523 | 2,181,464 | 11,596,961 | 9,729,739 | ——— | 171,365,687 |
| 1953 | 126,755,705 | 3,002,673 | 13,555,038 | 9,528,279 | ——— | 152,841,695 |
| 1954 | 123,834,286 | 5,504,114 | 14,395,174 | 9,154,544 | 6,545 | 152,894,663 |
| 1955 | 142,609,505 | 6,939,490 | 15,299,254 | 8,986,501 | 18,610 | 173,853,360 |
| 1956 | 149,441,246 | 9,172,792 | 20,573,631 | 9,346,518 | 319,465 | 188,853,652 |
| 1957 | 125,353,920 | 11,474,050 | 25,626,939 | 7,340,339 | 1,197,581 | 170,992,829 |
| 1958 | 104,251,112 | 9,958,768 | 19,999,576 | 5,937,860 | 4,806,233 | 144,953,549 |
| 1959 | 105,076,530 | 12,110,286 | 19,025,209 | 5,472,064 | 5,967,128 | 147,651,217 |
| 1960 | 130,304,373 | 13,762,102 | 18,829,989 | 5,242,223 | 9,226,646 | 177,365,333 |
| 1961 | 128,565,774 | 12,948,308 | 19,878,921 | 6,802,134 | 11,612,184 | 179,807,321 |
| 1962 | 159,627,293 | 14,304,214 | 21,366,265 | 6,133,986 | 27,939,726 | 229,371,484 |
| 1963 | 172,852,866 | 16,510,898 | 23,882,190 | 6,237,997 | 36,379,636 | 255,863,587 |
| 1964 | 180,926,329 | 16,989,469 | 26,428,939 | 6,327,678 | 36,466,753 | 267,139,168 |
| 1965 | 177,101,733 | 20,409,649 | 32,325,714 | 6,713,590 | 44,101,662 | 280,652,348 |
| 1966 | 208,664,003 | 22,865,324 | 43,780,272 | 6,196,219 | 54,274,187 | 335,780,005 |
| 1967 | 235,865,318 | 29,364,065 | 44,011,488 | 7,045,341 | 67,096,286 | 383,382,498 |
| 1968 | 250,912,026 | 26,056,782 | 45,189,476 | 7,588,989 | 75,281,215 | 405,028,488 |
| 1969 | 294,881,114 | 20,492,943 | 55,441,528 | 6,817,155 | 86,756,009 | 464,388,749 |
| 1970 | 309,981,470 | 22,020,359 | 46,104,071 | 19,559,669 | 90,974,467 | 488,640,036 |
| 1971 | 301,059,951 | 21,909,767 | 59,940,333 | 45,801,936 | 99,251,158 | 527,963,145 |
| 1972 | 372,032,770 | 25,764,120 | 66,745,698 | 66,030,210 | 105,644,978 | 636,217,776 |
| 1973 | 808,155,982 | 27,969,664 | 73,447,031 | 87,976,105 | 116,031,252 | 1,113,580,034 |
| Totals | 6,968,236,389 | 385,173,217 | 863,845,150 | 836,091,796 | 873,351,721 | 9,926,698,273 |

## Table 3—Mineral Production for the 10 Years, 1964–1973

| Description | 1964 | | 1965 | | 1966 | | 1967 | | 1968 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| ***Metals*** | | $ | | $ | | $ | | $ | | $ |
| Antimony lb. | 1,591,523 | 700,270 | 1,301,787 | 689,947 | 1,405,681 | 745,011 | 1,267,686 | 671,874 | 1,159,960 | 614,779 |
| Bismuth lb. | 213,428 | 480,213 | 144,630 | 446,907 | 47,435 | 198,848 | 142,507 | 572,878 | 207,783 | 868,533 |
| Cadmium lb. | 1,864,255 | 6,040,186 | 466,586 | 1,297,110 | 1,169,570 | 3,017,491 | 994,365 | 2,784,222 | 1,341,437 | 3,823,095 |
| Cobalt lb. | | | | | | | | | | |
| Copper lb. | 115,554,700 | 38,609,136 | 85,197,073 | 32,696,081 | 105,800,568 | 56,438,255 | 172,739,548 | 88,135,172 | 160,993,338 | 87,284,148 |
| Gold—placer oz. | 1,842 | 55,191 | 866 | 25,053 | 1,535 | 44,632 | 891 | 25,632 | 670 | 19,571 |
| lode, fine oz. | 138,487 | 5,227,884 | 117,124 | 4,419,089 | 119,508 | 4,506,646 | 126,157 | 4,763,688 | 123,896 | 4,672,242 |
| Iron concentrates tons | 2,002,562 | 20,419,487 | 2,165,403 | 21,498,581 | 2,151,804 | 20,778,934 | 2,154,443 | 20,820,765 | 2,094,745 | 21,437,569 |
| Lead lb. | 268,737,503 | 39,402,293 | 250,183,633 | 43,149,171 | 211,490,107 | 34,436,934 | 208,131,894 | 31,432,079 | 231,627,618 | 32,782,257 |
| Molybdenum lb. | 28,245 | 47,063 | 7,289,125 | 12,405,344 | 17,094,927 | 27,606,061 | 17,517,543 | 31,183,064 | 19,799,793 | 32,552,722 |
| Nickel lb. | 3,398,560 | 2,854,790 | 3,322,000 | 2,790,480 | 3,187,712 | 2,731,869 | 4,180,842 | 3,946,715 | 3,317,160 | 3,372,225 |
| Silver oz. | 5,269,642 | 7,348,938 | 4,972,084 | 6,929,793 | 5,549,131 | 7,729,939 | 6,180,739 | 10,328,695 | 7,130,866 | 16,475,795 |
| Tin lb. | 352,350 | 535,572 | 377,207 | 735,554 | 710,752 | 1,130,096 | 437,804 | 621,682 | 358,191 | 497,885 |
| Tungsten ($WO_3$) lb. | | | | | | | | | | |
| Zinc lb. | 400,796,562 | 58,648,561 | 311,249,250 | 48,666,933 | 305,124,440 | 47,666,540 | 262,830,908 | 39,248,539 | 299,396,264 | 43,550,181 |
| Others | | 556,745 | | 1,351,690 | | 1,632,747 | | 1,330,313 | | 2,961,024 |
| Totals | | 180,926,329 | | 177,101,733 | | 208,664,003 | | 235,865,318 | | 250,912,026 |
| ***Industrial Minerals*** | | | | | | | | | | |
| Asbestos tons | 67,460 | 11,714,494 | 85,851 | 14,491,195 | 88,771 | 15,718,741 | 92,192 | 18,273,220 | 74,667 | 14,833,891 |
| Fluxes (quartz, limestone) tons | 73,021 | 237,298 | 59,231 | 240,076 | 23,913 | 112,314 | 48,052 | 221,212 | 42,259 | 157,679 |
| Granules (quartz, limestone, granite) tons | 19,289 | 397,639 | 29,033 | 447,954 | 23,956 | 424,667 | 31,283 | 305,655 | 30,237 | 436,928 |
| Gypsum and gypsite tons | 188,303 | 581,873 | 207,858 | 602,788 | 206,026 | 576,873 | 230,044 | 691,592 | 246,374 | 689,847 |
| Jade lb. | 11,537 | 13,804 | 7,129 | 9,249 | 11,633 | 13,225 | 20,160 | 24,341 | 49,015 | 105,670 |
| Sulphur tons | 278,385 | 3,860,436 | 341,873 | 4,428,617 | 342,478 | 5,834,523 | 314,490 | 9,654,603 | 320,521 | 9,650,285 |
| Others | | 183,925 | | 189,770 | | 184,981 | | 193,442 | | 182,482 |
| Totals | | 16,989,469 | | 20,409,649 | | 22,865,324 | | 29,364,055 | | 26,056,782 |
| ***Structural Materials*** | | | | | | | | | | |
| Cement tons | 537,396 | 10,040,776 | 601,878 | 11,199,607 | 707,519 | 12,918,301 | 709,977 | 13,581,850 | 656,363 | 13,634,166 |
| Clay products | | 3,008,158 | | 3,899,634 | | 4,100,192 | | 3,945,207 | | 4,388,505 |
| Lime and limestone tons | 1,211,320 | 2,055,195 | 1,420,085 | 2,482,451 | 1,483,949 | 2,696,011 | 1,645,253 | 2,822,138 | 2,016,892 | 3,337,277 |
| Rubble, riprap, and crushed rock tons | 1,449,449 | 1,285,318 | 2,715,411 | 1,938,088 | 1,590,189 | 1,890,992 | 2,287,407 | 2,967,195 | 3,385,712 | 3,524,439 |
| Sand and gravel tons | 17,708,225 | 10,013,970 | 20,936,994 | 12,686,959 | 24,320,013 | 21,959,733 | 23,210,746 | 20,643,673 | 22,665,961 | 20,271,723 |
| Building-stone tons | 846 | 25,522 | 2,252 | 118,975 | 76,720 | 215,043 | 3,577 | 51,425 | 1,654 | 33,366 |
| Totals | | 26,428,939 | | 32,325,714 | | 43,780,272 | | 44,011,488 | | 45,189,476 |
| ***Coal*** | | | | | | | | | | |
| Sold and used tons | 911,326 | 6,327,678 | 950,763 | 6,713,590 | 850,821 | 6,196,219 | 908,790 | 7,045,341 | 959,214 | 7,588,989 |
| ***Petroleum and Natural Gas*** | | | | | | | | | | |
| Crude oil bbl. | 11,525,476 | 23,396,716 | 13,470,757 | 28,693,662 | 16,638,181 | 36,268,683 | 19,656,799 | 44,748,477 | 22,151,353 | 50,082,837 |
| Field condensate bbl. | 26,367 | 63,436 | 31,782 | 70,874 | 39,571 | 86,265 | 40,570 | 92,357 | 54,163 | 122,408 |
| Plant condensate bbl. | 922,211 | 587,685 | 947,429 | 576,107 | 974,564 | 312,360 | 1,016,045 | 267,941 | 960,252 | 247,455 |
| Natural gas delivered to pipe-line MSCF | 118,959,880 | 12,192,816 | 138,814,144 | 14,493,255 | 161,264,334 | 17,339,587 | 198,626,177 | 21,667,136 | 224,233,203 | 24,531,445 |
| Butane bbl. | 461,759 | 147,763 | 477,990 | 152,956 | 500,973 | 160,312 | 588,118 | 188,197 | 527,546 | 168,814 |
| Propane bbl. | 244,804 | 78,337 | 358,776 | 114,808 | 334,315 | 106,980 | 413,058 | 132,178 | 400,800 | 128,256 |
| Totals | | 36,466,753 | | 44,101,662 | | 54,274,187 | | 67,096,286 | | 75,281,215 |
| Grand totals | | 267,139,168 | | 280,652,348 | | 335,780,005 | | 383,382,498 | | 405,028,488 |

| Description | 1969 | | 1970 | | 1971 | | 1972 | | 1973 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| *Metals* | | $ | | $ | | $ | | $ | | $ |
| Antimony lb. | 820,122 | 508,476 | 726,474 | 1,104,040 | 323,525 | 243,614 | 679,601 | 419,042 | 1,660,331 | 1,192,118 |
| Bismuth lb. | 62,488 | 288,070 | 132,135 | 828,486 | 82,521 | 388,674 | 93,820 | 324,617 | 2,851 | 13,058 |
| Cadmium lb. | 1,141,133 | 4,016,788 | 939,310 | 3,343,944 | 1,036,713 | 2,011,223 | 695,650 | 1,759,995 | 810,779 | 2,951,236 |
| Cobalt lb. | | | | | 113,545 | 103,099 | 155,739 | 155,739 | 40,907 | 117,403 |
| Copper lb. | 167,415,411 | 111,592,416 | 212,371,731 | 124,657,958 | 280,619,150 | 131,037,918 | 467,012,694 | 209,403,822 | 714,648,946 | 594,830,904 |
| Gold—placer oz. | 399 | 11,720 | 491 | 14,185 | 177 | 4,647 | 691 | 26,905 | 3,831 | 311,524 |
| lode, fine oz. | 117,481 | 4,427,506 | 100,809 | 3,685,476 | 85,781 | 3,031,844 | 121,624 | 6,995,448 | 185,986 | 18,117,268 |
| Iron concentrates tons | 2,074,854 | 19,787,845 | 1,879,065 | 17,391,883 | 1,929,868 | 18,153,612 | 1,256,308 | 11,642,379 | 1,568,912 | 12,906,063 |
| Lead lb. | 210,072,565 | 33,693,539 | 214,838,525 | 35,096,021 | 248,827,301 | 34,711,408 | 194,249,571 | 28,896,566 | 186,680,656 | 30,400,945 |
| Molybdenum lb. | 26,597,477 | 47,999,442 | 31,276,497 | 52,561,796 | 21,884,729 | 36,954,846 | 28,041,603 | 43,260,349 | 30,390,928 | 52,260,232 |
| Nickel lb. | 2,979,130 | 3,396,208 | 3,408,203 | 4,703,320 | 2,543,578 | 3,497,420 | 3,240,483 | 4,601,486 | 2,467,472 | 3,775,232 |
| Silver oz. | 5,760,534 | 11,100,491 | 6,511,316 | 12,041,181 | 7,673,546 | 11,968,046 | 6,926,036 | 11,519,660 | 7,681,514 | 19,712,301 |
| Tin lb. | 288,427 | 470,136 | 263,716 | 421,946 | 318,999 | 421,079 | 351,043 | 473,908 | 304,727 | 597,265 |
| Tungsten ($WO_3$) lb. | | | | | 1,335,808 | 3,012,540 | 1,273,196 | 2,167,663 | 1,411,800 | 4,243,759 |
| Zinc lb. | 296,667,033 | 46,639,024 | 275,590,749 | 44,111,055 | 305,451,243 | 49,745,789 | 268,347,996 | 47,172,894 | 302,874,331 | 62,564,751 |
| Others | | 10,949,453 | | 10,020,179 | | 5,774,192 | | 3,212,297 | | 4,161,923 |
| Totals | | 294,881,114 | | 309,981,470 | | 301,059,951 | | 372,032,770 | | 808,155,982 |
| *Industrial Minerals* | | | | | | | | | | |
| Asbestos tons | 80,388 | 14,871,334 | 86,730 | 16,033,827 | 87,118 | 17,800,406 | 105,807 | 20,870,241 | 108,966 | 21,102,892 |
| Fluxes (quartz, limestone) tons | 22,342 | 81,917 | 31,626 | 106,533 | 26,740 | 98,426 | 31,600 | 59,246 | 46,228 | 106,371 |
| Granules (quartz, limestone, granite) tons | 34,746 | 654,701 | 22,349 | 526,491 | 29,238 | 519,192 | 37,158 | 757,924 | 34,321 | 857,643 |
| Gypsum and gypsite tons | 280,894 | 764,032 | 270,266 | 736,635 | 344,795 | 930,348 | 388,315 | 1,087,196 | 365,249 | 1,114,009 |
| Jade lb. | 26,332 | 42,635 | 262,602 | 250,256 | 167,760 | 196,332 | 243,725 | 235,218 | 154,251 | 306,808 |
| Sulphur tons | 349,122 | 3,824,593 | 336,420 | 3,957,542 | 288,467 | 2,147,778 | 297,707 | 2,306,933 | 316,035 | 4,187,387 |
| Others | | 253,731 | | 409,075 | | 217,285 | | 447,362 | | 294,554 |
| Totals | | 20,492,943 | | 22,020,359 | | 21,909,767 | | 25,764,120 | | 27,969,664 |
| *Structural Materials* | | | | | | | | | | |
| Cement tons | 795,591 | 16,604,688 | 601,893 | 13,485,549 | 906,467 | 21,629,385 | 890,926 | 21,014,112 | 950,772 | 24,935,624 |
| Clay products | | 4,550,546 | | 4,714,368 | | 5,981,785 | | 5,263,749 | | 5,590,290 |
| Lime and limestone tons | 1,911,881 | 3,237,032 | 1,867,586 | 3,204,076 | 1,819,549 | 3,037,222 | 2,026,309 | 3,357,927 | 2,153,936 | 3,633,870 |
| Rubble, riprap, and crushed rock tons | 3,756,559 | 4,456,211 | 2,692,282 | 3,018,242 | 3,668,244 | 3,670,583 | 3,321,764 | 4,032,548 | 2,843,010 | 4,160,009 |
| Sand and gravel tons | 29,132,560 | 26,553,699 | 23,155,989 | 21,679,387 | 29,320,104 | 25,612,396 | 34,826,518 | 33,076,196 | 33,898,934 | 35,119,590 |
| Building-stone tons | 2,177 | 39,352 | 175 | 2,449 | 2,267 | 8,962 | 194 | 1,166 | 204 | 7,648 |
| Totals | | 55,441,528 | | 46,104,071 | | 59,940,333 | | 66,745,698 | | 73,447,031 |
| *Coal* | | | | | | | | | | |
| Sold and used tons | 852,340 | 6,817,155 | 2,644,056 | 19,559,669 | 4,565,242 | 45,801,936 | 6,026,198 | 66,030,210 | 7,633,251 | 87,976,105 |
| *Petroleum and Natural Gas* | | | | | | | | | | |
| Crude oil bbl. | 25,309,036 | 58,176,213 | 25,333,550 | 60,405,941 | 25,154,122 | 66,471,856 | 23,831,144 | 63,166,717 | 21,189,758 | 68,306,032 |
| Field condensate bbl. | 78,147 | 180,520 | 107,254 | 277,829 | 109,008 | 287,781 | 104,531 | 277,059 | 126,509 | 407,807 |
| Plant condensate bbl. | 944,111 | 263,278 | 1,003,138 | 253,009 | 1,144,139 | 293,287 | 1,018,012 | 327,820 | 1,132,701 | 222,463 |
| Natural gas delivered to pipe-line MSCF | 256,223,244 | 27,897,585 | 272,554,221 | 29,804,411 | 291,188,481 | 31,946,372 | 379,969,499 | 41,616,824 | 427,586,208 | 46,688,912 |
| Butane bbl. | 417,540 | 133,613 | 308,664 | 98,772 | 318,195 | 101,822 | 340,904 | 106,533 | 685,936 | 212,640 |
| Propane bbl. | 327,501 | 104,800 | 420,327 | 134,505 | 468,876 | 150 040 | 480,047 | 150,015 | 623,866 | 193.398 |
| Totals | | 86,756,009 | | 90,974,467 | | 99,251,158 | | 105,644,978 | | 116,031,252 |
| Grand totals | | 464,388,749 | | 488,640,036 | | 527,963,145 | | 636,217,776 | | 1,113,580,034 |

*Table 4—Mineral Production, Graph of Value, 1887–1973*

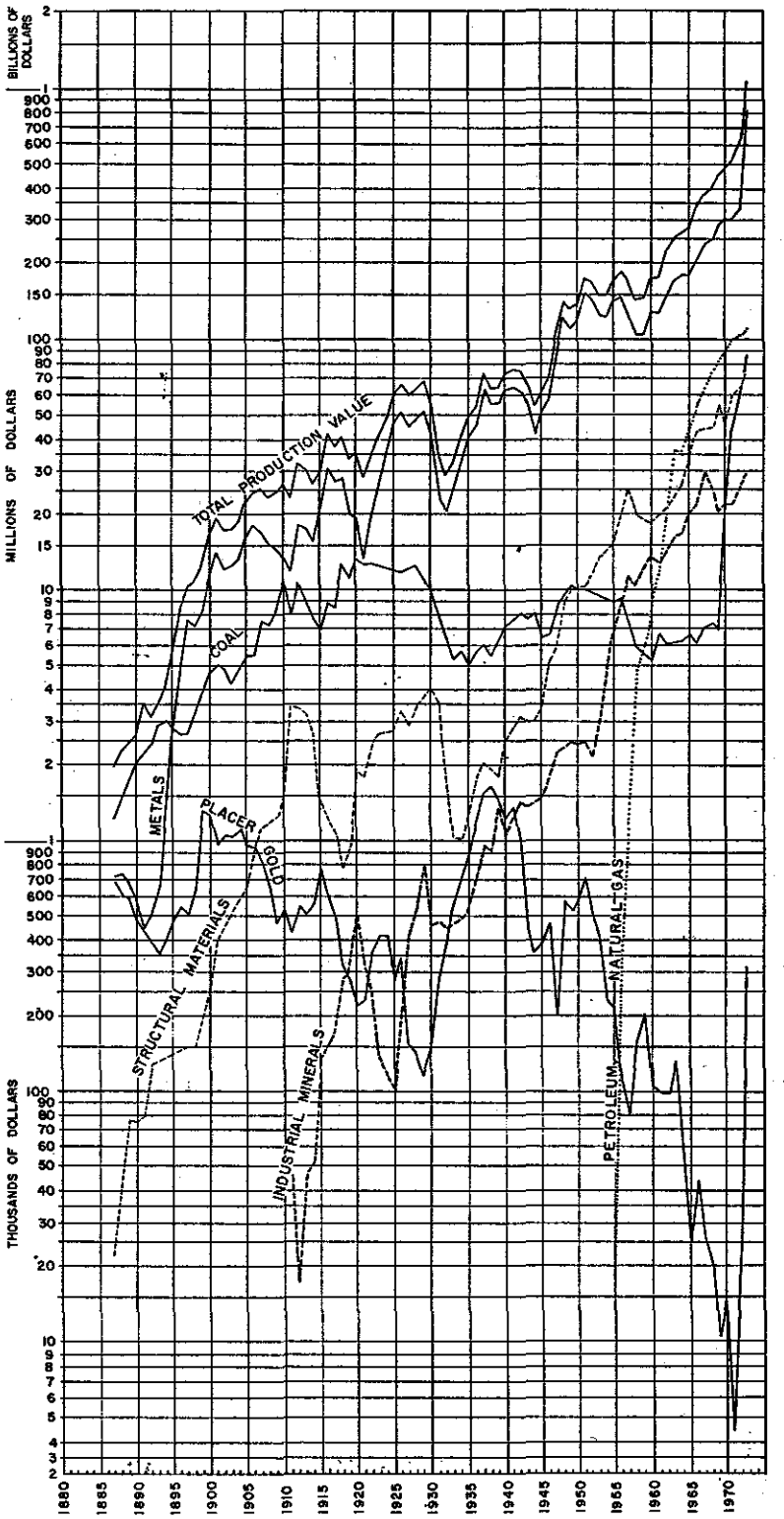


*Table 5—Production of Gold, Silver, Copper, Lead, Zinc, and Molybdenum, Graph of Quantities, 1893–1973*

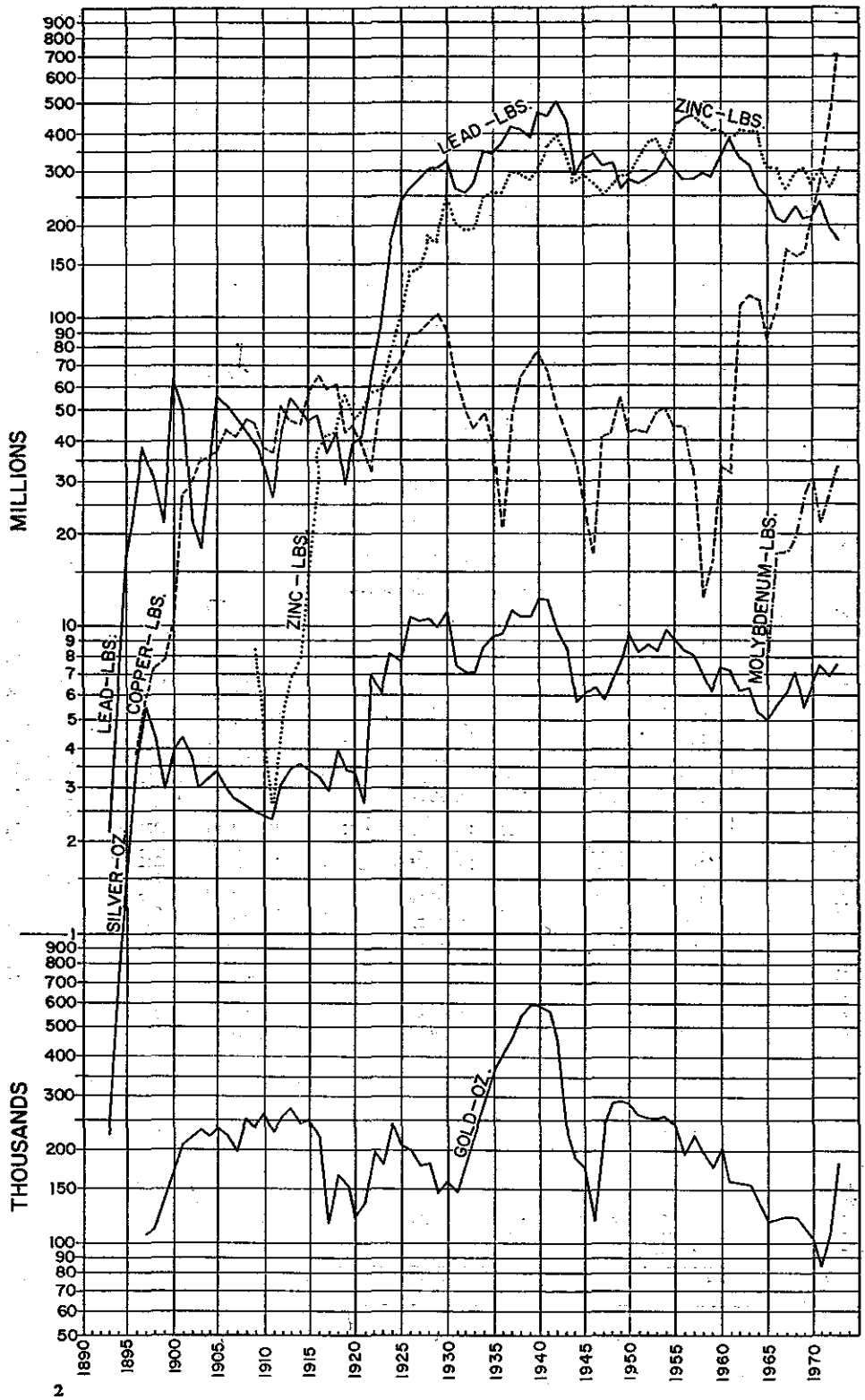


*Table 6—Production of Gold, Silver, Copper, Lead, Zinc, Molybdenum, and Iron Concentrates, 1858–1973*

| Year | Gold (Placer) | | Gold (Fine) | | Silver | | Copper | |
|---|---|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| | Oz. | $ | Oz. | $ | Oz. | $ | Lb. | $ |
| 1858–90 | 3,246,585 | 55,192,163 | | | 221,089 | 214,152 | | |
| 1891–1900 | 376,290 | 6,397,183 | 632,806 | 12,858,353 | 22,537,306 | 13,561,194 | 35,416,069 | 4,365,210 |
| 1901–10 | 507,580 | 8,628,660 | 2,322,118 | 47,998,179 | 31,222,548 | 16,973,507 | 379,957,091 | 56,384,783 |
| 1911 | 25,060 | 426,000 | 228,617 | 4,725,512 | 1,892,364 | 958,293 | 36,927,656 | 4,571,644 |
| 1912 | 32,680 | 555,500 | 257,496 | 5,322,442 | 3,132,108 | 1,810,045 | 51,456,537 | 8,408,513 |
| 1913 | 30,000 | 510,000 | 272,254 | 5,627,595 | 3,465,856 | 1,968,606 | 46,460,305 | 7,094,489 |
| 1914 | 33,240 | 565,000 | 247,170 | 5,109,008 | 3,602,180 | 1,876,736 | 45,009,699 | 6,121,319 |
| 1915 | 45,290 | 770,000 | 250,021 | 5,167,934 | 3,366,506 | 1,588,991 | 56,918,405 | 9,835,500 |
| 1916 | 34,150 | 580,500 | 221,932 | 4,587,333 | 3,301,923 | 2,059,739 | 65,379,364 | 17,784,494 |
| 1917 | 29,180 | 496,000 | 114,523 | 2,367,191 | 2,929,216 | 2,265,749 | 59,007,565 | 16,038,256 |
| 1918 | 18,820 | 320,000 | 164,674 | 3,403,811 | 3,498,172 | 3,215,870 | 61,483,754 | 15,143,449 |
| 1919 | 16,850 | 286,500 | 152,426 | 3,150,644 | 3,403,119 | 3,592,673 | 42,459,339 | 7,939,896 |
| 1920 | 13,040 | 221,600 | 120,048 | 2,481,392 | 3,377,849 | 3,235,980 | 44,887,676 | 7,832,899 |
| 1921 | 13,720 | 233,200 | 135,765 | 2,804,197 | 2,673,389 | 1,591,201 | 39,036,993 | 4,879,624 |
| 1922 | 21,690 | 368,800 | 197,856 | 4,089,684 | 7,101,311 | 4,554,781 | 32,359,896 | 4,329,754 |
| 1923 | 24,710 | 420,000 | 179,245 | 3,704,994 | 6,032,986 | 3,718,129 | 57,720,290 | 8,323,266 |
| 1924 | 24,750 | 420,750 | 247,716 | 5,120,535 | 8,341,768 | 5,292,184 | 64,845,393 | 8,442,870 |
| 1925 | 16,476 | 280,092 | 209,719 | 4,335,069 | 7,654,844 | 5,286,818 | 72,306,432 | 10,153,269 |
| 1926 | 20,912 | 355,503 | 201,427 | 4,163,859 | 10,748,556 | 6,675,606 | 89,339,768 | 12,324,421 |
| 1927 | 9,191 | 156,247 | 178,001 | 3,679,601 | 10,470,185 | 5,902,043 | 89,202,871 | 11,525,011 |
| 1928 | 8,424 | 143,208 | 180,662 | 3,734,609 | 10,627,167 | 6,182,461 | 97,908,316 | 14,265,242 |
| 1929 | 6,983 | 118,711 | 145,223 | 3,002,020 | 9,960,172 | 5,278,194 | 102,793,669 | 18,612,850 |
| 1930 | 8,955 | 152,235 | 160,836 | 3,324,975 | 11,328,263 | 4,322,185 | 92,362,240 | 11,990,466 |
| 1931 | 17,176 | 291,992 | 146,133 | 3,020,837 | 7,550,331 | 2,254,979 | 64,134,746 | 5,365,690 |
| 1932 | 20,400 | 395,542 | 181,651 | 4,263,389 | 7,150,655 | 2,264,729 | 50,608,036 | 3,228,892 |
| 1933 | 23,928 | 562,787 | 223,589 | 6,394,645 | 7,021,754 | 2,656,526 | 43,149,460 | 3,216,701 |
| 1934 | 25,181 | 714,431 | 297,216 | 10,253,952 | 8,613,977 | 4,088,280 | 49,651,733 | 3,683,662 |
| 1935 | 30,929 | 895,058 | 365,343 | 12,856,419 | 9,269,944 | 6,005,996 | 39,428,208 | 3,073,428 |
| 1936 | 43,389 | 1,249,940 | 404,578 | 14,172,367 | 9,547,124 | 4,308,330 | 21,671,711 | 2,053,828 |
| 1937 | 54,153 | 1,558,245 | 460,781 | 16,122,767 | 11,305,367 | 5,073,962 | 46,057,584 | 6,023,411 |
| 1938 | 57,759 | 1,671,015 | 557,522 | 19,613,624 | 10,861,578 | 4,722,288 | 65,769,906 | 6,558,575 |
| 1939 | 49,746 | 1,478,492 | 587,336 | 21,226,957 | 10,821,393 | 4,381,365 | 73,254,679 | 7,392,862 |
| 1940 | 39,067 | 1,236,928 | 583,524 | 22,461,516 | 12,327,944 | 4,715,315 | 77,980,223 | 7,865,085 |
| 1941 | 43,775 | 1,385,962 | 571,026 | 21,984,501 | 12,175,700 | 4,658,545 | 66,435,583 | 6,700,693 |
| 1942 | 32,904 | 1,041,772 | 444,518 | 17,113,943 | 9,677,881 | 4,080,775 | 50,097,716 | 5,052,856 |
| 1943 | 14,600 | 462,270 | 224,403 | 8,639,516 | 8,526,310 | 3,858,496 | 42,307,510 | 4,971,132 |
| 1944 | 11,433 | 361,977 | 186,632 | 7,185,332 | 5,705,334 | 2,453,293 | 36,300,589 | 4,356,070 |
| 1945 | 12,589 | 398,591 | 175,373 | 6,751,860 | 6,157,307 | 2,893,934 | 25,852,366 | 3,244,472 |
| 1946 | 15,729 | 475,361 | 117,612 | 4,322,241 | 6,365,761 | 5,324,959 | 17,500,538 | 2,240,070 |
| 1947 | 6,969 | 200,585 | 243,282 | 8,514,870 | 5,708,461 | 4,110,092 | 41,783,921 | 8,519,741 |
| 1948 | 20,332 | 585,200 | 286,230 | 10,018,050 | 6,720,134 | 5,040,101 | 43,025,388 | 9,616,174 |
| 1949 | 17,886 | 529,524 | 288,396 | 10,382,256 | 7,637,822 | 5,671,082 | 54,856,808 | 10,956,550 |
| 1950 | 19,134 | 598,717 | 283,983 | 10,805,553 | 9,509,456 | 7,667,950 | 42,212,133 | 9,889,458 |
| 1951 | 23,691 | 717,911 | 261,274 | 9,627,947 | 8,218,914 | 7,770,983 | 43,249,658 | 11,980,155 |
| 1952 | 17,554 | 494,756 | 255,789 | 8,765,889 | 8,810,807 | 7,326,803 | 42,005,512 | 13,054,893 |
| 1953 | 14,245 | 403,230 | 253,552 | 8,727,294 | 8,378,819 | 7,019,272 | 49,021,013 | 14,869,544 |
| 1954 | 8,684 | 238,967 | 258,388 | 8,803,279 | 9,826,403 | 8,154,145 | 50,150,087 | 14,599,693 |
| 1955 | 7,666 | 217,614 | 242,477 | 8,370,306 | 7,903,149 | 6,942,995 | 44,238,031 | 16,932,549 |
| 1956 | 3,865 | 109,450 | 191,743 | 6,603,628 | 8,405,074 | 7,511,866 | 43,360,575 | 17,251,872 |
| 1957 | 2,936 | 80,990 | 223,403 | 7,495,170 | 8,129,348 | 7,077,166 | 31,387,441 | 8,170,465 |
| 1958 | 5,650 | 157,871 | 194,354 | 6,604,149 | 7,041,058 | 6,086,854 | 12,658,649 | 2,964,529 |
| 1959 | 7,570 | 208,973 | 173,146 | 5,812,511 | 6,198,101 | 5,421,417 | 16,233,546 | 4,497,991 |
| 1960 | 3,847 | 107,418 | 205,580 | 6,979,441 | 7,446,643 | 6,600,183 | 33,064,429 | 9,583,724 |
| 1961 | 3,416 | 99,884 | 159,821 | 5,667,253 | 7,373,997 | 6,909,140 | 31,692,412 | 8,965,149 |
| 1962 | 3,315 | 96,697 | 158,850 | 5,942,101 | 6,189,804 | 7,181,907 | 108,979,144 | 33,209,215 |
| 1963 | 4,620 | 135,411 | 154,979 | 5,850,458 | 6,422,680 | 8,861,050 | 118,247,104 | 36,238,007 |
| 1964 | 1,842 | 55,191 | 138,487 | 5,227,884 | 5,269,642 | 7,348,938 | 115,554,700 | 38,609,136 |
| 1965 | 866 | 25,053 | 117,124 | 4,419,089 | 4,972,084 | 6,929,793 | 85,197,073 | 32,696,081 |
| 1966 | 1,535 | 44,632 | 119,508 | 4,506,646 | 5,549,131 | 7,729,939 | 105,800,568 | 56,438,255 |
| 1967 | 891 | 25,632 | 126,157 | 4,763,688 | 6,180,739 | 10,328,695 | 172,739,548 | 88,135,172 |
| 1968 | 670 | 19,571 | 123,896 | 4,672,242 | 7,130,866 | 16,475,795 | 160,993,338 | 87,284,148 |
| 1969 | 399 | 11,720 | 117,481 | 4,427,506 | 5,760,534 | 11,100,491 | 167,415,411 | 111,592,416 |
| 1970 | 491 | 14,185 | 100,809 | 3,685,476 | 6,511,316 | 12,041,181 | 212,371,731 | 124,657,958 |
| 1971 | 177 | 4,647 | 85,781 | 3,031,844 | 7,673,546 | 11,968,046 | 280,619,150 | 131,037,918 |
| 1972 | 691 | 26,905 | 121,624 | 6,995,448 | 6,926,036 | 11,519,660 | 467,012,694 | 209,403,822 |
| 1973 | 3,831 | 311,524 | 185,986 | 18,117,268 | 7,681,514 | 19,712,301 | 714,648,946 | 594,830,904 |
| Totals | 5,240,107 | 97,300,473 | 17,419,872 | 531,960,049 | 507,543,315 | 396,374,754 | 5,721,958,926 | 2,047,380,171 |

*Table 6—Production of Gold, Silver, Copper, Lead, Zinc, Molybdenum, and Iron Concentrates, 1858–1973*—Continued

| Year | Lead | | Zinc | | Molybdenum | | Iron Concentrates | |
|---|---|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| | Lb. | $ | Lb. | $ | Lb. | $ | Tons | $ |
| 1858–90 | 1,044,400 | 45,527 | | | | | 29,869 | 70,879 |
| 1891–1900 | 205,037,158 | 7,581,619 | | | | | 13,029 | 45,602 |
| 1901–10 | 407,833,262 | 17,033,102 | 12,684,192 | 894,169 | | | 19,553 | 68,436 |
| 1911 | 26,872,397 | 1,069,521 | 2,634,544 | 129,092 | | | | |
| 1912 | 44,871,454 | 1,805,627 | 5,358,280 | 316,139 | | | | |
| 1913 | 55,364,677 | 2,175,832 | 6,758,768 | 324,421 | | | | |
| 1914 | 50,625,048 | 1,771,877 | 7,866,467 | 346,125 | 1,987 | 662 | | |
| 1915 | 46,503,590 | 1,939,200 | 12,982,440 | 1,460,524 | 3,618 | 2,000 | | |
| 1916 | 48,727,516 | 3,007,462 | 37,168,980 | 4,043,985 | 12,342 | 20,560 | | |
| 1917 | 37,307,465 | 2,951,020 | 41,848,513 | 3,166,259 | 6,982 | 11,636 | | |
| 1918 | 43,899,661 | 2,928,107 | 41,772,916 | 2,899,040 | 960 | 1,840 | 1,000 | 5,000 |
| 1919 | 29,475,968 | 1,526,855 | 56,737,651 | 3,540,429 | | | 1,230 | 6,150 |
| 1920 | 39,331,218 | 2,816,115 | 47,208,268 | 3,077,979 | | | 1,472 | 7,360 |
| 1921 | 41,402,288 | 1,693,354 | 49,419,372 | 1,952,065 | | | 1,010 | 5,050 |
| 1922 | 67,447,985 | 3,480,306 | 57,146,548 | 2,777,322 | | | 1,200 | 3,600 |
| 1923 | 96,663,152 | 6,321,770 | 58,344,462 | 3,278,903 | | | 243 | 1,337 |
| 1924 | 170,384,481 | 12,415,917 | 79,130,970 | 4,266,741 | | | | |
| 1925 | 237,899,199 | 18,670,329 | 98,257,099 | 7,754,450 | | | | |
| 1926 | 263,023,936 | 17,757,535 | 142,876,947 | 10,586,610 | | | | |
| 1927 | 282,996,423 | 14,874,292 | 145,225,443 | 8,996,135 | | | | |
| 1928 | 305,140,792 | 13,961,412 | 181,763,147 | 9,984,613 | | | 20 | |
| 1929 | 307,999,153 | 15,555,189 | 172,096,841 | 9,268,792 | | | | |
| 1930 | 321,803,725 | 12,638,198 | 250,479,310 | 8,017,005 | | | | |
| 1931 | 264,902,228 | 7,097,812 | 202,071,702 | 5,160,911 | | | | |
| 1932 | 252,007,574 | 5,326,432 | 192,120,891 | 4,621,641 | | | | |
| 1933 | 271,689,217 | 6,497,719 | 195,963,751 | 6,291,416 | | | | |
| 1934 | 347,366,967 | 8,461,859 | 249,152,403 | 7,584,199 | | | | |
| 1935 | 344,268,444 | 10,785,930 | 256,239,446 | 7,940,860 | | | | |
| 1936 | 377,971,618 | 14,790,028 | 254,581,393 | 8,439,373 | | | | |
| 1937 | 419,118,371 | 21,417,049 | 291,192,278 | 14,274,245 | | | | |
| 1938 | 412,979,182 | 13,810,024 | 298,497,295 | 9,172,822 | | | | |
| 1939 | 378,743,663 | 12,002,390 | 278,409,102 | 8,544,375 | | | | |
| 1940 | 466,849,112 | 15,695,467 | 312,020,671 | 10,643,026 | | | | |
| 1941 | 456,840,454 | 15,358,976 | 367,869,579 | 12,548,031 | | | | |
| 1942 | 507,199,704 | 17,052,054 | 387,236,469 | 13,208,636 | | | | |
| 1943 | 439,155,635 | 16,485,902 | 336,150,455 | 13,446,018 | | | | |
| 1944 | 292,922,888 | 13,181,530 | 278,063,373 | 11,956,725 | | | | |
| 1945 | 336,976,468 | 16,848,823 | 294,791,635 | 18,984,581 | | | | |
| 1946 | 345,862,680 | 23,345,731 | 274,269,956 | 21,420,484 | | | | |
| 1947 | 313,733,089 | 42,887,313 | 253,006,168 | 28,412,593 | | | | |
| 1948 | 320,037,525 | 57,734,770 | 270,310,195 | 37,654,211 | | | 679 | 3,735 |
| 1949 | 265,378,899 | 41,929,866 | 288,225,368 | 38,181,214 | | | 5,472 | 27,579 |
| 1950 | 284,024,522 | 41,052,905 | 290,344,227 | 43,769,392 | | | | |
| 1951 | 273,456,604 | 50,316,015 | 337,511,324 | 67,164,754 | | | 113,535 | 790,000 |
| 1952 | 284,949,396 | 45,936,692 | 372,871,717 | 59,189,656 | | | 900,481 | 5,474,924 |
| 1953 | 297,634,712 | 39,481,244 | 382,300,862 | 40,810,618 | | | 991,248 | 6,763,105 |
| 1954 | 332,474,456 | 45,482,905 | 334,124,560 | 34,805,755 | | | 535,746 | 3,733,891 |
| 1955 | 392,567,640 | 45,161,245 | 429,198,565 | 52,048,909 | | | 610,930 | 3,228,756 |
| 1956 | 283,718,073 | 44,702,619 | 443,853,004 | 58,934,801 | | | 369,955 | 2,190,847 |
| 1957 | 281,603,346 | 39,568,086 | 449,276,797 | 50,206,681 | | | 357,342 | 2,200,637 |
| 1958 | 294,573,159 | 34,627,075 | 432,002,790 | 43,234,839 | | | 630,271 | 4,193,442 |
| 1959 | 287,423,357 | 33,542,306 | 402,342,850 | 44,169,198 | | | 849,248 | 6,363,848 |
| 1960 | 333,608,699 | 38,661,912 | 403,399,319 | 50,656,726 | 5,414 | 9,500 | 1,160,355 | 10,292,847 |
| 1961 | 384,284,524 | 42,313,569 | 387,951,190 | 45,370,891 | | | 1,335,068 | 12,082,540 |
| 1962 | 335,282,537 | 34,537,454 | 413,430,817 | 51,356,376 | | | 1,793,847 | 18,326,911 |
| 1963 | 314,974,310 | 37,834,714 | 402,863,154 | 53,069,163 | | | 2,060,241 | 20,746,424 |
| 1964 | 268,737,503 | 39,402,293 | 400,796,562 | 58,648,561 | 28,245 | 47,063 | 2,002,562 | 20,419,487 |
| 1965 | 250,183,633 | 43,149,171 | 311,249,250 | 48,666,933 | 7,289,125 | 12,405,344 | 2,165,403 | 21,498,581 |
| 1966 | 211,490,107 | 34,436,934 | 305,124,440 | 47,666,540 | 17,094,927 | 27,606,061 | 2,151,804 | 20,778,934 |
| 1967 | 208,131,894 | 31,432,079 | 262,830,908 | 39,248,539 | 17,517,543 | 31,183,064 | 2,154,443 | 20,820,765 |
| 1968 | 231,627,618 | 32,782,257 | 299,396,264 | 43,550,181 | 19,799,793 | 32,552,722 | 2,094,745 | 21,437,569 |
| 1969 | 210,072,565 | 33,693,539 | 296,667,033 | 46,639,024 | 26,597,477 | 47,999,442 | 2,074,854 | 19,787,845 |
| 1970 | 214,838,525 | 35,096,021 | 275,590,749 | 44,111,055 | 31,276,497 | 52,561,796 | 1,879,063 | 17,391,883 |
| 1971 | 248,827,301 | 34,711,408 | 305,451,243 | 49,745,789 | 21,884,729 | 36,954,846 | 1,929,868 | 18,153,612 |
| 1972 | 194,249,571 | 28,896,566 | 268,347,996 | 47,172,894 | 28,041,603 | 43,260,349 | 1,256,308 | 11,642,379 |
| 1973 | 186,680,656 | 30,400,945 | 302,874,331 | 62,564,751 | 30,390,928 | 52,260,232 | 1,568,912 | 12,906,063 |
| Totals | 16,458,073,374 | 1,441,949,395 | 15,297,732,440 | 1,549,368,185 | 199,952,170 | 336,877,117 | 31,061,008 | 281,470,018 |

*Table 7A—Mineral Production by Mining*

| Division | Period | Placer Gold | | Metals | Industrial Minerals | Structural Materials |
|---|---|---|---|---|---|---|
| | | Quantity | Value | | | |
| | | Oz. | $ | $ | $ | $ |
| Alberni | 1972 | | | 13,346,043 | | 258,026 |
| | 1973 | | | 21,420,321 | | 269,777 |
| | To date | 1,617 | 33,253 | 165,925,543 | 9,398 | 4,558,483 |
| Atlin | 1972 | 66 | 1,848 | 15 | | |
| | 1973 | | | | | |
| | To date | 735,880 | 17,390,960 | 38,047,207 | 20,325 | 338,241 |
| Cariboo | 1972 | 505 | 21,066 | 33,965,284 | 52,073 | 3,511,618 |
| | 1973 | | | 102,763,546 | 9,520 | 3,257,752 |
| | To date | 2,611,006 | 54,137,492 | 208,747,445 | 444,501 | 26,968,816 |
| Clinton | 1972 | | | | | 773,614 |
| | 1973 | | | | | 265,564 |
| | To date | 10,171 | 248,089 | 848,377 | 162,427 | 3,841,050 |
| Fort Steele | 1972 | | | 65,467,594 | 676,439 | 610,689 |
| | 1973 | | | 81,313,392 | 1,335,105 | 549,098 |
| | To date | 20,531 | 468,450 | 2,872,419,075 | 20,813,789 | 9,716,081 |
| Golden | 1972 | | | | 1,482,485 | 163,141 |
| | 1973 | | | 694,430 | 1,114,009 | 144,956 |
| | To date | 469 | 11,268 | 64,167,109 | 15,420,584 | 3,709,242 |
| Greenwood | 1972 | | | 6,605,315 | | 250,704 |
| | 1973 | | | 11,485,995 | | 140,114 |
| | To date | 5,074 | 115,662 | 206,299,338 | 2,327,897 | 2,326,772 |
| Kamloops | 1972 | | | 38,791,982 | | 5,166,348 |
| | 1973 | | | 150,640,027 | | 5,879,052 |
| | To date | 27,595 | 604,785 | 364,142,323 | 6,540,538 | 34,453,827 |
| Liard | 1972 | 112 | 3,732 | 15 | 21,182,310 | 1,289,689 |
| | 1973 | | | | 21,464,462 | 1,356,571 |
| | To date | 50,296 | 1,251,883 | 11,236,439 | 255,519,316 | 13,120,767 |
| Lillooet | 1972 | | | | 142,800 | 62,059 |
| | 1973 | | | | 7,200 | 87,709 |
| | To date | 92,946 | 1,925,688 | 148,167,256 | 473,095 | 8,336,572 |
| Nanaimo | 1972 | | | 43,036,964 | 141,336 | 4,252,048 |
| | 1973 | | | 102,999,184 | 137,979 | 5,072,086 |
| | To date | 866 | 19,360 | 358,164,229 | 1,952,731 | 73,580,160 |
| Nelson | 1972 | | | 7,075,391 | 506,465 | 642,903 |
| | 1973 | | | 15,124,539 | 719,592 | 723,622 |
| | To date | 3,586 | 89,026 | 369,459,051 | 2,938,020 | 8,200,039 |
| New Westminster | 1972 | | | 5,752,173 | 80,000 | 14,849,901 |
| | 1973 | | | 5,222,754 | | 18,729,144 |
| | To date | 31,355 | 595,910 | 60,678,684 | 1,611,625 | 193,669,556 |
| Nicola | 1972 | | | 21,296,539 | | 266,451 |
| | 1973 | | | 32,257,587 | | 130,386 |
| | To date | 234 | 4,764 | 257,317,089 | 10,050 | 2,044,800 |
| Omineca | 1972 | | | 34,330,377 | 88,729 | 1,096,719 |
| | 1973 | | | 96,240,750 | 295,101 | 311,027 |
| | To date | 56,481 | 1,503,680 | 384,286,322 | 744,008 | 13,632,995 |
| Osoyoos | 1972 | | | 33,895,691 | 89,159 | 718,952 |
| | 1973 | | | 48,486,539 | 73,978 | 402,232 |
| | To date | 240 | 5,466 | 189,656,377 | 6,586,660 | 4,220,830 |
| Revelstoke | 1972 | | | 1,029,821 | | 153,939 |
| | 1973 | | | 489,380 | | 308,698 |
| | To date | 7,582 | 164,477 | 15,450,737 | | 3,217,015 |
| Similkameen | 1972 | | | 9,975,651 | | 81,535 |
| | 1973 | | | 37,326,864 | | 90,986 |
| | To date | 45,507 | 878,204 | 167,500,715 | 18,558 | 4,322,904 |
| Skeena | 1972 | | | 33,266,658 | | 1,867,340 |
| | 1973 | | | 74,433,155 | | 1,401,043 |
| | To date | 4,603 | 105,569 | 468,816,186 | 1,240,215 | 18,802,453 |
| Slocan | 1972 | | | 1,798,497 | | 80,129 |
| | 1973 | | | 1,083,573 | | 238,592 |
| | To date | 866 | 9,897 | 275,855,150 | | 2,258,010 |
| Trail Creek | 1972 | | | 523,542 | | 270,434 |
| | 1973 | | | 61,209 | | 53,508 |
| | To date | 851 | 24,260 | 90,347,066 | | 3,649,127 |
| Vancouver | 1972 | | | 8,838,521 | | 10,010,701 |
| | 1973 | | | 12,495,830 | | 11,653,387 |
| | To date | 182 | 5,306 | 288,950,493 | 7,066,964 | 145,441,193 |
| Vernon | 1972 | | | | | 1,140,765 |
| | 1973 | | | 4,046 | 32,594 | 955,658 |
| | To date | 2,782 | 72,885 | 339,159 | 88,062 | 8,816,648 |
| Victoria | 1972 | | | 381,993 | 210 | 14,477,864 |
| | 1973 | | | 3,701,997 | 496 | 17,184,268 |
| | To date | 628 | 15,680 | 20,771,523 | 190,366 | 231,770,067 |
| Not assigned | 1972 | 8 | 259 | 12,628,099 | 1,822,114 | 4,755,129 |
| | 1973 | 3,831 | 311,524 | 9,074,535 | 2,780,533 | 3,336,803 |
| | To date | 1,529,359 | 17,574,039 | 343,042,973 | 60,993,788 | 47,849,507 |
| Totals | 1972 | 691 | 26,905 | 872,005,865 | 25,764,120 | 66,745,698 |
| | 1973 | 3,831 | 311,524 | 807,844,458 | 27,969,664 | 73,447,031 |
| | To date | 5,240,107 | 97,300,473 | 6,870,935,916 | 385,173,217 | 803,845,150 |

*Divisions, 1972 and 1973, and Total to Date*

| Coal | | Petroleum and Natural Gas | | | | | | Division Total |
|---|---|---|---|---|---|---|---|---|
| | | Crude Oil and Condensates | | Natural Gas Delivered to Pipe-line | | Butane and Propane | | |
| Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | |
| Tons | $ | Bbl. | $ | MSCF | $ | Bbl. | $ | $ |
| | | | | | | | | 13,599,069 |
| | | | | | | | | 21,690,098 |
| | | | | | | | | 170,526,677 |
| | | | | | | | | 1,863 |
| | | | | | | | | 55,796,733 |
| | | | | | | | | 37,550,041 |
| | | | | | | | | 106,030,826 |
| 290 | 1,100 | | | | | | | 290,349,654 |
| | | | | | | | | 773,614 |
| | | | | | | | | 265,564 |
| | | | | | | | | 5,094,923 |
| 6,014,035 | 65,909,040 | | | | | | | 132,663,762 |
| 7,632,983 | 87,872,689 | | | | | | | 171,670,984 |
| 80,812,437 | 500,010,387 | | | | | | | 2,903,427,782 |
| | | | | | | | | 1,645,626 |
| | | | | | | | | 1,953,395 |
| | | | | | | | | 83,308,203 |
| | | | | | | | | 6,856,019 |
| | | | | | | | | 11,626,112 |
| | | | | | | | | 211,169,669 |
| | | | | | | | | 43,958,330 |
| | | | | | | | | 156,519,079 |
| 15,087 | 59,765 | | | | | | | 405,801,238 |
| 11,687 | 116,870 | 24,953,687 | 63,771,606 | 379,969,499 | 41,616,824 | 820,951 | 256,548 | 128,237,594 |
| | | 22,448,968 | 68,936,302 | 427,586,208 | 46,688,912 | 1,309,802 | 406,038 | 138,852,285 |
| 111,120 | 816,391 | 244,246,418 | 556,941,819 | 2,990,984,716 | 312,820,618 | 11,276,699 | 3,589,284 | 1,155,296,517 |
| | | | | | | | | 204,859 |
| | | | | | | | | 94,909 |
| | | | | | | | | 153,902,611 |
| | | | | | | | | 47,430,348 |
| | | | | | | | | 108,202,649 |
| 74,324,471 | 301,144,744 | | | | | | | 735,161,264 |
| | | | | | | | | 8,224,759 |
| | | | | | | | | 16,567,753 |
| | | | | | | | | 380,686,136 |
| | | | | | | | | 20,682,074 |
| | | | | | | | | 23,951,898 |
| | | | | | | | | 256,555,775 |
| | | | | | | | | 21,562,990 |
| | | | | | | | | 32,387,973 |
| 2,929,584 | 11,080,836 | | | | | | | 270,357,539 |
| 476 | 4,300 | | | | | | | 35,520,125 |
| 268 | 3,216 | | | | | | | 97,350,084 |
| 502,204 | 3,419,724 | | | | | | | 403,586,729 |
| | | | | | | | | 34,703,502 |
| | | | | | | | | 48,962,449 |
| 1,122 | 5,008 | | | | | | | 200,474,341 |
| | | | | | | | | 1,183,760 |
| | | | | | | | | 798,078 |
| | | | | | | | | 18,832,229 |
| | | | | | | | | 10,057,186 |
| | | | | | | | | 37,417,850 |
| 4,617,442 | 19,553,725 | | | | | | | 192,274,106 |
| | | | | | | | | 35,133,998 |
| | | | | | | | | 76,284,198 |
| 36 | 116 | | | | | | | 488,964,489 |
| | | | | | | | | 1,878,626 |
| | | | | | | | | 1,302,465 |
| | | | | | | | | 278,122,557 |
| | | | | | | | | 793,976 |
| | | | | | | | | 114,715 |
| | | | | | | | | 94,020,453 |
| | | | | | | | | 18,849,222 |
| | | | | | | | | 24,154,217 |
| | | | | | | | | 441,463,956 |
| | | | | | | | | 1,140,765 |
| | | | | | | | | 992,288 |
| | | | | | | | | 9,316,749 |
| | | | | | | | | 14,860,067 |
| | | | | | | | | 20,886,760 |
| | | | | | | | | 252,747,636 |
| | | | | | | | | 18,705,601 |
| | | | | | | | | 15,503,395 |
| | | | | | | | | 469,460,307 |
| 6,026,198 | 66,030,210 | 24,953,687 | 63,771,606 | 379,969,499 | 41,616,824 | 820,951 | 256,548 | 636,217,776 |
| 7,633,251 | 87,976,105 | 22,448,968 | 68,936,302 | 427,586,208 | 46,688,912 | 1,309,802 | 406,038 | 1,113,580,034 |
| 163,813,793 | 836,091,796 | 244,246,418 | 556,941,819 | 2,990,984,716 | 312,820,618 | 11,276,699 | 3,589,284 | 9,926,698,273 |

## *Table 7B—Production of Lode Gold, Silver, Copper, Lead, and Zinc by Mining Divisions, 1972 and 1973, and Total to Date*

| Division | Period | Lode Gold | | Silver | | Copper | | Lead | | Zinc | | Division Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | |
| | | Oz. | $ | Oz. | $ | Lb. | $ | Lb. | $ | Lb. | $ | $ |
| Alberni | 1972 | 12,175 | 700,269 | 515,692 | 857,720 | 13,271,070 | 5,950,615 | 3,143,057 | 467,561 | 29,046,100 | 5,106,014 | 13,082,179 |
| | 1973 | 22,326 | 2,174,820 | 1,303,361 | 3,344,685 | 5,294,044 | 4,406,445 | 7,074,269 | 1,152,045 | 47,235,160 | 9,757,367 | 20,835,362 |
| | To date | 401,737 | 16,591,143 | 4,254,788 | 8,545,395 | 76,249,146 | 41,584,359 | 16,231,596 | 2,590,788 | 265,267,288 | 44,195,533 | 113,417,218 |
| Atlin | 1972 | | | 9 | 15 | | | | | | | 15 |
| | 1973 | | | | | | | | | | | |
| | To date | 344,197 | 12,126,732 | 3,377,136 | 2,895,683 | 24,777,661 | 8,160,266 | 23,765,211 | 3,437,907 | 91,067,749 | 10,864,497 | 37,485,085 |
| Cariboo | 1972 | | | 62 | 103 | 73,184,560 | 32,815,225 | | | | | 32,815,328 |
| | 1973 | | | 139 | 357 | 122,519,440 | 101,977,831 | 1,358 | 221 | 3 | 1 | 101,978,410 |
| | To date | 1,202,251 | 43,847,296 | 147,114 | 109,726 | 195,706,352 | 184,793,976 | 26,213 | 3,993 | 508 | 20 | 178,255,011 |
| Clinton | 1972 | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | |
| | To date | 23,390 | 827,328 | 31,586 | 14,237 | 57,548 | 5,905 | 193 | 7 | | | 847,477 |
| Fort Steele | 1972 | 1,200 | 69,020 | 3,153,902 | 5,245,695 | 4,269,661 | 1,914,473 | 183,121,753 | 27,241,192 | 165,704,460 | 29,129,187 | 63,599,567 |
| | 1973 | 2,270 | 221,125 | 3,175,239 | 8,148,298 | 7,069,838 | 5,884,509 | 173,174,162 | 28,201,413 | 181,498,373 | 37,492,118 | 79,947,463 |
| | To date | 11,171 | 531,786 | 246,532,655 | 185,373,587 | 11,368,091 | 7,805,175 | 13,816,109,774 | 1,171,516,300 | 10,426,288,538 | 965,515,799 | 2,330,742,647 |
| Golden | 1972 | | | | | | | | | | | |
| | 1973 | 49 | 4,773 | 94,183 | 241,892 | | | 1,319,922 | 214,950 | 1,028,619 | 212,482 | 673,897 |
| | To date | 360 | 14,698 | 4,418,892 | 4,108,795 | 1,171,455 | 367,261 | 257,421,116 | 25,828,108 | 832,850,211 | 32,666,809 | 62,985,761 |
| Greenwood | 1972 | 15,847 | 911,472 | 761,240 | 1,266,125 | 9,513,777 | 4,265,882 | 520,873 | 77,485 | 442,488 | 77,776 | 6,598,740 |
| | 1973 | 18,267 | 1,779,425 | 549,917 | 1,411,197 | 9,787,477 | 8,146,509 | 442,851 | 72,118 | 347,858 | 71,857 | 11,481,106 |
| | To date | 1,356,004 | 34,025,690 | 42,859,014 | 35,424,494 | 570,243,211 | 131,914,942 | 24,639,703 | 2,516,899 | 24,186,153 | 2,321,667 | 206,203,692 |
| Kamloops | 1972 | 1,776 | 102,150 | 309,449 | 514,688 | 85,136,686 | 38,174,439 | 2,968 | 442 | 736 | 129 | 38,791,848 |
| | 1973 | 763 | 74,325 | 595,571 | 1,528,354 | 172,787,350 | 143,817,823 | 17,104 | 2,785 | 10,908 | 2,253 | 145,425,540 |
| | To date | 67,264 | 2,418,198 | 2,436,391 | 4,339,615 | 596,083,092 | 351,849,299 | 558,169 | 48,257 | 449,667 | 32,208 | 358,687,577 |
| Liard | 1972 | | | 9 | 15 | | | | | | | 15 |
| | 1973 | | | | | | | | | | | |
| | To date | 114 | 4,120 | 1,087 | 1,416 | 21,835,659 | 11,227,802 | 16,375 | 2,736 | 1,773 | 286 | 11,236,360 |
| Lillooet | 1972 | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | |
| | To date | 4,185,568 | 147,358,931 | 987,067 | 719,635 | 400 | 41 | 62,513 | 2,548 | 15 | 2 | 148,081,157 |
| Nanaimo | 1972 | 44,458 | 2,557,091 | 268,327 | 440,291 | 76,965,707 | 34,510,654 | | | | | 37,514,036 |
| | 1973 | 52,652 | 5,128,937 | 328,904 | 844,034 | 110,619,575 | 92,073,097 | | | | | 98,046,068 |
| | To date | 331,284 | 15,219,313 | 2,385,899 | 3,507,475 | 352,187,394 | 196,510,952 | | | | | 215,237,740 |
| Nelson | 1972 | | | 279,126 | 464,254 | | | 1,532,786 | 228,017 | 21,192,454 | 3,725,421 | 4,417,692 |
| | 1973 | 238 | 23,184 | 198,121 | 508,418 | | | 10,478,335 | 1,706,397 | 37,269,679 | 7,698,798 | 9,936,797 |
| | To date | 1,341,520 | 42,022,311 | 10,297,842 | 8,494,561 | 14,015,405 | 1,689,196 | 510,336,386 | 65,286,532 | 1,403,687,074 | 190,065,337 | 307,557,937 |
| New Westminster | 1972 | | | | | 2,218,935 | 994,948 | | | | | 994,948 |
| | 1973 | | | | | 1,598,048 | 1,330,119 | | | | | 1,330,119 |
| | To date | 4,472 | 114,376 | 15,119 | 7,729 | 23,874,799 | 10,831,390 | 28,425 | 1,119 | 12,755 | 481 | 10,955,095 |
| Nicola | 1972 | | | | | 46,064,025 | 20,654,649 | | | | | 20,654,649 |
| | 1973 | | | | | 37,954,633 | 31,591,159 | | | | | 31,591,159 |
| | To date | 9,931 | 285,301 | 276,458 | 135,632 | 547,721,236 | 254,762,002 | 2,241,499 | 91,282 | 323,889 | 10,977 | 255,285,284 |
| Omineca | 1972 | 17,118 | 984,576 | 262,542 | 436,070 | 31,154,210 | 13,969,236 | 279,042 | 41,510 | 2,352,634 | 413,570 | 15,845,562 |
| | 1973 | 43,500 | 4,237,422 | 483,283 | 1,240,227 | 76,801,795 | 63,925,156 | 156,686 | 25,516 | 7,854,926 | 1,622,592 | 71,050,913 |
| | To date | 151,052 | 8,423,233 | 11,113,622 | 10,744,167 | 282,424,141 | 144,854,282 | 29,861,040 | 3,882,527 | 43,089,803 | 6,144,950 | 173,999,159 |

| | | Oz. | $ | Oz. | $ | Lb. | $ | Lb. | $ | Lb. | $ | $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Osoyoos | 1972 | 4,270 | 245,598 | 280,779 | 467,003 | 32,742,731 | 14,681,513 | | | | | 15,394,114 |
| | 1973 | 3,791 | 369,289 | 260,073 | 667,399 | 33,466,245 | 27,855,294 | 14,181 | 2,309 | 3,799 | 785 | 28,895,076 |
| | To date | 1,677,166 | 51,417,099 | 3,805,269 | 6,818,433 | 130,554,061 | 74,709,223 | 553,992 | 69,415 | 242,769 | 35,582 | 133,049,752 |
| Revelstoke | 1972 | | | | | | | | | | | |
| | 1973 | 69 | 6,721 | 9,539 | 24,464 | | | 28,647 | 4,665 | 12,987 | 2,683 | 38,533 |
| | To date | 37,369 | 1,075,981 | 4,118,830 | 2,793,627 | 153,686 | 51,037 | 36,106,249 | 3,862,697 | 27,140,063 | 3,314,578 | 11,097,020 |
| Similkameen | 1972 | 14,482 | 832,961 | 64,274 | 106,903 | 20,151,625 | 9,035,787 | | | | | 9,975,651 |
| | 1973 | 29,055 | 2,830,306 | 131,925 | 338,546 | 41,038,168 | 34,157,709 | 1,538 | 250 | 257 | 53 | 37,326,864 |
| | To date | 227,554 | 9,990,715 | 4,416,308 | 3,028,940 | 662,387,431 | 154,331,479 | 393,637 | 15,137 | 80,455 | 5,258 | 167,371,529 |
| Skeena | 1972 | 9,166 | 527,201 | 505,476 | 840,728 | 52,025,093 | 23,327,531 | | | | | 24,695,460 |
| | 1973 | 14,014 | 1,365,132 | 746,841 | 1,916,543 | 75,809,249 | 62,932,602 | 2,342 | 381 | 619 | 128 | 66,214,786 |
| | To date | 2,477,605 | 64,352,700 | 71,425,779 | 49,200,181 | 912,424,849 | 235,283,208 | 60,003,590 | 5,438,734 | 17,198,939 | 2,541,781 | 356,796,554 |
| Slocan | 1972 | 21 | 1,208 | 452,929 | 753,330 | | | 3,099,790 | 461,125 | 3,071,882 | 540,006 | 1,755,669 |
| | 1973 | 13 | 1,753 | 209,018 | 536,882 | | | 1,537,493 | 250,381 | 1,215,407 | 251,067 | 1,039,583 |
| | To date | 17,216 | 510,021 | 78,098,536 | 56,349,959 | 13,662 | 1,861 | 1,128,518,785 | 107,197,585 | 951,819,358 | 106,030,165 | 270,089,541 |
| Trail Creek | 1972 | 13 | 748 | 752 | 1,251 | | | 2,882 | 429 | 8,618 | 1,515 | 3,943 |
| | 1973 | 280 | 28,249 | 7,425 | 19,062 | | | 21,283 | 3,466 | 50,502 | 10,432 | 61,209 |
| | To date | 2,985,246 | 63,383,378 | 3,681,497 | 2,123,385 | 122,561,782 | 18,245,404 | 172,952 | 16,523 | 193,546 | 28,318 | 83,797,003 |
| Vancouver | 1972 | 50 | 2,876 | 95,314 | 158,530 | 19,351,713 | 8,677,115 | | | | | 8,838,521 |
| | 1973 | | | 100,855 | 258,814 | 14,701,944 | 12,237,016 | | | | | 12,496,830 |
| | To date | 499,482 | 16,195,495 | 5,544,990 | 4,167,104 | 1,107,307,356 | 234,527,969 | 18,570,027 | 1,883,516 | 238,340,360 | 30,973,086 | 287,747,170 |
| Vernon | 1972 | | | | | | | | | | | |
| | 1973 | 21 | 2,046 | 673 | 1,727 | | | 1,304 | 212 | 293 | 61 | 4,046 |
| | To date | 5,304 | 180,309 | 65,011 | 114,727 | 654 | 100 | 164,186 | 24,557 | 66,421 | 9,434 | 329,127 |
| Victoria | 1972 | 92 | 5,292 | 2,175 | 3,618 | 832,050 | 375,083 | | | | | 381,993 |
| | 1973 | 943 | 91,860 | 10,015 | 25,700 | 4,306,458 | 3,584,437 | | | | | 3,701,997 |
| | To date | 43,155 | 1,077,685 | 935,397 | 604,882 | 61,105,053 | 18,749,748 | 210,097 | 19,848 | 3,568,709 | 283,923 | 20,736,086 |
| Not assigned[1] | 1972 | 956 | 54,986 | (26,021) | (43,279) | 130,851 | 58,672 | 2,546,420 | 378,805 | 46,528,674 | 8,179,276 | 8,628,460 |
| | 1973 | (2,280) | (222,099) | (523,575) | (1,343,598) | 1,094,742 | 911,198 | (7,590,819) | (1,236,164) | 26,344,941 | 5,442,074 | 3,551,411 |
| | To date | 19,460 | 406,120 | 6,316,183 | 6,751,419 | 56,834,852 | 15,143,294 | 532,081,646 | 48,352,340 | 1,471,855,797 | 154,327,499 | 225,040,672 |
| Totals | 1972 | 121,624 | 6,995,468 | 6,926,036 | 11,519,660 | 467,012,694 | 209,403,822 | 194,249,571 | 28,896,566 | 268,847,996 | 47,172,894 | 303,988,390 |
| | 1973 | 185,986 | 18,117,268 | 7,681,514 | 19,712,301 | 714,648,946 | 594,830,904 | 186,680,656 | 30,400,945 | 302,874,331 | 62,564,751 | 725,626,169 |
| | To date | 17,419,872 | 531,060,049 | 507,543,315 | 396,374,754 | 5,721,958,926 | 2,047,380,171 | 16,458,073,374 | 1,441,949,395 | 15,297,732,440 | 1,549,368,185 | 5,967,032,554 |

[1] Metals recovered from operations at the Trail smelter but not assigned to individual mines. The minus quantities for gold, silver, and lead are bookkeeping adjustments between the Trail smelter input and output.

## *Table 7C—Production of Miscellaneous Metals by Mining Divisions, 1972 and 1973, and Total to Date*

| Division | Period | Antimony | | Bismuth | | Cadmium | | Chromite | | Iron *Concentrates* | | Manganese | | Mercury[1] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| | | Lb. | $ | Lb. | $ | Lb. | $ | Tons | $ | Tons | $ | Tons | $ | Lb. | $ |
| Alberni | 1972 | | | | | 104,294 | 263,864 | | | | | | | | |
| | 1973 | | | | | 160,703 | 584,959 | | | | | | | | |
| | To date | | | | | 944,894 | 2,873,614 | | | 4,732,817 | 49,634,711 | | | | |
| Atlin | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | 319,212 | 561,762 | | | | | | | | |
| Cariboo | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | |
| Clinton | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | 126 | 900 | | | | | | |
| Fort Steele | 1972 | | | | | 849,707 | 884,759 | | | 44,408 | 509,360 | | | | |
| | 1973 | | | | | 386,023 | 1,405,124 | | | 14,397 | 106,970 | | | | |
| | To date | | | | | 8,399,595 | 10,064,486 | | | 1,365,280 | 14,075,196 | | | | |
| Golden | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | 5,641 | 20,533 | | | | | | | | |
| | To date | 40,062 | 14,906 | | | 561,476 | 1,166,442 | | | | | | | | |
| Greenwood | 1972 | | | | | 2,599 | 6,575 | | | | | | | | |
| | 1973 | | | | | 1,344 | 4,892 | | | | | | | | |
| | To date | | | | | 76,492 | 164,251 | 670 | 31,395 | | | | | | |
| Kamloops | 1972 | | | | | 53 | 134 | | | | | | | | |
| | 1973 | | | | | 65 | 237 | | | | | | | | |
| | To date | | | | | 118 | 371 | | | 21,167 | 95,851 | | | 10,987 | 5,795 |
| Laird | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | |
| Lillooet | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | 13,466 | 4,321 | | | | | | | | | | | 9,231 | 41,304 |
| Nanaimo | 1972 | | | | | | | | | 532,202 | 5,140,879 | | | | |
| | 1973 | | | | | | | | | 520,022 | 3,864,296 | | | | |
| | To date | | | | | | | | | 16,421,326 | 141,761,720 | | | | |
| Nelson | 1972 | | | | | 193,690 | 490,036 | | | | | | | | |
| | 1973 | | | | | 259,336 | 943,983 | | | | | | | | |
| | To date | | | | | 8,486,003 | 18,558,463 | | | | | | | | |
| New Westminster | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | |
| Nicola | 1972 | | | | | | | | | 89,066 | 641,890 | | | | |
| | 1973 | | | | | | | | | 38,799 | 666,428 | | | | |
| | To date | | | | | | | | | 119,240 | 1,031,805 | | | | |
| Omineca | 1972 | | | | | 11,118 | 28,116 | | | | | | | | |
| | 1973 | | | | | 14,869 | 54,123 | | | | | | | | |
| | To date | 118,382 | 21,882 | | | 297,724 | 627,016 | | | | | | | 4,150,892 | 10,400,259 |

| | | Lb. | $ | Lb. | $ | Lb. | $ | Tons | $ | Tons | $ | Tons | $ | Lb. | $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Osoyoos | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | 16 | | | |
| Revelstoke | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | 9,394 | 3,455 | | | 103,612 | 176,102 | | | | | | | | |
| Similkameen | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | |
| Skeena | 1972 | | | | | | | | | 640,632 | 5,350,250 | | | | |
| | 1973 | | | | | | | | | 895,684 | 8,268,369 | | | | |
| | To date | | | | | 141,890 | 316,764 | | | 8,400,628 | 73,968,810 | | | | |
| Slocan | 1972 | | | | | 16,928 | 42,828 | | | | | | | | |
| | 1973 | | | | | 6,673 | 24,290 | | | | | | | | |
| | To date | 31,865 | 8,133 | | | 2,694,940 | 5,749,316 | | | | | 541 | 8,160 | | |
| Trail Creek | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | 115 | 210 | | | 550 | 1,925 | | | | |
| Vancouver | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | 566,006 | 1,203,328 | | | | | | | | |
| Vernon | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | 190 | 532 | | | | | | | | |
| Victoria | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | 7,000 | 10,929 | | | | | 1,167 | 24,508 | | |
| Not assigned[2] | 1972 | 679,601 | 419,042 | 93,820 | 324,617 | 17,266 | 43,683 | | | | | | | | |
| | 1973 | 1,660,331 | 1,192,118 | 2,851 | 13,058 | (23,875) | (86,905) | | | | | | | | |
| | To date | 55,016,670 | 18,683,290 | 6,925,647 | 14,476,457 | 24,365,386 | 37,576,342 | | | | | | | | |
| Totals | 1972 | 679,601 | 419,042 | 93,820 | 324,617 | 695,650 | 1,759,995 | | | 1,256,308 | 11,642,379 | | | | |
| | 1973 | 1,660,331 | 1,192,118 | 2,851 | 13,058 | 810,779 | 2,951,236 | | | 1,568,912 | 12,906,063 | | | | |
| | To date | 55,229,839 | 18,735,987 | 6,925,647 | 14,476,457 | 41,964,653 | 79,049,923 | 796 | 32,295 | 31,061,008 | 281,470,018 | 1,724 | 32,668 | 4,171,110 | 10,447,358 |

[1] From 1968, excludes production which is confidential.
[2] Metals recovered from operations at Trail smelter but not assigned to individual mines.

*Table 7C—Production of Miscellaneous Metals by Mining Divisions, 1972 and 1973, and Total to Date*—Continued

| Division | Period | Molybdenum | | Nickel | | Palladium | | Platinum | | Tin | | Tungsten ($WO_3$) | | Other, Value | Division Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | | |
| | | Lb. | $ | Lb. | $ | Oz. | $ | Oz. | $ | Lb. | $ | Lb. | $ | $ | $ |
| Alberni | 1972 | | | | | | | | | | | | | | 263,864 |
| | 1973 | | | | | | | | | | | | | | 534,959 |
| | To date | | | | | | | | | | | | | | 52,508,325 |
| Atlin | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | 292 | 360 | | 562,122 |
| Cariboo | 1972 | 665,350 | 1,149,956 | | | | | | | | | | | | 1,149,956 |
| | 1973 | 493,535 | 785,138 | | | | | | | | | | | | 785,138 |
| | To date | 18,026,525 | 30,468,704 | | | | | 59 | 2,299 | | | 27,698 | 21,431 | | 30,492,434 |
| Clinton | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | 900 |
| Fort Steele | 1972 | | | | | | | | | 351,043 | 473,008 | | | | 1,868,027 |
| | 1973 | | | | | | | | | 180,783 | 354,335 | | | | 1,866,429 |
| | To date | | | | | | | | | 19,035,808 | 17,448,562 | | | 88,1841 | 41,670,428 |
| Golden | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | 20,533 |
| | To date | | | | | | | | | | | | | | 1,181,348 |
| Greenwood | 1972 | | | | | | | | | | | | | | 6,575 |
| | 1973 | | | | | | | | | | | | | | 4,892 |
| | To date | | | | | | | | | | | | | | 195,646 |
| Kamloops | 1972 | | | | | | | | | | | | | | 134 |
| | 1973 | 3,385,000 | 5,214,250 | | | | | | | | | | | | 5,214,487 |
| | To date | 3,478,995 | 5,352,729 | | | | | | | | | | | | 5,454,746 |
| Liard | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | 2 | 79 | | | | | | 79 |
| Lillooet | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | 1,469 | 2,440 | | | | | 3 | 113 | | | 32,353 | 37,921 | | 86,009 |
| Nanaimo | 1972 | 345,334 | 382,040 | | | | | | | | | | | | 5,522,028 |
| | 1973 | 970,500 | 1,082,320 | | | | | | | | | | | | 4,947,116 |
| | To date | 1,315,834 | 1,464,869 | | | | | | | | | | | | 148,226,589 |
| Nelson | 1972 | | | | | | | | | | | 1,273,196 | 2,167,663 | | 2,657,699 |
| | 1973 | | | | | | | | | | | 1,411,800 | 4,243,759 | | 5,187,742 |
| | To date | 15,035 | 18,378 | | | | | | | | | 17,760,743 | 43,324,273 | | 61,901,114 |
| New Westminster | 1972 | | | 3,240,483 | 4,601,486 | | | | | | | | | 155,7392 | 4,757,225 |
| | 1973 | | | 2,467,472 | 3,775,232 | | | | | | | | | 117,4032 | 3,892,635 |
| | To date | | | 49,033,039 | 49,347,348 | | | | | | | | | 376,2412 | 49,723,589 |
| Nicola | 1972 | | | | | | | | | | | | | | 641,890 |
| | 1973 | | | | | | | | | | | | | | 666,428 |
| | To date | | | | | | | | | | | | | | 1,931,805 |
| Omineca | 1972 | 10,950,264 | 18,456,699 | | | | | | | | | | | | 18,484,815 |
| | 1973 | 14,134,510 | 25,135,714 | | | | | | | | | | | | 25,189,837 |
| | To date | 112,047,622 | 194,539,722 | | | | | 8 | 154 | | | 2,210,892 | 4,697,710 | 4202 | 210,287,163 |

| | | Lb. | $ | Lb. | $ | Oz. | $ | Oz. | $ | Lb. | $ | Lb. | $ | $ | $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Osoyoos | 1972 | 13,399,770 | 18,501,277 | | | | | | | | | | | | 18,501,277 |
| | 1973 | 11,105,812 | 19,591,483 | | | | | | | | | | | | 19,591,483 |
| | To date | 35,707,414 | 56,606,625 | | | | | | | | | | | | 56,606,625 |
| Revelstoke | 1972 | 698,268 | 1,029,821 | | | | | | | | | | | | 1,029,821 |
| | 1973 | 301,471 | 450,847 | | | | | | | | | | | | 450,847 |
| | To date | 2,625,088 | 4,167,573 | | | | | | | | | 7,784 | 5,687 | | 4,852,817 |
| Similkameen | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | 1,287 | 129,186 | | | | | | 129,186 |
| Skeena | 1972 | 1,680,025 | 3,220,948 | | | | | | | | | | | | 3,571,198 |
| | 1973 | | | | | | | | | | | | | | 3,268,369 |
| | To date | 23,084,581 | 37,732,288 | | | | | | | | | 366 | 331 | 1,389$ | 112,019,582 |
| Slocan | 1972 | | | | | | | | | | | | | | 42,828 |
| | 1973 | | | | | | | | | | | | | | 24,290 |
| | To date | | | | | | | | | | | | | | 5,765,609 |
| Trail Creek | 1972 | 302,592 | 519,599 | | | | | | | | | | | | 519,599 |
| | 1973 | | | | | | | | | | | | | | |
| | To date | 3,644,193 | 6,514,289 | | | 749 | 30,462 | 53 | 3,177 | | | | | | 6,550,068 |
| Vancouver | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | 1,208,328 |
| Vernon | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | 5,414 | 9,500 | | | | | | | | | | | | 10,032 |
| Victoria | 1972 | | | | | | | | | | | | | | |
| | 1973 | | | | | | | | | | | | | | |
| | To date | | | | | | | | | | | | | | 35,487 |
| Not assigned | 1972 | | | | | | | | | | | | | 3,212,297 | 3,999,639 |
| | 1973 | | | | | | | | | 123,944 | 242,930 | | | 4,161,923 | 5,529,124 |
| | To date | | | | | | | | | 123,944 | 242,930 | | | 47,028,282 | 118,002,301 |
| Totals | 1972 | 28,041,603 | 43,260,349 | 3,240,483 | 4,601,486 | | | | | 851,043 | 473,908 | 1,278,196 | 2,167,663 | 3,366,086 | 68,017,475 |
| | 1973 | 30,390,928 | 52,260,232 | 2,467,472 | 3,775,232 | | | | | 304,727 | 597,265 | 1,411,800 | 4,243,759 | 4,279,326 | 82,218,289 |
| | To date | 199,952,170 | 336,877,117 | 49,933,039 | 49,347,348 | 749 | 30,462 | 1,407 | 135,008 | 19,159,752 | 17,691,492 | 20,040,128 | 48,087,713 | 47,489,516 | 903,903,362 |

[1] Magnesium, page A 21.
[2] Cobalt, page A 17.
[3] Selenium, page A 24.

*Table 7D—Production of Industrial Minerals by*

| Division | Period | Asbestos | | Barite[1] | | Diatomite | | Fluxes (Quartz and Limestone) | | Granules (Quartz, Limestone, and Granite) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| | | Tons | $ | Tons | $ | Tons | $ | Tons | $ | Tons | $ |
| Alberni | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Atlin | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Cariboo | 1972 | | | | | 1,475 | 52,073 | | | | |
| | 1973 | | | | | 565 | 9,526 | | | | |
| | To date | | | | | 12,308 | 201,321 | | | 48 | 168 |
| Clinton | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Fort Steele | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | 8 | 80 | | | | | | |
| Golden | 1972 | | | 44,237 | 395,289 | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | 439,150 | 4,489,227 | | | 3,259 | 12,612 | | |
| Greenwood | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | 1,790,502 | 1,540,319 | 200 | 4,000 |
| Kamloops | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | 625 | 12,230 |
| Liard | 1972 | 105,807 | 20,870,241 | | | | | | | | |
| | 1973 | 108,966 | 21,102,892 | | | | | | | | |
| | To date | 1,227,098 | 239,205,584 | | | | | | | | |
| Lillooet | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Nanaimo | 1972 | | | | | | | 31,579 | 59,036 | 3,800 | 82,300 |
| | 1973 | | | | | | | 42,986 | 75,476 | 3,068 | 61,903 |
| | To date | | | | | | | 980,436 | 1,495,629 | 25,877 | 457,102 |
| Nelson | 1972 | | | | | | | | | 18,747 | 506,465 |
| | 1973 | | | | | | | | | 26,799 | 719,592 |
| | To date | | | | | | | 7,601 | 8,174 | 109,435 | 2,873,945 |
| New Westminster | 1972 | | | | | | | | | 3,706 | 80,000 |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | 109,669 | 1,611,625 |
| Nicola | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Omineca | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | 3 | 286 |
| | To date | | | | | | | | | 3 | 286 |
| Osoyoos | 1972 | | | | | | | | | 10,905 | 89,159 |
| | 1973 | | | | | | | | | 4,283 | 73,678 |
| | To date | | | | | | | 802,611 | 3,699,031 | 203,381 | 2,555,158 |
| Similkameen | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Skeena | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | 601,019 | 1,050,722 | | |
| Vancouver | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | 29,692 | 418,606 |
| Vernon | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | 3,200 | 30,400 | 168 | 2,184 |
| | To date | | | | | | | 3,200 | 30,400 | 1,800 | 53,684 |
| Victoria | 1972 | | | | | | | 21 | 210 | | |
| | 1973 | | | | | | | 42 | 495 | | |
| | To date | | | | | | | 271 | 3,060 | 9,605 | 157,080 |
| Not assigned | 1972 | | | | | | | | | | |
| | 1973 | | | | | | | | | | |
| | To date | | | | | | | | | | |
| Totals | 1972 | 105,807 | 20,870,241 | 44,237 | 395,289 | 1,475 | 52,073 | 31,600 | 59,246 | 37,158 | 757,924 |
| | 1973 | 108,966 | 21,102,892 | | | 565 | 9,526 | 46,225 | 106,371 | 34,321 | 857,648 |
| | To date | 1,227,096 | 239,205,584 | 439,158 | 4,489,307 | 12,308 | 301,321 | 4,188,899 | 7,839,947 | 490,335 | 8,143,884 |

[1] From 1972, excludes production which is confidential.
Other: *See* notes of individual minerals listed alphabetically on pages A 16 to A 25.

[2] Natro-alunite.
[3] Hydromagnesite.
[4] Volcanic ash.
[5] Magnesium sulphate.
[6] Sodium carbonate.
[7] Phosphate rock.

*Mining Divisions, 1972 and 1973, and Total to Date*

| Gypsum and Gypsite | | Jade | | Mica | | Sulphur | | Other, Value | Division Total |
|---|---|---|---|---|---|---|---|---|---|
| Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | | |
| Tons | $ | Lb. | $ | Lb. | $ | Lb. | $ | $ | $ |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | 9,3982 | 9,398 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | 20,3258 | 20,325 |
| | | | | | | | | | 52,073 |
| | | | | | | | | | 9,528 |
| | | | | 10,013,800 | 143,012 | | | 3004 | 444,801 |
| | | | | | | | | | |
| | | | | | | | | | |
| 873 | 6,236 | | | | | | | 156,1913 5 6 | 162,427 |
| | | | | | | 81,597 | 676,439 | | 676,439 |
| | | | | | | 89,007 | 1,335,105 | | 1,335,105 |
| 112,878 | 298,824 | | | | | 1,238,139 | 20,497,991 | 16,8947 | 20,813,789 |
| 388,315 | 1,087,196 | | | | | | | | 1,482,485 |
| 365,249 | 1,114,009 | | | | | | | | 1,114,009 |
| 3,820,324 | 10,917,469 | | | | | | | 1,2768 9 | 15,420,584 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | 783,57810 | 2,327,897 |
| | | | | | | | | | |
| | | | | | | | | | |
| 1,246,918 | 6,323,178 | | | 424,700 | 2,075 | | | 203,0555 6 | 6,540,538 |
| | | 2,934 | 3,689 | | | 56,627 | 808,380 | | 21,182,310 |
| | | 3,444 | 4,793 | | | 60,661 | 356,777 | | 21,464,462 |
| | | 48,741 | 69,800 | | | 872,768 | 16,243,932 | | 255,519,316 |
| | | 192,450 | 142,800 | | | | | | 142,800 |
| | | 28,050 | 7,200 | | | | | | 7,200 |
| | | 558,634 | 467,966 | | | | | 5,1299 | 473,095 |
| | | | | | | | | | 141,336 |
| | | | | | | | | | 137,379 |
| | | | | | | | | | 1,952,731 |
| | | | | | | | | | 506,465 |
| | | | | | | | | | 719,592 |
| | | | | | | | | 55,9018 | 2,938,020 |
| | | | | | | | | | 80,000 |
| | | | | | | | | | |
| | | | | | | | | | 1,611,625 |
| | | | | | | | | | |
| | | | | | | | | | |
| 2,407 | 10,050 | | | | | | | | 10,050 |
| | | 48,341 | 88,729 | | | | | | 88,729 |
| | | 122,757 | 294,815 | | | | | | 295,101 |
| | | 554,755 | 732,262 | | | | | 11,46011 12 | 744,008 |
| | | | | | | | | | 80,159 |
| | | | | | | | | | 73,678 |
| | | | | 1,588,800 | 25,938 | | | 306,5335 10 11 | 6,586,660 |
| | | | | | | | | | |
| | | | | | | | | | |
| 250 | 1,700 | | | | | | | 16,85818 | 18,558 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | 634,250 | 10,815 | 41,624 | 178,678 | | 1,240,215 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | 687,596 | 6,550,969 | 97,3898 | 7,066,964 |
| | | | | | | | | | |
| | | | | | | | | | 32,584 |
| | | | | 160,500 | 3,978 | | | | 88,062 |
| | | | | | | | | | 210 |
| | | | | | | | | | 495 |
| | | | | | | | | 30,2269 | 190,366 |
| | | | | | | 159,483 | 1,322,114 | | 1,322,114 |
| | | | | | | 166,367 | 2,495,505 | 285,028 | 2,780,533 |
| | | | | | | 5,357,542 | 60,703,847 | 289,941 | 60,933,788 |
| 388,315 | 1,087,196 | 243,725 | 235,218 | | | 297,707 | 2,306,933 | | 25,764,120 |
| 365,249 | 1,114,009 | 154,251 | 306,803 | | | 316,035 | 4,137,387 | 285,028 | 27,969,664 |
| 5,183,650 | 17,557,457 | 1,162,130 | 1,270,028 | 12,822,050 | 185,818 | 8,197,669 | 104,175,417 | 2,004,454 | 385,173,217 |

8 Iron oxide and ochre.
9 Talc.
10 Fluorspar.
11 Arsenious oxide.
12 Perlite.
13 Bentonite.

*Table 7E—Production of Structural Materials by Mining Divisions, 1972 and 1973, and Total to Date*

| Division | Period | Cement | Lime and Limestone | Building-stone | Rubble, Riprap, and Crushed Rock | Sand and Gravel | Clay Products | Unclassified Material | Division Total |
|---|---|---|---|---|---|---|---|---|---|
| | | $ | $ | $ | $ | $ | $ | $ | $ |
| lberni | 1972 | | | | 5,168 | 247,858 | | | 253,026 |
| | 1973 | | | | 6,136 | 263,641 | | | 269,777 |
| | To date | | | | 345,646 | 4,212,837 | | | 4,558,483 |
| tlin | 1972 | | | | | | | | |
| | 1973 | | | | | | | | |
| | To date | | 1,108 | | 102,453 | 234,680 | | | 338,241 |
| ariboo | 1972 | | 224,853 | | 382,149 | 2,836,516 | 68,100 | | 3,511,618 |
| | 1973 | | 235,229 | | 350,433 | 2,672,090 | | | 3,257,752 |
| | To date | | 1,249,023 | | 3,306,828 | 22,080,508 | 332,457 | | 26,968,816 |
| linton | 1972 | | | | 530,614 | 243,000 | | | 773,614 |
| | 1973 | | | | 70,124 | 195,440 | | | 265,564 |
| | To date | | | | 1,853,909 | 1,987,141 | | | 3,841,050 |
| ort Steele | 1972 | | | | 102,430 | 508,259 | | | 610,689 |
| | 1973 | | | | 49,260 | 499,838 | | | 549,098 |
| | To date | | 43,873 | 71,941 | 2,626,189 | 6,958,160 | 15,918 | | 9,716,081 |
| olden | 1972 | | | | 6,453 | 153,801 | 2,887 | | 163,141 |
| | 1973 | | | | 36,723 | 100,648 | 7,585 | | 144,956 |
| | To date | | 1,000 | 50,840 | 245,663 | 3,283,580 | 128,159 | | 3,709,242 |
| reenwood | 1972 | | | 200 | | 250,504 | | | 250,704 |
| | 1973 | | | | | 140,114 | | | 140,114 |
| | To date | | 42,560 | 138,336 | 278,474 | 1,746,119 | 121,283 | | 2,326,772 |
| amloops | 1972 | 2,617,842 | | | 872,572 | 1,675,934 | | | 5,166,348 |
| | 1973 | 3,823,520 | | | 602,509 | 1,453,023 | | | 5,879,052 |
| | To date | 9,822,024 | 25,067 | 19,800 | 9,992,158 | 14,522,399 | 72,379 | | 34,453,827 |
| ard | 1972 | | | | 152,380 | 1,137,309 | | | 1,289,689 |
| | 1973 | | | | 256,097 | 1,100,474 | | | 1,356,571 |
| | To date | | | | 1,711,601 | 11,409,166 | | | 13,120,767 |
| locet | 1972 | | | | 29,558 | 32,501 | | | 62,059 |
| | 1973 | | | | 33,495 | 54,214 | | | 87,709 |
| | To date | | 100 | 2,000 | 1,100,403 | 2,234,069 | | | 3,336,572 |
| naimo | 1972 | | 2,806,033 | | 261,617 | 1,184,398 | | | 4,252,048 |
| | 1973 | | 2,976,915 | | 397,390 | 1,697,781 | | | 5,072,086 |
| | To date | | 54,889,469 | 3,450,735 | 3,057,688 | 11,003,276 | 1,178,992 | | 73,580,160 |
| son | 1972 | | 203,549 | 966 | 1,418 | 436,970 | | | 642,903 |
| | 1973 | | 283,802 | 2,448 | 3,172 | 424,200 | | | 723,622 |
| | To date | | 1,021,639 | 434,012 | 549,291 | 6,173,123 | 21,974 | | 8,200,039 |
| v Westminster | 1972 | | 102,175 | | 991,023 | 9,185,040 | 4,571,663 | | 14,849,901 |
| | 1973 | | 102,523 | | 1,515,500 | 11,921,903 | 5,189,218 | | 18,729,144 |
| | To date | | 3,318,910 | 20,974 | 17,984,297 | 94,436,162 | 77,909,213 | | 193,669,556 |
| ola | 1972 | | | | | 266,451 | | | 266,451 |
| | 1973 | | | | | 130,386 | | | 130,386 |
| | To date | | | 8,000 | 187,754 | 1,849,046 | | | 2,044,800 |
| ineca | 1972 | | 3,119 | | 154,253 | 939,347 | | | 1,096,719 |
| | 1973 | | 3,575 | | 119,450 | 688,002 | | | 811,027 |
| | To date | | 16,042 | | 2,410,274 | 11,201,405 | 5,274 | | 13,632,995 |
| yoos | 1972 | | | | 68,498 | 650,454 | | | 718,952 |
| | 1973 | | | | 17,685 | 384,547 | | | 402,232 |
| | To date | | 43,774 | 33,018 | 338,757 | 3,805,281 | | | 4,220,830 |
| elstoke | 1972 | | | | 29,694 | 124,245 | | | 153,939 |
| | 1973 | | | 5,200 | 66,644 | 236,854 | | | 308,698 |
| | To date | | 1,000 | 10,775 | 580,221 | 2,625,019 | | | 3,217,015 |
| lkameen | 1972 | | | | 5,250 | 76,285 | | | 81,535 |
| | 1973 | | | | | 90,986 | | | 90,986 |
| | To date | 10,500 | 11,571 | 24,000 | 656,847 | 3,606,631 | 13,355 | | 4,322,904 |
| na | 1972 | | | | 126,948 | 1,740,392 | | | 1,867,340 |
| | 1973 | | | | 59,615 | 1,741,428 | | | 1,801,043 |
| | To date | | 1,645,300 | 144,000 | 3,318,726 | 13,681,178 | 13,249 | | 18,802,453 |
| un | 1972 | | | | 810 | 79,319 | | | 80,129 |
| | 1973 | | | | 20,457 | 218,135 | | | 238,592 |
| | To date | | 1,000 | 115,143 | 152,060 | 1,989,807 | | | 2,258,010 |
| Creek | 1972 | | | | 150,000 | 120,434 | | | 270,434 |
| | 1973 | | | | 2,400 | 51,106 | | | 53,506 |
| | To date | | 82,500 | 85,520 | 381,393 | 3,149,714 | | | 3,649,127 |
| ouver | 1972 | 6,683,954 | | | 6,561 | 3,320,186 | | | 10,010,701 |
| | 1973 | 6,619,264 | | | 466,271 | 4,572,852 | | | 11,658,387 |
| | To date | 79,646,882 | 40,885 | 4,012,560 | 8,659,593 | 51,992,681 | 1,088,592 | | 145,441,193 |
| on | 1972 | | | | 59,430 | 1,081,335 | | | 1,140,765 |
| | 1973 | | | | | 955,658 | | | 955,658 |
| | To date | | 46,499 | 97,852 | 394,404 | 8,116,634 | 161,254 | | 8,816,643 |
| ria | 1972 | 11,712,316 | 18,198 | | 17,526 | 2,108,725 | 621,099 | | 14,477,864 |
| | 1973 | 14,492,840 | 21,826 | | 8,200 | 2,267,915 | 393,487 | | 17,184,268 |
| | To date | 191,908,028 | 988,511 | 55 | 528,243 | 28,060,750 | 10,284,480 | | 231,770,067 |
| ssigned | 1972 | | | | 78,196 | 4,676,933 | | | 4,755,129 |
| | 1973 | | | | 78,448 | 3,258,355 | | | 3,336,803 |
| | To date | | 315,498 | 505,018 | 1,011,570 | 36,864,422 | 3,180,828 | 5,972,171 | 47,849,507 |
| Totals | 1972 | 21,014,112 | 3,857,927 | 1,166 | 4,032,548 | 33,076,196 | 5,263,749 | | 66,745,698 |
| | 1973 | 24,935,624 | 3,633,870 | 7,648 | 4,160,009 | 35,119,590 | 5,590,290 | | 73,447,031 |
| | To date | 281,387,434 | 63,785,329 | 9,224,579 | 61,774,442 | 347,223,788 | 94,527,407 | 5,972,171 | 863,845,150 |

## *Table 8A—Production of Coal, 1836–1973*

| Year | Quantity[1] (Short Tons) | Value | Year | Quantity[1] (Short Tons) | Value |
|---|---|---|---|---|---|
| | | $ | | | $ |
| 1836–59 | 41,871 | 149,548 | 1918 | 2,575,275 | 12,833,994 |
| 1860 | 15,956 | 56,988 | 1919 | 2,433,540 | 11,975,671 |
| 1861 | 15,427 | 55,096 | 1920 | 2,852,535 | 13,450,169 |
| 1862 | 20,292 | 72,472 | 1921 | 2,670,314 | 12,836,013 |
| 1863 | 23,906 | 85,380 | 1922 | 2,726,793 | 12,880,060 |
| 1864 | 32,068 | 115,528 | 1923 | 2,636,740 | 12,678,548 |
| 1865 | 36,757 | 131,276 | 1924 | 2,027,843 | 9,911,935 |
| 1866 | 28,129 | 100,460 | 1925 | 2,541,212 | 12,168,905 |
| 1867 | 34,988 | 124,956 | 1926 | 2,406,094 | 11,650,180 |
| 1868 | 49,286 | 176,020 | 1927 | 2,553,416 | 12,269,135 |
| 1869 | 40,098 | 143,208 | 1928 | 2,680,608 | 12,633,510 |
| 1870 | 33,424 | 119,372 | 1929 | 2,375,060 | 11,256,260 |
| 1871 | 55,458 | 164,612 | 1930 | 1,994,493 | 9,435,650 |
| 1872 | 55,458 | 164,612 | 1931 | 1,765,471 | 7,684,155 |
| 1873 | 55,459 | 164,612 | 1932 | 1,614,629 | 6,523,644 |
| 1874 | 91,334 | 244,641 | 1933 | 1,377,177 | 5,375,171 |
| 1875 | 123,362 | 330,435 | 1934 | 1,430,042 | 5,725,133 |
| 1876 | 155,895 | 417,576 | 1935 | 1,278,380 | 5,048,864 |
| 1877 | 172,540 | 462,156 | 1936 | 1,352,301 | 5,722,502 |
| 1878 | 191,348 | 522,538 | 1937 | 1,446,243 | 6,139,920 |
| 1879 | 270,257 | 723,903 | 1938 | 1,388,507 | 5,565,069 |
| 1880 | 299,708 | 802,785 | 1939 | 1,561,084 | 6,280,956 |
| 1881 | 255,760 | 685,171 | 1940 | 1,662,027 | 7,088,265 |
| 1882 | 315,997 | 846,417 | 1941 | 1,844,745 | 7,660,000 |
| 1883 | 238,895 | 639,897 | 1942 | 1,996,000 | 8,237,172 |
| 1884 | 441,358 | 1,182,210 | 1943 | 1,854,749 | 7,742,030 |
| 1885 | 409,468 | 1,096,788 | 1944 | 1,931,950 | 8,217,966 |
| 1886 | 365,832 | 979,908 | 1945 | 1,523,021 | 6,454,360 |
| 1887 | 462,964 | 1,240,080 | 1946 | 1,439,092 | 6,732,470 |
| 1888 | 548,017 | 1,467,903 | 1947 | 1,696,350 | 8,680,440 |
| 1889 | 649,411 | 1,739,490 | 1948 | 1,604,480 | 9,765,395 |
| 1890 | 759,518 | 2,034,420 | 1949 | 1,621,268 | 10,549,924 |
| 1891 | 1,152,590 | 3,087,291 | 1950 | 1,574,006 | 10,119,303 |
| 1892 | 925,495 | 2,479,005 | 1951 | 1,573,572 | 10,169,617 |
| 1893 | 1,095,690 | 2,934,882 | 1952 | 1,402,313 | 9,729,739 |
| 1894 | 1,134,509 | 3,038,859 | 1953 | 1,384,138 | 9,528,279 |
| 1895 | 1,052,412 | 2,824,687 | 1954 | 1,308,284 | 9,154,544 |
| 1896 | 1,002,268 | 2,693,961 | 1955 | 1,332,874 | 8,986,501 |
| 1897 | 999,372 | 2,734,522 | 1956 | 1,417,209 | 9,346,518 |
| 1898 | 1,263,272 | 3,582,595 | 1957 | 1,085,657 | 7,340,339 |
| 1899 | 1,435,314 | 4,126,803 | 1958 | 796,413 | 5,937,860 |
| 1900 | 1,781,000 | 4,744,530 | 1959 | 690,011 | 5,472,064 |
| 1901 | 1,894,544 | 5,016,398 | 1960 | 788,658 | 5,242,223 |
| 1902 | 1,838,621 | 4,832,257 | 1961 | 919,142 | 6,802,134 |
| 1903 | 1,624,742 | 4,332,297 | 1962 | 825,339 | 6,133,986 |
| 1904 | 1,887,981 | 4,953,024 | 1963 | 850,541 | 6,237,997 |
| 1905 | 2,044,931 | 5,511,861 | 1964 | 911,326 | 6,327,678 |
| 1906 | 2,126,965 | 5,548,044 | 1965 | 950,763 | 6,713,590 |
| 1907 | 2,485,961 | 7,637,713 | 1966 | 850,821 | 6,196,219 |
| 1908 | 2,362,514 | 7,356,866 | 1967 | 908,790 | 7,045,341 |
| 1909 | 2,688,672 | 8,574,884 | 1968 | 959,214 | 7,588,989 |
| 1910 | 3,314,749 | 11,108,335 | 1969 | 852,340 | 6,817,155 |
| 1911 | 2,541,698 | 8,071,747 | 1970 | 2,644,056 | 19,559,669 |
| 1912 | 3,211,907 | 10,786,812 | 1971 | 4,565,242 | 45,801,936 |
| 1913 | 2,713,535 | 9,197,460 | 1972 | 6,026,198 | 66,030,210 |
| 1914 | 2,237,042 | 7,745,847 | 1973 | 7,633,251 | 87,976,105 |
| 1915 | 2,075,601 | 7,114,178 | | | |
| 1916 | 2,583,469 | 8,900,675 | Totals | 163,313,793 | 836,091,796 |
| 1917 | 2,436,101 | 8,484,343 | | | |

[1] Quantity from 1836 to 1909 is gross mine output and includes material lost in picking and washing. For 1910 and subsequent years the quantity is that sold and used.

## *Table 8B—Coal Production and Distribution by Collieries and by Mining Divisions, 1973*

| Mine | Raw Coal Production | Clean Coal Production | Coal Used | | Sales | | | | | | Total Coal Sold and Used | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Under Companies' Boilers, Etc. | Making Coke | Canada | | United States | Japan | Others | Total Sales | Amount | Value |
| | | | | | British Columbia | Other Provinces | | | | | | |
| ***Fort Steele Mining Division*** | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | $ |
| Coleman Collieries Ltd.— | | | | | | | | | | | | |
| Tent Mountain Colliery | 65,735 | 51,016 | ——— | ——— | ——— | ——— | ——— | 51,016 | ——— | 51,016 | 51,016 | 602,849 |
| Fording Coal Ltd. | 3,793,571 | 2,390,206 | ——— | ——— | ——— | ——— | 224 | 2,295,998 | ——— | 2,296,222 | 2,296,222 | 22,962,217 |
| Kaiser Resources Ltd.— | | | | | | | | | | | | |
| Michel Colliery | 7,002,659 | 5,330,848 | 4,200 | 247,542 | 74,690 | ——— | ——— | 4,959,313 | ——— | 5,034,003 | 5,285,745 | 64,407,823 |
| ***Liard Mining Division*** | | | | | | | | | | | | |
| Coalition Mining Ltd. | 32,674[1] | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— |
| ***Omineca Mining Division*** | | | | | | | | | | | | |
| Bulkley Valley Colliery Ltd. | 300 | 268 | ——— | ——— | 268 | ——— | ——— | ——— | ——— | 268 | 268 | 3,216 |
| Totals | 10,894,939 | 7,772,338 | 4,200 | 247,542 | 74,958 | ——— | 224 | 7,306,327 | ——— | 7,381,509 | 7,633,251 | 87,976,105 |

[1] Total production stockpiled.

## *Table 9—Principal Items of Expenditure, Reported for Operations of All Classes*

| Class | Salaries and Wages | Fuel and Electricity | Process Supplies |
|---|---|---|---|
| | $ | $ | $ |
| Metal-mining | 129,861,201 | 24,571,180 | 89,177,645 |
| Exploration and development | 40,310,892 | | |
| Coal | 25,921,971 | 4,891,996 | 5,824,199 |
| Petroleum and natural gas (exploration and production) | 6,079,535 | | |
| Industrial minerals | 7,734,832 | 2,175,990 | 2,497,991 |
| Structural-materials industry | 11,969,164 | 5,111,545 | 6,340,814 |
| Totals, 1973 | 221,877,595 | 36,750,711 | 103,840,649 |
| Totals, 1972 | 199,351,449 | 31,115,621 | 77,092,955 |
| 1971 | 179,175,692 | 23,166,904 | 68,314,944 |
| 1970 | 172,958,282 | 19,116,672 | 59,846,370 |
| 1969 | 123,450,327 | 14,554,123 | 43,089,559 |
| 1968 | 113,459,219 | 13,818,326 | 38,760,203 |
| 1967 | 94,523,495 | 13,590,759 | 34,368,856 |
| 1966 | 93,409,528 | 12,283,477 | 28,120,179 |
| 1965 | 74,938,736 | 11,504,343 | 30,590,631 |
| 1964 | 63,624,559 | 10,205,861 | 27,629,953 |
| 1963 | 57,939,294 | 10,546,806 | 12,923,325 |
| 1962 | 55,522,171 | 9,505,559 | 14,024,799 |
| 1961 | 50,887,275 | 8,907,034 | 17,787,127 |
| 1960 | 52,694,818 | 7,834,728 | 21,496,912 |
| 1959 | 49,961,996 | 7,677,321 | 17,371,638 |
| 1958 | 48,933,560 | 8,080,989 | 15,053,036 |
| 1957 | 56,409,036 | 8,917,567 | 24,257,177 |
| 1956 | 57,266,026 | 9,762,777 | 22,036,839 |
| 1955 | 51,890,246 | 9,144,034 | 21,131,572 |
| 1954 | 48,702,746 | 7,128,669 | 19,654,724 |
| 1953 | 55,543,490 | 8,668,099 | 20,979,411 |
| 1952 | 62,256,631 | 8,357,845 | 27,024,500 |
| 1951 | 52,607,171 | 7,283,051 | 24,724,101 |
| 1950 | 42,738,035 | 6,775,998 | 17,500,663 |
| 1949 | 41,023,786 | 7,206,637 | 17,884,408 |
| 1948 | 38,813,506 | 6,139,470 | 11,532,121 |
| 1947 | 32,160,338 | 5,319,470 | 13,068,948 |
| 1946 | 26,190,200 | 5,427,458 | 8,367,705 |
| 1945 | 22,620,975 | 7,239,726 | 5,756,628 |
| 1944 | 23,131,874 | 5,788,671 | 6,138,084 |
| 1943 | 26,051,467 | 7,432,585 | 6,572,317 |
| 1942 | 26,913,160 | 7,066,109 | 6,863,398 |
| 1941 | 26,050,491 | 3,776,747 | 7,260,441 |
| 1940 | 23,391,330 | 3,474,721 | 6,962,162 |
| 1939 | 22,357,035 | 3,266,000 | 6,714,347 |
| 1938 | 22,765,711 | 3,396,106 | 6,544,500 |
| 1937 | 21,349,690 | 3,066,311 | 6,845,330 |
| 1936 | 17,887,619 | 2,724,144 | 4,434,501 |
| 1935 | 16,753,367 | 2,619,639 | 4,552,730 |

NOTE—This table has changed somewhat through the years, so that the items are not everywhere directly comparable. Prior to 1962 lode-mining referred only to gold, silver, copper, lead, and zinc. Prior to 1964 some expenditures for fuel and electricity were included with process supplies. Process supplies (except fuel) were broadened in 1964 to include "process, operating, maintenance, and repair supplies . . . used in the mine/mill operations; that is, explosives, chemicals, drill steel, bits, lubricants, electrical, etc. . . . not charged to Fixed Assets Account . . . provisions and supplies sold in any company operated cafeteria or commissary." Exploration and development other than in the field of petroleum and natural gas is given, starting in 1966.

## *Table 10—Employment in the Mineral Industry, 1901–1973*

| Year | Metals | | | | | | | Coal Mines | | | Structural Materials | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mines | | | | | | | | | | | | | |
| | Placer | Under | Above | Exploration and Development | Concentrators | Smelters | Total | Under | Above[1] | Total | Quarries and Pits | Plants | Industrial Materials | Petroleum and Natural-gas Exploration and Development | Total |
| 1901 | ..... | 2,736 | 1,212 | ..... | ..... | ..... | 3,948 | 3,041 | 933 | 3,974 | ..... | ..... | ..... | ..... | 7,922 |
| 1902 | ..... | 2,219 | 1,126 | ..... | ..... | ..... | 3,345 | 3,101 | 910 | 4,011 | ..... | ..... | ..... | ..... | 7,356 |
| 1903 | ..... | 1,662 | 1,088 | ..... | ..... | ..... | 2,750 | 3,137 | 1,127 | 4,264 | ..... | ..... | ..... | ..... | 7,014 |
| 1904 | ..... | 2,143 | 1,163 | ..... | ..... | ..... | 3,306 | 3,278 | 1,175 | 4,453 | ..... | ..... | ..... | ..... | 7,759 |
| 1905 | ..... | 2,470 | 1,240 | ..... | ..... | ..... | 3,710 | 3,127 | 1,280 | 4,407 | ..... | ..... | ..... | ..... | 8,117 |
| 1906 | ..... | 2,680 | 1,303 | ..... | ..... | ..... | 3,983 | 3,415 | 1,390 | 4,805 | ..... | ..... | ..... | ..... | 8,788 |
| 1907 | ..... | 2,704 | 1,239 | ..... | ..... | ..... | 3,943 | 2,862 | 907 | 3,769 | ..... | ..... | ..... | ..... | 7,712 |
| 1908 | ..... | 2,567 | 1,127 | ..... | ..... | ..... | 3,694 | 4,482 | 1,641 | 6,078 | ..... | ..... | ..... | ..... | 9,767 |
| 1909 | ..... | 2,183 | 1,070 | ..... | ..... | ..... | 3,254 | 4,713 | 1,705 | 6,418 | ..... | ..... | ..... | ..... | 9,672 |
| 1910 | ..... | 2,472 | 1,287 | ..... | ..... | ..... | 3,709 | 5,903 | 1,855 | 7,758 | ..... | ..... | ..... | ..... | 11,467 |
| 1911 | ..... | 2,435 | 1,159 | ..... | ..... | ..... | 3,594 | 5,212 | 1,661 | 6,873 | ..... | ..... | ..... | ..... | 10,467 |
| 1912 | ..... | 2,472 | 1,364 | ..... | ..... | ..... | 3,836 | 5,275 | 1,855 | 7,130 | ..... | ..... | ..... | ..... | 10,966 |
| 1913 | ..... | 2,773 | 1,505 | ..... | ..... | ..... | 4,278 | 4,950 | 1,721 | 6,671 | ..... | ..... | ..... | ..... | 10,949 |
| 1914 | ..... | 2,741 | 1,433 | ..... | ..... | ..... | 4,174 | 4,267 | 1,465 | 5,732 | ..... | ..... | ..... | ..... | 9,906 |
| 1915 | ..... | 2,709 | 1,435 | ..... | ..... | ..... | 4,144 | 3,708 | 1,283 | 4,991 | ..... | ..... | ..... | ..... | 9,135 |
| 1916 | ..... | 3,357 | 2,036 | ..... | ..... | ..... | 5,393 | 3,694 | 1,366 | 5,060 | ..... | ..... | ..... | ..... | 10,453 |
| 1917 | ..... | 3,290 | 2,198 | ..... | ..... | ..... | 5,488 | 3,760 | 1,410 | 5,170 | ..... | ..... | ..... | ..... | 10,658 |
| 1918 | ..... | 2,626 | 1,764 | ..... | ..... | ..... | 4,390 | 3,658 | 1,769 | 5,427 | ..... | ..... | ..... | ..... | 9,817 |
| 1919 | ..... | 2,513 | 1,746 | ..... | ..... | ..... | 4,259 | 4,145 | 1,821 | 5,966 | ..... | ..... | ..... | ..... | 10,225 |
| 1920 | ..... | 2,074 | 1,605 | ..... | ..... | ..... | 3,679 | 4,191 | 2,158 | 6,349 | ..... | ..... | ..... | ..... | 10,028 |
| 1921 | ..... | 1,355 | 975 | ..... | ..... | ..... | 2,330 | 4,722 | 2,163 | 6,885 | ..... | ..... | ..... | ..... | 9,215 |
| 1922 | ..... | 1,510 | 1,239 | ..... | ..... | ..... | 2,749 | 4,712 | 1,932 | 6,644 | ..... | ..... | ..... | ..... | 9,393 |
| 1923 | ..... | 2,102 | 1,516 | ..... | ..... | ..... | 3,618 | 4,842 | 1,807 | 6,140 | ..... | ..... | ..... | ..... | 9,767 |
| 1924 | ..... | 2,358 | 1,680 | ..... | ..... | ..... | 4,033 | 3,894 | 1,524 | 5,418 | ..... | ..... | ..... | ..... | 9,451 |
| 1925 | ..... | 2,298 | 2,840 | ..... | ..... | ..... | 5,138 | 3,828 | 1,615 | 5,443 | ..... | ..... | ..... | ..... | 10,581 |
| 1926 | 299 | 2,606 | 1,735 | ..... | 808 | 2,461 | 7,610 | 3,757 | 1,565 | 5,322 | 493 | 324 | 124 | ..... | 14,172 |
| 1927 | 415 | 2,671 | 1,916 | ..... | 854 | 2,842 | 8,283 | 3,646 | 1,579 | 5,225 | 647 | 138 | 122 | ..... | 14,830 |
| 1928 | 355 | 2,707 | 2,469 | ..... | 911 | 2,748 | 8,835 | 3,814 | 1,520 | 5,334 | 412 | 368 | 120 | ..... | 15,424 |
| 1929 | 341 | 2,928 | 2,052 | ..... | 966 | 2,948 | 8,892 | 3,675 | 1,353 | 5,028 | 492 | 544 | 268 | ..... | 15,565 |
| 1930 | 425 | 2,318 | 1,260 | ..... | 852 | 3,197 | 7,605 | 3,389 | 1,256 | 4,645 | 843 | 344 | 170 | ..... | 14,032 |
| 1931 | 638 | 1,468 | 334 | ..... | 581 | 3,157 | 6,035 | 2,957 | 1,125 | 4,082 | 460 | 526 | 380 | ..... | 12,171 |
| 1932 | 874 | 1,855 | 900 | ..... | 542 | 2,036 | 4,833 | 2,628 | 980 | 3,608 | 536 | 329 | 344 | ..... | 10,524 |
| 1933 | 1,134 | 1,786 | 1,335 | ..... | 531 | 2,436 | 6,088 | 2,241 | 853 | 3,094 | 376 | 269 | 408 | ..... | 11,369 |
| 1934 | 1,122 | 2,726 | 1,729 | ..... | 621 | 2,890 | 8,046 | 2,050 | 843 | 2,893 | 377 | 187 | 360 | ..... | 12,985 |
| 1935 | 1,291 | 2,740 | 1,497 | ..... | 907 | 2,771 | 7,915 | 2,145 | 826 | 2,971 | 536 | 270 | 754 | ..... | 13,737 |
| 1936 | 1,124 | 2,959 | 1,840 | ..... | 720 | 2,678 | 8,197 | 2,015 | 799 | 2,814 | 931 | 288 | 825 | ..... | 14,179 |
| 1937 | 1,371 | 3,662 | 1,818 | ..... | 1,168 | 3,027 | 9,616 | 2,286 | 867 | 3,153 | 724 | 327 | 938 | ..... | 16,129 |
| 1938 | 1,303 | 3,549 | 2,266 | ..... | 919 | 3,158 | 10,192 | 2,088 | 874 | 2,962 | 900 | 295 | 369 | ..... | 16,021 |
| 1939 | 1,252 | 3,905 | 2,050 | ..... | 996 | 3,187 | 10,138 | 2,167 | 809 | 2,976 | 652 | 311 | 561 | ..... | 15,890 |
| 1940 | 1,004 | 3,928 | 2,104 | ..... | 1,045 | 2,944 | 10,019 | 2,175 | 699 | 2,874 | 827 | 334 | 647 | ..... | 15,705 |
| 1941 | 939 | 3,901 | 1,823 | ..... | 1,025 | 3,072 | 9,821 | 2,229 | 494 | 2,723 | 766 | 413 | 422 | ..... | 15,084 |
| 1942 | 489 | 2,920 | 1,504 | ..... | 960 | 3,555 | 8,939 | 1,892 | 468 | 2,360 | 842 | 378 | 262 | ..... | 13,270 |
| 1943 | 212 | 2,394 | 1,699 | ..... | 891 | 2,835 | 7,819 | 2,240 | 611 | 2,851 | 678 | 326 | 567 | ..... | 12,448 |
| 1944 | 255 | 1,896 | 1,825 | ..... | 849 | 2,981 | 7,551 | 2,150 | 689 | 2,839 | 690 | 351 | 628 | ..... | 12,314 |
| 1945 | 209 | 1,933 | 1,750 | ..... | 822 | 2,834 | 7,389 | 1,927 | 503 | 2,430 | 921 | 335 | 586 | ..... | 11,820 |
| 1946 | 347 | 1,918 | 1,817 | ..... | 672 | 2,813 | 7,220 | 1,773 | 532 | 2,305 | 827 | 555 | 679 | ..... | 11,933 |
| 1947 | 360 | 3,024 | 2,238 | ..... | 960 | 3,461 | 9,683 | 1,694 | 731 | 2,425 | 977 | 585 | 869 | ..... | 14,899 |
| 1948 | 348 | 3,143 | 2,429 | ..... | 1,126 | 3,884 | 10,582 | 1,594 | 872 | 2,466 | 1,591 | 656 | 754 | ..... | 16,397 |
| 1949 | 303 | 3,034 | 2,724 | ..... | 1,203 | 3,763 | 10,724 | 1,761 | 545 | 2,306 | 2,120 | 542 | 626 | ..... | 16,621 |
| 1950 | 327 | 3,399 | 2,415 | ..... | 1,259 | 3,759 | 10,832 | 1,745 | 516 | 2,261 | 1,916 | 616 | 660 | ..... | 16,612 |
| 1951 | 205 | 3,785 | 3,695 | ..... | 1,307 | 4,044 | 12,831 | 1,462 | 463 | 1,925 | 1,783 | 628 | 491 | ..... | 17,863 |
| 1952 | 230 | 4,171 | 3,923 | ..... | 1,516 | 4,120 | 15,780 | 1,280 | 401 | 1,681 | 1,530 | 557 | 529 | ..... | 18,257 |
| 1953 | 152 | 3,145 | 2,589 | ..... | 1,871 | 3,901 | 11,006 | 1,154 | 396 | 1,550 | 1,909 | 559 | 634 | ..... | 15,799 |
| 1954 | 199 | 2,644 | 2,520 | ..... | 1,128 | 3,119 | 9,412 | 1,076 | 358 | 1,434 | 1,861 | 688 | 584 | ..... | 14,128 |
| 1955 | 103 | 2,564 | 2,558 | ..... | 1,091 | 3,304 | 9,512 | 1,106 | 378 | 1,478 | 1,646 | 641 | 722 | ..... | 14,102 |
| 1956 | 105 | 2,637 | 2,827 | ..... | 1,043 | 3,339 | 9,846 | 968 | 398 | 1,366 | 1,598 | 770 | 854 | ..... | 14,539 |
| 1957 | 67 | 2,893 | 2,447 | ..... | 838 | 3,328 | 9,006 | 1,020 | 360 | 1,380 | 1,705 | 625 | 474 | ..... | 13,257 |
| 1958 | 75 | 1,919 | 1,809 | ..... | 625 | 3,061 | 7,434 | 826 | 260 | 1,086 | 1,483 | 677 | 446 | ..... | 11,201 |
| 1959 | 99 | 1,937 | 1,761 | ..... | 618 | 3,008 | 7,324 | 765 | 291 | 1,056 | 1,357 | 484 | 459 | ..... | 10,779 |
| 1960 | 86 | 1,782 | 1,959 | ..... | 648 | 3,034 | 7,423 | 894 | 288 | 1,182 | 1,704 | 557 | 589 | ..... | 11,541 |
| 1961 | 74 | 1,785 | 1,582 | ..... | 626 | 3,118 | 7,111 | 705 | 237 | 942 | 1,828 | 508 | 571 | ..... | 11,034 |
| 1962 | 85 | 1,677 | 1,976 | 270 | 949 | 3,356 | 8,228 | 548 | 228 | 776 | 1,523 | 481 | 517 | ..... | 11,560 |
| 1963 | 45 | 1,713 | 2,012 | 450 | 850 | 3,239 | 8,264 | 501 | 247 | 748 | 900 | 460 | 528 | ..... | 10,952 |
| 1964 | 5 | 1,839 | 1,967 | 772 | 822 | 3,281 | 8,681 | 446 | 267 | 713 | 1,293 | 444 | 509 | ..... | 11,645 |
| 1965 | 2 | 1,752 | 2,019 | 786 | 965 | 3,529 | 9,051 | 405 | 244 | 649 | 1,079 | 422 | 639 | 441 | 12,283 |
| 1966 | 2 | 2,006 | 2,296 | 1,894 | 1,014 | 3,654 | 10,864 | 347 | 267 | 614 | 1,269 | 393 | 582 | 478 | 14,202 |
| 1967 | ..... | 1,928 | 2,532 | 1,264 | 992 | 3,435 | 10,151 | 260 | 197 | 457 | 1,809 | 372 | 584 | 507 | 13,880 |
| 1968 | ..... | 1,823 | 2,369 | 3,990 | 1,072 | 3,283 | 12,537 | 195 | 358 | 553 | 1,207 | 380 | 582 | 400 | 15,659 |
| 1969 | 7 | 1,794 | 2,470 | 4,270 | 1,099 | 3,468 | 13,101 | 245 | 455 | 700 | 1,097 | 549 | 567 | 416 | 16,487 |
| 1970 | ..... | 2,160 | 3,167 | 4,964 | 1,331 | 3,738 | 15,360 | 242 | 1,033 | 1,275 | 740 | 647 | 627 | 437 | 19,086 |
| 1971 | ..... | 2,073 | 3,058 | 4,040 | 1,513 | 3,481 | 14,165 | 444 | 1,013 | 1,457 | 846 | 794 | 666 | 495 | 18,423 |
| 1972 | ..... | 1,833 | 3,463 | 4,201 | 1,784 | 3,353 | 14,584 | 214 | 1,771 | 1,985 | 1,116 | 800 | 527 | 458 | 19,470 |
| 1973 | ..... | 1,704 | 4,005 | 3,392 | 2,394 | 3,390 | 14,885 | 265 | 1,951 | 2,216 | 898 | 802 | 667 | 454 | 19,922 |

[1] Commencing with 1967, does not include employment in by-product plants.

NOTE—These figures refer only to company employees and do not include the many employees of contracting firms.

## *Table 11—Employment at Major Metal and Coal Mines, 1973*

| | Tons | | Days Operating Mill | Average Number Employed[1] | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Mine | | | | |
| | Mined | Milled | | Administrative, Etc. | Surface | Underground | Mill | Others | Total |
| *Metal Mines* | | | | | | | | | |
| Anaconda Canada Ltd. (Britannia) | 547,193 | 548,801 | 249 | 77 | 50 | 151 | 25 | — | 303 |
| Bethlehem Copper Corp. Ltd. (Bethlehem) | 6,233,986 | 6,339,122 | 365 | 52 | 192 | — | 142 | 7 | 393 |
| Bradina Joint Venture (Silver Queen) | 58,976 | 98,278 | 263 | 8 | 3 | 41 | 8 | — | 60 |
| Brenda Mines Ltd. (Brenda) | 8,969,900 | 8,867,805 | 324 | 91 | 128 | — | 170 | — | 389 |
| Canex Placer Ltd. (Endako) | 10,279,000 | 8,446,000 | 313 | 119 | 81 | — | 250 | — | 450 |
| Canex Placer Ltd. (Invincible) | 106,266 | 106,763 | 271 | 28 | 10 | 32 | 13 | — | 83 |
| Coast Copper Co. Ltd. (Old Sport)[2] | — | — | — | 2 | 2 | — | — | — | 4 |
| Cominco Ltd. (H.B.) | 351,682 | 351,682 | 319 | 22 | 23 | 61 | 11 | — | 117 |
| Cominco Ltd. (Sullivan) | 2,214,415 | 2,214,415 | 233 | 192 | 73 | 453 | 175 | — | 893 |
| Consolidated Churchill Copper Corp. Ltd. (Magnum) | 13,471 | — | — | 7 | — | 17 | — | — | 24 |
| Consolidated Columbia River Mines Ltd. (Ruth Vermont) | 26,957 | 26,957 | 84 | 4 | ([3]) | — | 10 | — | 14 |
| Craigmont Mines Ltd. (Craigmont) | 1,405,612 | 1,429,556 | 257 | 102 | 101 | 152 | 36 | 5 | 396 |
| Giant Mascot Mines Ltd. (Pride of Emory) | 352,758 | 352,758 | 254 | 42 | 31 | 99 | 24 | 2 | 198 |
| Gibraltar Mines Ltd. (Gibraltar) | 15,225,000 | 15,082,233 | 365 | 120 | 161 | — | 268 | — | 549 |
| Granduc Operating Co. Ltd. (Granduc) | 2,797,948 | 2,797,948 | 365 | 201 | 221 | 263 | 54 | — | 739 |
| The Granby Mining Co. Ltd. (Phoenix) | 187,947 | 1,003,815 | 365 | 26 | 68 | — | 46 | 2 | 142 |
| Granisle Copper Ltd. (Granisle) | 4,614,664 | 4,545,105 | 365 | 58 | 94 | — | 142 | — | 294 |
| Jordan River Mines Ltd. (Sunro) | 273,628 | 273,628 | 334 | 21 | — | 73 | 36 | — | 130[4] |
| Kam-Kotia-Burkam Joint Venture (Silomac) | 14,066 | 14,157 | 229 | 2 | 4 | 16 | 7 | 6 | 35 |
| King Resources Co. (Mount Copeland) | 21,761 | 21,761 | 120 | 8 | — | 8 | 3 | 7 | 26 |
| Lornex Mining Corp. Ltd. (Lornex) | 13,987,000 | 13,987,000 | 365 | 181 | 116 | — | 326 | 22 | 645 |
| Noranda Mines Ltd. (Bell) | 4,191,931 | 4,114,324 | 365 | 75 | 41 | — | 131 | — | 247 |
| Placid Oil Co. (Bull River) | 262,395 | 206,812 | 305 | 14 | 25 | — | 10 | — | 49 |
| Reeves MacDonald Mines Ltd. (Annex) | 191,438 | 191,438 | 252 | 18 | 18 | 71 | 12 | — | 119 |
| Similkameen Mining Co. Ltd. (Similkameen) | 5,356,829 | 5,356,829 | 365 | 72 | 167 | — | 53 | — | 292 |
| Teck Corporation Ltd. (Highland Bell) | 38,467 | 37,202 | 350 | 6 | 7 | 17 | 9 | — | 39 |
| Texada Mines Ltd. (Texada) | 1,072,623 | 1,029,189 | 365 | 21 | 71 | 76 | 32 | — | 200 |
| Utah Mines Ltd. (Island Copper) | 12,041,332 | 12,071,446 | 365 | 38 | 435 | — | 243 | — | 716 |
| Wesfrob Mines Ltd. (Tasu) | 1,781,379 | 1,781,379 | 365 | 50 | 19 | 1 | 95 | — | 165 |
| Western Mines Ltd. (Lynx and Myra) | 354,240 | 354,240 | 363 | 53 | 53 | 152 | 38 | — | 296 |
| Other mines | — | — | — | 33 | 10 | 21 | 25 | 7 | 96 |
| Total metal mines | — | — | — | — | — | — | — | — | 8,103 |
| *Coal Mines* | | | | | | | | | |
| Coalition Mining Ltd. (Sukunka) | 32,674 | — | — | — | 10 | 26 | — | — | 36 |
| Fording Coal Ltd. | 3,793,571 | — | 365 | 122 | 420 | — | 118 | — | 660 |
| Kaiser Resources Ltd. (Michel Collieries) | 7,002,659 | — | 326 | 162 | 933 | 239 | 186 | — | 1,520 |
| Total coal mines | — | — | — | — | — | — | — | — | 2,216 |

[1] The average number employed includes wage-earners and salaried employees. The average is obtained by adding the monthly figures and dividing by 12, irrespective of the number of months worked.

[2] Ceased production in November 1972, shipped from stockpile.

[3] Mine employment under contract, no details available.

[4] Estimated.

## *Table 12—Metal Production, 1973*

| Property or Mine | Location of Mine | Owner or Agent | Ore Shipped or Treated | Product Shipped | Gross Metal Content | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Gold | Silver | Copper | Lead | Zinc | Cadmium |
| | | | Tons | | Oz. | Oz. | Lb. | Lb. | Lb. | Lb. |
| *Alberni Mining Division* | | | | | | | | | | |
| Lynx and Myra mines | Buttle Lake | Western Mines Ltd. | 354,240 | Copper concentrates, 10,191 tons; lead concentrates, 8,334 tons; zinc concentrates, 47,790 tons | 22,326 | 1,329,960 | 7,506,797 | 8,389,066 | 55,971,577 | 229,576 |
| *Atlin Mining Division* | | | | | | | | | | |
| Nil | | | | | | | | | | |
| *Cariboo Mining Division* | | | | | | | | | | |
| Providence | Blackbear Creek | Walt. Pederson Enterprise, St. Cloud, Minn. | 3 | Crude ore | | 142 | | 1,386 | 6 | |
| Gibraltar mine | McLeese Lake | Gibraltar Mines Ltd. | 15,082,233 | Copper concentrates, 217,464 tons; molybdenite concentrates, 412 tons, containing 493,535 lb. of molybdenum | | | 124,694,080 | | | |
| *Clinton Mining Division* | | | | | | | | | | |
| Nil | | | | | | | | | | |
| *Fort Steele Mining Division* | | | | | | | | | | |
| Bull River mine | Wardner | Placid Oil Co. | 206,812 | Copper concentrates, 14,423 tons | 1,766 | 88,692 | 7,214,068 | | | |
| Sullivan mine | Kimberley | Cominco Ltd. | 2,214,415 | Lead concentrates, 126,684 tons; zinc concentrates, 201,656 tons; tin concentrates, 161 tons containing 180,783 lb. of tin; iron sinter, 14,397 tons | 152 | 3,151,073 | 618,200 | 187,884,000 | 207,250,000 | 551,462 |
| Rice (Quartz Mountain) | Sawmill Creek | Peter Lane, Cranbrook | 1,373 | Crude ore | 352 | 275 | 2,363 | 5,738 | 2,746 | |
| *Golden Mining Division* | | | | | | | | | | |
| Ruth Vermont | Parson | Consolidated Columbia River Mines Ltd. | 26,957 | Lead concentrates, 1,161 tons; zinc concentrates, 1,134 tons | 49 | 96,105 | 21,850 | 1,440,928 | 1,216,042 | 8,059 |
| *Greenwood Mining Division* | | | | | | | | | | |
| Burnt Basin | Paulson | Donna Mines Ltd. | 164 | Crude ore | 34 | 42 | | 563 | 328 | |
| Fur, Flo (Doorn) | Beaverdell | Argentia Mines Ltd. | 60 | Crude ore | 27 | 119 | | 238 | 119 | |
| Highland Bell mine | Beaverdell | Teck Corp. Ltd. | 37,202 | Lead concentrates, 1,020 tons; zinc concentrates, 318 tons; jig concentrates, 112 tons | 417 | 459,883 | 1,157 | 457,724 | 453,047 | 1,920 |
| Phoenix mine | Phoenix | The Granby Mining Co. Ltd., Phoenix Copper Division | 1,003,815 | Copper concentrates, 18,786 tons | 17,781 | 100,502 | 9,975,337 | | | |
| Providence | Greenwood | W. E. MacArthur, Greenwood | 53 | Siliceous ore from dump | 8 | 593 | 64 | 534 | 321 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Kamloops Mining Division* | | | | | | | | | | |
| Bethlehem | Highland Valley | Bethlehem Copper Corp. Ltd. | 6,339,122 | Copper concentrates, 114,951 tons | | 176,000 | 73,301,000 | | | |
| Lornex mine | Highland Valley | Lornex Mining Corp. Ltd. | 13,987,000 | Copper concentrates, 154,414 tons, molybdenite concentrates, 6,315 tons containing 3,385,000 lb. of molybdenum | 763 | 431,000 | 102,180,000 | | | |
| Mosquito King, Ex. | Adams Plateau | Consolidated Giant Metallics Ltd. | 220 | Lead concentrates, 16 tons; zinc concentrates 11 tons | | 726 | | 17,453 | 13,386 | 93 |
| *Liard Mining Division* | | | | | | | | | | |
| Magnum mine | Delano Creek | Consolidated Churchill Copper Corp. Ltd. | | Ore stockpiled, 13,471 tons | | | | | | |
| *Lillooet Mining Division* | | | | | | | | | | |
| Nil | | | | | | | | | | |
| *Nanaimo Mining Division* | | | | | | | | | | |
| Island Copper mine | Port Hardy | Utah Mines Ltd. | 12,071,446 | Copper concentrates, 228,104 tons; molybdenite concentrates, 1,105 tons containing 970,500 lb. of molybdenum; rhenium shipments are confidential | 49,729 | 269,331 | 106,724,851 | | | |
| Old Sport mine | Benson Lake | Coast Copper Co. Ltd. | | Copper concentrates shipped from stockpile, 3,665 tons; mine ceased production in 1972 | 1,026 | 7,696 | 1,776,680 | | | |
| Texada mine | Texada Island | Texada Mines Ltd. | 1,029,189 | Iron concentrates, 520,022 tons; copper concentrates 9,716 tons | 1,897 | 58,590 | 4,532,896 | | | |
| *Nelson Mining Division* | | | | | | | | | | |
| Annex | Nelway | Reeves MacDonald Mines Ltd. | 191,438 | Lead concentrates, 4,207 tons; zinc concentrates, 14,127 tons | | 159,543 | | 5,641,590 | 15,748,032 | 161,477 |
| Golden Age, Euphrates | Nelson | Robert Mines Ltd. | 88 | Test shipment | 7 | 101 | 236 | 241 | 241 | |
| Goodenough | Ymir | E. B. Carlson, L. Masura, P. Marchinck, Trail | 44 | Test shipment of siliceous ore | 2 | 110 | | 2,284 | 2,020 | |
| H.B. | Salmo | Cominco Ltd. | 351,682 | Lead concentrates, 4,416 tons; zinc concentrates 24,250 tons | 28 | 42,195 | | 6,185,800 | 26,525,600 | 209,003 |
| Invincible, East Dodger | Salmo, Iron Mountain | Canex Placer Ltd., Tungsten Division | 106,763 | Tungsten concentrates, 1,086 tons; containing 1,411,800 lb. of tungsten ($WO_3$) | | | | | | |
| Nugget | Salmo | S. A. Endersby, White Rock | 649 | Siliceous ore from tailings | 161 | 144 | | 1,457 | 1,298 | |
| Reno | Salmo | S. A. Endersby, White Rock | 138 | Siliceous ore from dump | 39 | 14 | | 275 | 275 | |
| Ymir | Ymir | A. M. Gerun, Nelson (lessee) | 49 | Crude ore from dump | 1 | 59 | 20 | 489 | 489 | |

## *Table 12—Metal Production, 1973*—Continued

| Property or Mine | Location of Mine | Owner or Agent | Ore Shipped or Treated | Product Shipped | Gross Metal Content | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Gold | Silver | Copper | Lead | Zinc | Cadmium |
| | | | | | Oz. | Oz. | Lb. | Lb. | Lb. | Lb. |
| ***New Westminster Mining Division*** | | | | | | | | | | |
| Pride of Emory mine | Hope | Giant Mascot Mines Ltd. | 352,758 | Nickel-copper concentrates, 14,746 tons containing 2,803,945 lb. nickel and 40,907 lb. of cobalt | | | 1,880,057 | | | |
| ***Nicola Mining Division*** | | | | | | | | | | |
| Craigmont mine | Merritt | Craigmont Mines Ltd. | 1,429,556 | Copper concentrates, 65,103 tons; iron concentrates, 38,799 tons | | | 38,605,663 | | | |
| ***Omineca Mining Division*** | | | | | | | | | | |
| Bell mine (Newman) | Babine Lake | Noranda Mines Ltd. (Bell Copper Division) | 4,114,324 | Copper concentrates, 75,200 tons | 24,888 | | 38,026,499 | | | |
| Cronin mine | Smithers | Hallmark Resources Ltd. | 2,000 | Lead concentrates, 86 tons; zinc concentrates, 80 tons | 11 | 8,125 | 2,967 | 92,732 | 109,195 | 1,122 |
| Endako mine | Endako | Canex Placer Ltd. (Endako Mines Division) | 8,446,000 | Molybdenite concentrates, 3,098 tons; molybdenum trioxide, 7,905 tons; ferro-molybdenum, 1,015 tons; total content, 14,134,510 lb. of molybdenum | | | | | | |
| Granisle mine | Babine Lake | Granisle Copper Ltd. | 4,545,105 | Copper concentrates, 56,844 tons | 16,676 | 176,448 | 39,565,757 | | | |
| Pinchi Lake mine | Pinchi Lake | Cominco Ltd. | (1) | Mercury | | | | | | |
| Silver Queen | Houston | Bradina Joint Venture | 98,278 | Copper concentrates, 1,386 tons; zinc concentrates, 10,759 tons | 1,913 | 301,573 | 543,780 | 1,181,214 | 8,617,475 | 20,120 |
| Silver Standard mine | Hazelton | George Braum, New Hazelton | 130 | Lead-zinc concentrates 7 tons; crude ore, 80 tons | 12 | 7,009 | | 15,548 | 23,463 | |
| ***Osoyoos Mining Division*** | | | | | | | | | | |
| Brenda mine | Brenda Lake | Brenda Mines Ltd. | 8,867,805 | Copper concentrates, 62,985 tons; molybdenite concentrate, 9,837 tons containing 11,105,912 lb. of molybdenum | 3,497 | 259,628 | 34,096,095 | | | |
| Smuggler | Fairview | K. G. Ewers, Okanagan Falls | 20 | Crude ore | 8 | 24 | | 40 | 79 | |
| Susie | Oliver | Hem Mines Ltd. | 2,788 | Crude ore | 284 | 5,704 | | 14,274 | 7,368 | |
| Torres | Oliver | Topper Mining Ltd. | 44 | Siliceous ore | 2 | 26 | | 176 | 88 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Revelstoke Mining Division* | | | | | | | | | | |
| Mike | Ferguson | H. A. McGowan, Ferguson | 2 | Crude ore | | 25 | | 430 | 1,448 | |
| Mount Copeland mine | Revelstoke | King Resources Co. | 21,761 | Molybdenite concentrates, 271 tons containing 301,471 lb. of molybdenum | | | | | | |
| Silver Cup, Towser | Ferguson | Pandora Management Ltd. | 440 | Crude ore | 69 | 9,696 | | 29,012 | 23,368 | |
| *Similkameen Mining Division* | | | | | | | | | | |
| Goldrop | Whipsaw Creek | Robert Dealy, Oliver | 257 | Crude ore | 113 | 1,090 | | 1,569 | 513 | |
| Similkameen mine (Ingerbelle) | Princeton | Similkameen Mining Co. Ltd. | 5,356,829 | Copper concentrates, 76,446 tons | 28,942 | 133,528 | 41,802,628 | | | |
| *Skeena Mining Division* | | | | | | | | | | |
| Blue Grouse | Stewart | John Lehto, Stewart | 4 | Crude ore | | 582 | | 2,390 | 1,237 | |
| Granduc mine | Stewart | Granduc Operating Co. | 2,797,948 | Copper concentrates, 124,809 tons | 11,004 | 651,373 | 69,553,559 | | | |
| Red Cliff mine | Stewart | Adam Milling Ltd. | 4,154[2] | | | | | | | |
| Tasu mine | Tasu Harbour | Wesfrob Mines Ltd. | 1,781,379 | Iron concentrates, 995,694 tons; copper concentrates, 18,308 tons | 3,010 | 110,128 | 7,486,860 | | | |
| *Slocan Mining Division* | | | | | | | | | | |
| Best | New Denver | Thomas Eccles, Trail | 10 | Crude ore | | 145 | | 416 | 250 | |
| Bluebell | Riondell | D. Pearce, Nelson | | Lead concentrates, 65 tons; salvage from Kootenay Bay | | 489 | | 41,432 | 5,632 | |
| Dublin Queen | New Denver | Fostall Mines Ltd. | 8 | Crude ore | | 407 | | 6,562 | 2,540 | |
| Enterprise | Slocan City | L. M. Fried, New Denver | 67 | Crude ore | | 1,917 | | 17,836 | 24,165 | |
| Freddy | Silverton | V. Hansen, New Denver | 33 | Crude ore | 2 | 1,038 | | 264 | 132 | |
| Little Tim (V-Day) | Slocan City | Wayne Turley, Kaslo | 2 | Crude ore | | 369 | 31 | 450 | 320 | |
| Marmion, Maryland | Slocan City | M. R. Maze, Castlegar | 7 | Crude ore | 4 | 14 | | 56 | 28 | |
| Mary | Enterprise Creek | S. Berisoff, Silverton | 14 | Crude ore | 5 | 143 | | 1,833 | 291 | |
| Nor | Ainsworth | H. McGowan, Ainsworth | 74 | Crude ore | | 522 | | 863 | 1,554 | |
| Ottawa | Springer Creek | Mike Poznikoff, Slocan City | 28 | Crude ore | | 8,620 | | 307 | 128 | |
| Silmonac (Minniehaha) | Sandon | Kam-Kotia and Burkam Joint Venture | 13,949 | Lead concentrates, 1,172 tons; zinc concentrates, 1,133 tons | | 190,133 | | 1,436,333 | 1,386,171 | 9,533 |
| Silver Hoard, Dellie, Little May | Ainsworth | R. B. Savage, Taghum | 891 | Crude ore | 1 | 3,855 | | 9,265 | 20,223 | |
| Victor (Violamac) | Sandon | E. Peterson, New Denver | 30 | Crude ore | 6 | 3,479 | | 41,127 | 1,068 | |
| Washington | Retallack, Three Forks | J. O. H. Nesbitt | 17 | Crude ore | | 2,152 | | 25,824 | 1,007 | |
| *Trail Creek Mining Division* | | | | | | | | | | |
| Blue Bird | Rossland | Standonray Mines Ltd. | 487 | Crude ore | 72 | 7,472 | | 40,742 | 55,609 | |
| I.X.L. | Rossland | J. A. Ruelle, Rossland | 26 | High-grade ore | 87 | 31 | | 52 | 52 | |
| Midnight | Rossland | Consolidated Cinola Mines Ltd. | 219 | Crude ore | 131 | 77 | | 879 | 855 | |

[1] Details confidential.
[2] Produced 146 tons of copper concentrates, 8 tons of silver concentrates, and 4,000 tons of broken ore.

## *Table 12—Metal Production, 1973*—Continued

| Property or Mine | Location of Mine | Owner or Agent | Ore Shipped or Treated | Product Shipped | Gross Metal Content | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Gold | Silver | Copper | Lead | Zinc | Cadmium |
| | | | Tons | | Oz. | Oz. | Lb. | Lb. | Lb. | Lb. |
| ***Vancouver Mining Division*** | | | | | | | | | | |
| Britannia mine | Howe Sound | Anaconda Canada Ltd. | 548,801 | Copper concentrates, 25,216 tons | | 102,913 | 14,954,100 | | | |
| ***Vernon Mining Division*** | | | | | | | | | | |
| Chaput | Lumby | Alberta Gypsum Ltd. | 6 | Mill salvage | | 262 | | 477 | 432 | |
| St. Paul | Monashee Mountain | W. Miller, Vernon | 19 | Silver concentrates, 5 tons; crude ore, 14 tons | 21 | 424 | | 854 | 153 | |
| ***Victoria Mining Division*** | | | | | | | | | | |
| Sunro mine | River Jordan | Jordan River Mines Ltd. | 273,628 | Copper concentrates, 9,137 tons | 943 | 10,220 | 4,397,828 | | | |

# Departmental Work

## CHAPTER 3

## APPOINTMENTS

John E. McMynn was appointed Deputy Minister of the Department of Mines and Petroleum Resources on May 1, 1973.

Dr. J. T. Fyles was appointed Associate Deputy Minister, Mineral Resources Branch, Department of Mines and Petroleum Resources, on September 1, 1973.

John D. Lineham was appointed Associate Deputy Minister, Petroleum Resources Branch, Department of Mines and Petroleum Resources, on September 1, 1973.

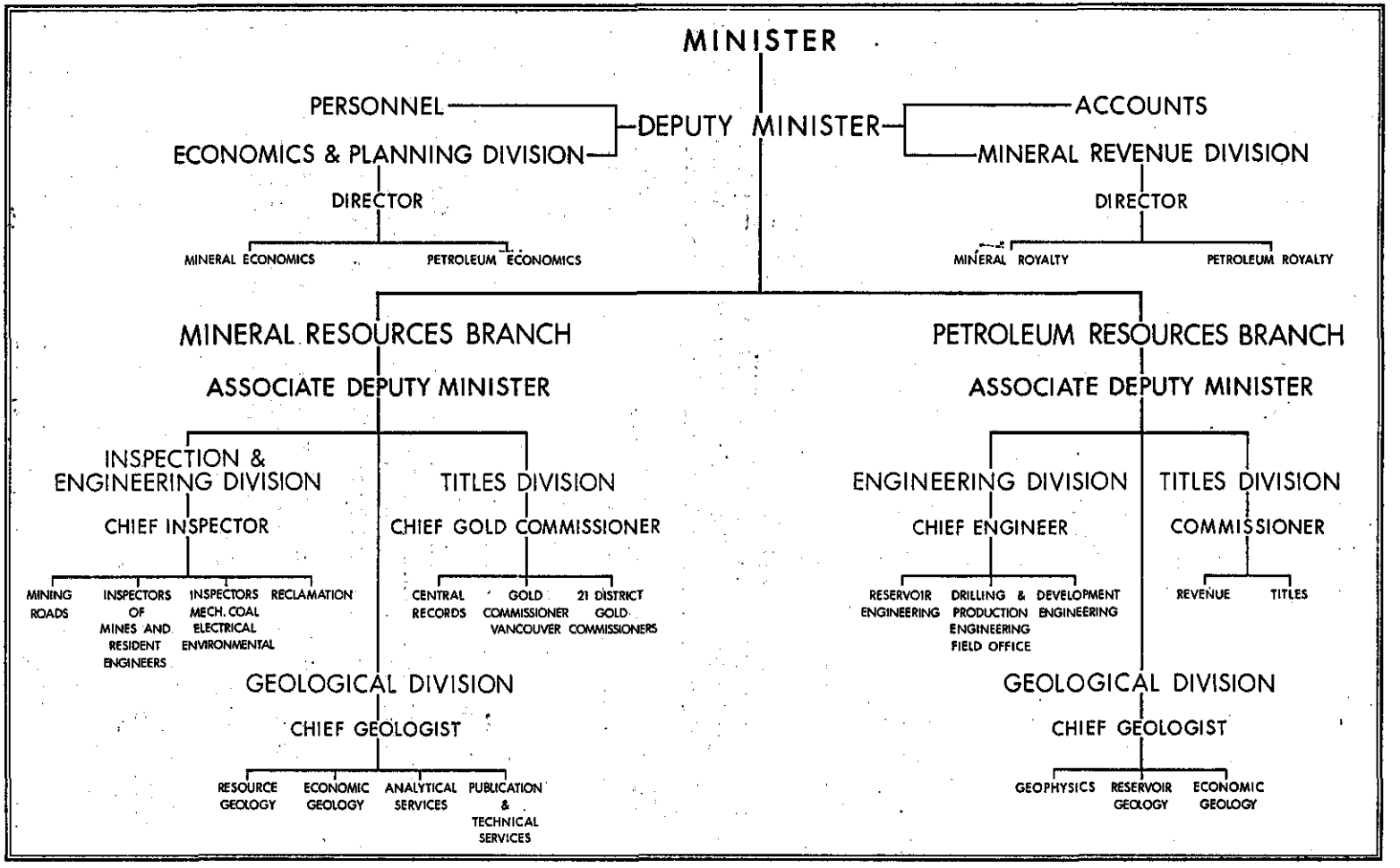
## RETIREMENT

Stanley W. Metcalfe retired as Chief Analyst and Assayer on May 17, 1973, after serving 29 years with the Analytical Branch. Mr. Metcalfe was born in Nelson, where he received his early schooling. He attended the University of British Columbia and graduated with a master's degree in chemistry. While at university he did research work on explosives for the National Research Council. Prior to graduation he worked for the Department as an apprentice assayer and holds a certificate of efficiency in the practice of assaying. He was mine assayer at Zeballos and at Bayonne Consolidated Mines Ltd. He was employed as an assistant chemist by the British Columbia Cement Co. Ltd. He joined the Analytical Branch on May 15, 1944, as Senior Analyst and was promoted to Chief Analyst in 1958, a position he held until his early retirement. He is a member of the Chemical Institute of Canada and the American Chemical Society.

## ORGANIZATION

The organization of the Department of Mines and Petroleum Resources is displayed in the chart on page A 59. A major reorganization of the Department took place in 1973 and the establishment of new staff positions continued into 1974. The Department was divided into two branches, the Petroleum Resources Branch and the Mineral Resources Branch, with an Associate Deputy Minister in charge of each. The Petroleum Resources Branch assumed the work of the former Petroleum and Natural Gas Branch and Petroleum and Natural Gas Titles of the office of the Chief Commissioner. The Mineral Resources Branch became responsible for the former Inspection Branch, the Mineralogical Branch, and the office of the Chief Gold Commissioner, which were renamed Inspection and Engineering Division, Geological Division, and Titles Division, each directed by a Division Chief. Similar divisions were established in the Petroleum Resources Branch as indicated in the accompanying chart. Sections within these divisions, which had been informally recognized previously, were formally established under a Senior Geologist, Inspector, or Engineer.

Two new divisions created at the time of reorganization of the Department in the latter part of the year are the Mineral Revenue Division and the Economics and Planning Division, to become fully operative in 1974. The Director of Mineral Revenue is H. Horn and the Director of Economics and Planning is J. S. Poyen. The function of the Mineral Revenue Division is to collect royalties under the *Petroleum and Natural Gas Act*, and *Mineral Royalties Act* to be introduced in 1974, and to collect taxes under the *Mineral Land Tax Act*. The purpose of the Economics and Planning Division is to be responsible for the collection, compilation, and analysis of statistical data for the mineral industry. This function, related to solid minerals, was formerly carried out by the Bureau of Economics and Statistics of the Department of Industrial Development, Trade, and Commerce. The Economics and Planning Division will also compile data on mineral commodities,


MINISTER
PERSONNEL
ECONOMICS & PLANNING DIVISION
DEPUTY MINISTER
ACCOUNTS
MINERAL REVENUE DIVISION
DIRECTOR
MINERAL ECONOMICS
PETROLEUM ECONOMICS
DIRECTOR
MINERAL ROYALTY
PETROLEUM ROYALTY
MINERAL RESOURCES BRANCH
ASSOCIATE DEPUTY MINISTER
PETROLEUM RESOURCES BRANCH
ASSOCIATE DEPUTY MINISTER
INSPECTION & ENGINEERING DIVISION
CHIEF INSPECTOR
TITLES DIVISION
CHIEF GOLD COMMISSIONER
ENGINEERING DIVISION
CHIEF ENGINEER
TITLES DIVISION
COMMISSIONER
MINING ROADS
INSPECTORS OF MINES AND RESIDENT ENGINEERS
INSPECTORS MECH. COAL ELECTRICAL ENVIRONMENTAL
RECLAMATION
CENTRAL RECORDS
GOLD COMMISSIONER VANCOUVER
21 DISTRICT GOLD COMMISSIONERS
RESERVOIR ENGINEERING
DRILLING & PRODUCTION ENGINEERING FIELD OFFICE
DEVELOPMENT ENGINEERING
REVENUE
TITLES
GEOLOGICAL DIVISION
CHIEF GEOLOGIST
GEOLOGICAL DIVISION
CHIEF GEOLOGIST
RESOURCE GEOLOGY
ECONOMIC GEOLOGY
ANALYTICAL SERVICES
PUBLICATION & TECHNICAL SERVICES
GEOPHYSICS
RESERVOIR GEOLOGY
ECONOMIC GEOLOGY

corporate structure and financing, and the marketing of minerals. It will initiate a variety of economic studies in both the solid mineral and petroleum and natural gas fields.

It is expected that a third new division under the Deputy Minister, called the Administrative Services Division, will be formed in 1974 and will complete the reorganization.

The reorganization was introduced to place greater emphasis on the technical aspects of petroleum and natural gas administration, to consolidate the collection of direct revenue from mineral development in one division of this Department, and to change the role of the Department.

## NEW LEGISLATION

*Iron Bounty Act and Copper Bounty Act*—Both of these Acts were repealed at the Spring Session of the Legislature.

*Mineral Land Tax Act*—This Act, introduced at the Spring Session of the Legislature, came into effect in January 1974. It provides for the taxation of land, the mineral rights to which are held by owners other than the Crown. Primarily this land consists of Crown-granted mineral claims and the railway land grants in which minerals are held by the grantee.

Three levels of taxation are imposed, one on nondesignated land, another on designated production areas, and a third on designated production tracts. On nondesignated land, owners will pay from 25 cents to $1 per acre, depending on the size of their holdings. On production areas, a tax of $2 per acre is levied, and on production tracts the tax is assessed at a mill rate specified by Order in Council but not exceeding 25 mills. This assessed value is related to value of production from within the tract. Provision is made for the surrender of mineral lands to the Crown.

*Geothermal Resources Act*—This Act, introduced at the Fall Session of the Legislature, reserves to the Crown the right to all geothermal resources within the Province.

## PETROLEUM RESOURCES BRANCH

The Petroleum Resources Branch was established pursuant to the *Department of Mines and Petroleum Resources Act,* as amended during the Fall Session of the 1973 Legislative Assembly. In effect, the former Petroleum and Natural Gas Branch and the Petroleum and Natural Gas Titles Section of the former Administration Branch were combined to bring all matters concerning petroleum and natural gas under a single branch. The one exception is the administration of the royalty regulations, which was assumed by the Mineral Revenue Division of the Department.

The Petroleum Resources Branch, under the direction of the Associate Deputy Minister of Petroleum Resources, is responsible for the administration of the *Petroleum and Natural Gas Act, 1965* and the regulations made thereunder, including the Drilling and Production Regulations, the Geophysical Regulations, the Drilling Reservation Regulations, and the Development Road Regulations. It also administers the *Underground Storage Act, 1964.* In general, the Branch is responsible for all matters related to the disposition of Crown-owned petroleum and natural gas rights, and for the regulation of exploration, development, and production activities conducted by the oil and gas industry.

The Branch is organized into three divisions, the Engineering Division, the Geological Division, and the Titles Division, which are supervised on an interim basis by A. J. Dingley, W. M. Young, and R. E. Moss respectively.

## STAFF

On December 31, 1973, the professional and technical staff included the following:

### Headquarters Staff

| | |
|---|---|
| J. D. Lineham, P.Eng. | Associate Deputy Minister and Chief of Branch |
| A. J. Dingley, P.Eng. | Chief Engineer |
| W. L. Ingram, P.Eng. | Senior Development Engineer |
| B. T. Barber, P.Eng. | Senior Reservoir Engineer |
| P. S. Attariwala, P.Eng. | Reservoir Engineer |
| P. K. Huus | Reservoir Technician (Engineering) |
| M. B. Hamersley, C.E.T. | Development Technician (Engineering) |
| W. M. Young, P.Eng. | Chief Geologist |
| S. S. Cosburn, P.Eng. | Economic Geologist |
| T. B. Ramsay, P.Eng. | Economic Geologist |
| J. Y. Smith, P.Eng. | Economic Geologist |
| R. Stewart, P.Eng. | Reservoir Geologist |
| R. E. Moss | Chief Commissioner |
| W. W. Ross | Assistant Commissioner |

### Field Office, Charlie Lake

| | |
|---|---|
| D. L. Johnson, P.Eng. | District Engineer |
| T. B. Smith, P.Eng. (until Sept. 19) | Field Engineer |
| D. A. Selby | Field Technician (Engineering) |
| G. T. Mohler | Field Technician (Engineering) |
| W. B. Holland, C.E.T. | Field Technician (Engineering) |
| J. W. D. Kielo | Field Technician (Engineering) |
| G. L. Holland | Field Technician (Engineering) |
| J. L. Withers | Geophysical Technician (Engineering) |

### Staff Changes

G. L. Holland, Field Technician (Engineering), joined the staff on January 22. T. B. Smith, Field Engineer, resigned effective September 19. J. L. Withers, Geophysical Technician (Engineering), joined the staff on October 15, W. W. Ross, Deputy Chief Petroleum and Natural Gas Commissioner, transferred to the Mineral Revenue Division as Assistant Director on December 5.

## ENGINEERING DIVISION

The Engineering Division, under the direction of A. J. Dingley, Chief Engineer, consists of a Reservoir Engineering Section supervised by B. T. Barber and a Development Engineering Section supervised by W. L. Ingram.

The Reservoir Engineering Section is responsible for determination of reservoir and production characteristics of oil and gas pools in the Province. This involves interpretation of reservoir pressure, rock and fluid properties, and production data. These parameters are used to forecast ultimate recoveries obtainable from oil and gas accumulations in the Province, and the rates at which these volumes will be produced. The Section maintains files of reservoir data, obtained from both industry and Branch sources, and reviews such data for quality. Oil and gas allowable rates are set by the Section, and recommendations concerning proposed

improved recovery and produced fluid disposition schemes are made. The Section is concerned with technical aspects of matters affecting conservation and correlative rights.

The Development Engineering Section is responsible for all matters related to the location, drilling, completion, and abandonment of wells in the Province. This involves the assurance that operators of all wells drilled conform to the requirements of the Drilling and Production Regulations, which includes the submission of prescribed forms and information.

## GEOLOGICAL DIVISION

The Geological Division, under the direction of W. M. Young, is responsible for the preservation and evaluation of certain well data and the administration of the Branch well evaluation requirements. Data resulting from the drilling of wells, geophysical surveys, and other related sources in the Province in search for and development of accumulations of oil and gas are supplied to the Branch. These data are made use of by staff geologists as a basis for reports on, and maps and cross-sections of, the economically important sedimentary rocks of the Province. The Division is responsible for providing data and opinion to attract and encourage the exploration and development of the petroleum resources of the Province.

All geological and geophysical reports submitted to the Branch in support of work requirements are assessed to ensure that the Department receives full value for credits or other benefits granted.

## TITLES DIVISION

Petroleum and Natural Gas Titles Division, under the direction of R. E. Moss, Chief Commissioner, is responsible for the administration of the *Petroleum and Natural Gas Act, 1965,* which includes all matters related to and affecting title to Crown petroleum and natural gas rights and includes the collection of revenue from fees, rents, disposition, and royalties. Regulations governing geophysical operations and petroleum-development roads are also administered by the Chief Commissioner.

Information concerning all forms of title issued under the *Petroleum and Natural Gas Act, 1965* may be obtained upon application to the office of the Chief Commissioner, Department of Mines and Petroleum Resources, Victoria. Maps showing the locations of all forms of title issued under the *Petroleum and Natural Gas Act* are available, and copies may be obtained upon application to the office of the Department of Mines and Petroleum Resources, Victoria. Monthly land reports and monthly reports listing additions and revisions to permit-location maps and listing changes in title to permits, licences, and leases, and related matters are available from the office of the Chief Commissioner upon application and payment of the required fee.

## BOARD OF ARBITRATION

Chairman: A. W. Hobbs, Q.C.
Vice-Chairman: S. G. Preston, P.Ag.
Member: J. D. Lineham, P.Eng.

The Board of Arbitration, established under the authority of the *Petroleum and Natural Gas Act, 1965,* grants right-of-entry to oil and gas companies upon alienated land and determines condition of entry and compensation therefor. It also terminates the right-of-entry when a company has ceased to use the land.

In 1973, three applications for right-of-entry were submitted to the Board.

Two right-of-entry orders were issued and three were terminated after the parties reached agreement.

A hearing was held on December 11 at Fort St. John. The six cases scheduled to be heard were disposed in 1973 as follows: One compensation award order was issued; one award order was issued but the compensation quantum was set aside until both parties are heard in 1974; one compensation award order was pending at the end of the year awaiting inspection of the site; one compensation award order was pending awaiting establishment by the Board of the compensation; and two cases were set aside until 1974, one by request of the land-owner involved and the other due to the absence at the hearing of the land-owner.

Six cases were outstanding at the end of the year. These involve one where the award will be determined after weather conditions permit inspection of the site; one where the award will be determined after both parties have been heard again in 1974; one where both parties have been heard but the award has not been established; two where the cases were set aside to be heard in 1974; and one application received late in the year.

## CONSERVATION COMMITTEE

The Conservation Committee, established on October 11, 1957, under the *Petroleum and Natural Gas Act, 1965*, is responsible to the Minister of Mines and Petroleum Resources. Its duties are as follows:

(1) To act as an advisory committee to the Minister on such questions of conservation that the Minister, in writing, shall refer to the Committee for consideration and recommendation.

(2) To deal with such questions of conservation and production in the various fields of British Columbia as may arise between two or more operators in the same field or between operators and the Branch when appeals on such questions are made to the Minister and referred by him to the Committee.

No officers are currently named for the Committee and it did not meet in 1973.

# MINERAL RESOURCES BRANCH

## GEOLOGICAL DIVISION

The function of the Geological Division is to provide information on the quantity and distribution of the coal and mineral resources of the Province and to assist in the orderly discovery, exploration, development, and use of these resources. To achieve these objectives the Division conducts the following major programmes:

(1) Produces and publishes geological maps and related laboratory studies of regions of high and moderate mineral potential.

(2) Examines and studies mineral and coal deposits.

(3) Collects, collates, stores, and disseminates geological and statistical data recording the activities of the industry in exploration and production.

(4) Makes mineral evaluation assessments of land and produces maps showing these evaluations for land use and planning purposes.

(5) Provides chemical analyses for Departmental studies and for bona fide prospectors.

(6) Supplies both general and specific information regarding mineral deposits, mineral resources, and the mineral industry to government, the general public, and to the industry.

Information produced or gathered by the Division is made available through a series of publications and also through public access to open files. The most important publications produced include the following:

(1) *Geology, Exploration and Mining in British Columbia*, an annual publication, includes summaries of all known exploration activities in the Province, developments at mines, and reports by departmental geologists on projects investigated by them. It includes chapters on metal mines, placer deposits, industrial minerals and structural materials, and coal.

(2) Bulletins produced at irregular intervals are authoritative reports by Division geologists prepared after completion of a mapping project and its related laboratory and office studies.

(3) Preliminary maps are issued to show significant progress on geological projects that are of current interest for exploration.

(4) Mineral Inventory maps showing the location of all known mineral deposits and commodities present.

(5) Mineral Deposit-Land Use maps which show an interpretation of the relative exploration potential of regions.

(6) Aeromagnetic maps, produced co-operatively with the Geological Survey of Canada which are useful as a guide to prospecting and to interpreting geology.

## Staff

The professional staff are highly qualified academically, are experienced in the industry, and many are widely acknowledged experts in their fields. On December 31, 1973, the professional and technical staff included the following:

| | |
|---|---|
| Stuart S. Holland, Ph.D., P.Eng. | Chief Geologist |
| A. Sutherland Brown, Ph.D., P.Eng. | Deputy Chief Geologist |
| N. C. Carter, M.Sc., P.Eng. | Senior Geologist |
| E. W. Grove, Ph.D., P.Eng. | Senior Geologist |
| W. M. Johnson, Ph.D. | Chief Analyst |
| P. F. Ralph, L.R.I.C. | Deputy Chief Analyst |
| B. N. Church, Ph.D., P.Eng. | Geologist |
| G. E. P. Eastwood, Ph.D., P.Eng. | Geologist |
| J. A. Garnett, Ph.D., P.Eng. | Geologist |
| E. V. Jackson, B.Sc., P.Eng. | Geologist |
| J. W. McCammon, M.A.Sc., P.Eng. | Geologist |
| W. J. McMillan, Ph.D., P.Eng. | Geologist |
| K. E. Northcote, Ph.D., P.Eng. | Geologist |
| A. Panteleyev, M.Sc., P.Eng. | Geologist |
| D. E. Pearson, Ph.D., P.Eng. | Geologist |
| V. A. Preto, Ph.D., P.Eng. | Geologist |
| A. F. Shepherd, B.A.Sc., P.Eng. | Geologist |
| R. I. Thompson, Ph.D., P.Eng. | Geologist |
| G. P. E. White, B.Sc., P.Eng. | District Geologist, Kamloops |
| T. G. Schroeter, M.Sc., P.Eng. | District Geologist, Smithers |
| G. L. James | Research Officer (Geology) |
| Miss Judith Winsby, B.Sc. | Research Officer (Geology) |

| | |
|---|---|
| N. G. Colvin | Laboratory Scientist |
| R. J. Hibberson, B.Sc. | Laboratory Scientist |
| B. Bhagwanani, B.Sc. | Laboratory Technician |
| M. A. Chaudhry | Laboratory Technician |
| F. F. Karpick | Assayer |
| L. E. Shepherd | Laboratory Technician |
| Mrs. V. V. Vilkos, Ph.D. | Laboratory Technician |

In addition to the staff, the Division has contracted for the services of G. L. Bell, M.Sc., P.Eng., as Coal Consultant, and of W. D. McCartney, Ph.D., P.Eng., and A. H. Matheson, B.Sc., to prepare the Mineral Deposit-Land Use maps.

*Staff Changes*

Dr. E. W. Grove, a graduate of the University of British Columbia and McGill University, was appointed Senior Geologist, Economic Geology Section, in October 1973.

Dr. D. E. Pearson, a graduate of the University of Wales and University College, Swansea, a former member of the Geological Survey of Saskatchewan, joined the staff in April 1973.

G. P. E. White, a graduate of the University of New Brunswick, joined the staff as District Geologist, Kamloops, in September 1973.

T. G. Schroeter, a graduate of the University of Western Ontario, joined the staff as District Geologist, Smithers, in October 1973.

Miss Judith Winsby, a graduate of the University of British Columbia, joined the staff as Research Officer (Geology) in May 1973.

George James joined the staff as Research Officer (Geology) in May 1973.

The Analytical Laboratory had a large turnover of staff in 1973. Stanley Metcalfe retired from his position as Chief Analyst, his secretary, Mrs. Lillian Collins, also retired, and Mrs. Elizabeth Juhasz transferred to the Engineering Division within the Forest Service.

Dr. Wesley M. Johnson took over as Chief Analyst and Paul Ralph joined the staff in May as Deputy Chief Analyst. Three new technicians were hired, one as a replacement for Mrs. Juhasz, and two to fill new positions created to cope with the expanding work load of the laboratory. The new personnel are Dr. Verna Vilkos, B. Bhagwanani, and M. A. Chaudhry.

## ORGANIZATION

The Geological Division, Mineral Resources Branch, was called the Mineralogical Branch prior to the reorganization of the Department in 1973. The present name more closely defines its role. The Division consists of four sections, two operational and two service sections. These are the Economic Geology and Resource Geology Sections, supported by the Analytical Services and Publication and Technical Services Sections.

### *Resource Geology Section*

The Resource Geology Section, under the direction of N. C. Carter, undertakes office and field studies concerned with resource appraisal. The importance of this section is that it provides an inventory of the mineral resource, monitors its activity, and appraises its potential. Adequate planning and administration of the

resource are impossible if these functions are not adequately performed. To fulfil these functions, in 1973 the Section conducted the following major programmes:

(1) Documentation of current exploration and mining activity and preparation of short reports for *Geology, Exploration and Mining in British Columbia* (by E. V. Jackson, Judith Winsby, and G. L. James).

(2) Compilation and updating the inventory of mineral deposits of the Province. The inventory now consists of approximately 6,500 deposits plotted on 1:250,000, or 1 inch equals 2 miles maps with data concerning individual deposits entered on 8½ by 11-inch cards. The inventory is considered to be about 70 per cent complete.

(3) Preparation of Mineral Deposit-Land Use maps. These maps are based on the British Columbia Mineral Inventory plus interpretative appraisal of regional geology so as to produce maps at a scale of 1:250,000 of the varying mineral potential of the land. They are useful for planning purposes and as guides for exploration. Maps are finished for that part of British Columbia north of latitude 54 degrees and west of the Rocky Mountain Trench and for selected parts of the south (Dr. McCartney and A. H. Matheson).

(4) District Geologists assist in documenting current exploration activity in their districts, carry out selected field studies, provide liaison with Government intersector committees and with industry, as well as provide information and advice to prospectors (G. P. E. White and T. G. Schroeter). These District Geologists were only appointed in the autumn of 1973, but already have proved to be very effective in their roles.

(5) Appraisals of coal and nonmetallic mineral deposits are made by G. L. Bell and J. W. McCammon respectively. Field work for coal appraisal was carried out by Bell at all active coal properties and by McCammon at all sand and gravel pits on the Lower Mainland.

(6) Appraisals of 715 reports on mineral deposits submitted for assessment credits were carried out by Dr. G. E. P. Eastwood.

(7) Appraisals of proposed Park and Ecological Reserves were carried out by office and field studies by N. C. Carter with the aid of geologists familiar with specific areas. About 25 park proposals and 35 ecological reserves were dealt with. Two potential parks, Schoen Lake-Tsitika on Vancouver Island and Fish Egg Inlet on the central Mainland coast, required extensive field appraisals by Dr. Northcote and Dr. Pearson respectively.

### *Economic Geology Section*

The Economic Geology Section, under the direction of Dr. E. W. Grove, is concerned with geological mapping and related laboratory and office studies of areas of moderate and high mineral potential. With nonrenewable resources such as mineral deposits, discovery must equal exploitation if the resource is not to be depleted. Most of the obvious outcropping ore deposits probably have been found, consequently, the discovery of the many additional covered, buried, or obscure ones will require sound geological deductions and advanced exploration techniques.

The importance of the studies of this Section is to provide maps and ideas necessary for intelligent and successful prospecting and exploration.

The Section consists of nine geologists who worked on the following major projects in 1973:

B. N. Church started mapping the volcanic rocks and the stratiform copper deposits of the Sustut area.

J. A. Garnett completed mapping of the southern Omineca intrusions and their copper and molybdenum deposits.

E. W. Grove continued a comparative study of massive sulphide deposits, with mapping at Granduc mine.

W. J. McMillan completed mapping of the Guichon Creek batholith and the porphyry copper and molybdenum deposits of the Highland Valley. On the same project, E. W. Grove completed the detailed sampling of this, the most copper-rich intrusive body known in the Province, to study the chemistry in relation to the origin of the known ore deposits and discovery of others.

K. E. Northcote continued his detailed study of the mineral deposits of Vancouver Island.

A. Panteleyev continued mapping the volcanic rocks, syenitic intrusions, and copper deposits of the Stikine area.

D. E. Pearson took over from R. I. Thompson in mapping of the volcanic rocks west of Harrison Lake and their copper deposits.

V. A. Preto continued mapping volcanic and intrusive rocks between Princeton and Merritt that are noted for their abundant copper prospects.

R. I. Thompson completed mapping of the area and zinc deposits near Robb Lake in the northern Rocky Mountains.

In addition, N. C. Carter completed his studies of the age and nature of porphyry copper and molybdenum deposits of west central British Columbia and A. Sutherland Brown mapped the Gibraltar mine. A number of smaller projects and preliminary work on future major projects were also conducted.

### *Analytical Services Section*

The Analytical Services Section has functioned under the direction of the Chief of the Mineralogical Branch since January 1970, but was not fully integrated into the Geological Division until the reorganization of 1973. The laboratory, under the direction of Dr. W. M. Johnson, underwent considerable change in 1973, it being the culmination of three years of modernization, reorganization, and modest expansion. Chemical analyses for metals, major oxides, and trace elements for a most important part of information used by geologists of the Economic Geology Section and the capability of the new laboratory enables that Section to carry on an effective programme. The laboratory also performs analyses for other Government agencies and a limited number of analyses for prospectors.

The laboratory is equipped with an X-ray diffraction spectrometer, an emission spectrograph, two absorption spectrophotometers, and other analytical instruments. It also has the facilities to do both classical wet chemical analyses and noble metal analyses, using fire assaying techniques.

The laboratory, in its primary role of providing chemical data for the Economic Geology Section, is involved in two silt geochemical surveys and several large rock geochemical surveys, including the Guichon Creek batholith project. Other services for the geologists include X-ray mineral identification, mineral separations for age dating by K-Ar analysis, arc fusion for refractive index determinations, quantitative quartz and other mineral analyses, quantitative and semiquantitative

spectrochemical analyses, as well as the normal functions of total silicate, major oxide trace element, base and noble metal analyses.

Other work of the laboratory includes free assays for prospectors under the *Prospectors' Grub-stake Act* and up to five free analyses for any bona fide prospector.

The work load of the laboratory increased dramatically over the previous year, as can be seen in the following tabular summary.

WET AND FIRE ASSAY LABORATORIES

| | Prospectors | | | | Departmental Geologists | |
|---|---|---|---|---|---|---|
| | Nongrantees | | Grantees | | | |
| | Number of Samples | Number of Determinations | Number of Samples | Number of Determinations | Number of Samples | Number of Determinations |
| 1973 | 137 | 311 | 88 | 203 | 916 | 10,293 |
| 1972 | 156 | 295 | 62 | 125 | 301 | 1,677 |
| 1971 | 267 | 575 | 19 | 40 | 287 | 2,287 |

EMISSION SPECTROGRAPHIC LABORATORY

| | Semiquantitative Prospectors (not reported) | | Departmental Geologists | | Quantitative Departmental Geologists | |
|---|---|---|---|---|---|---|
| | Nongrantees | Grantees | Reported | Not Reported | Number of Samples | Number of Determinations |
| 1973 | 137 | 88 | 237 | 347 | 312 | 3,080 |
| 1972 | 150 | 62 | 47 | 78 | 98 | 680 |
| 1971 | 262 | 19 | 113 | 98 | — | — |

X-RAY LABORATORY
(Departmental Geologists)

| | Per Cent Quartz | Mineral Indentification |
|---|---|---|
| 1973 | 1,284 | 310 |
| 1972 | 460 | 165 |
| 1971 | — | 172 |

In addition, three samples of barite were analysed in the emission spectrographic and the wet chemical laboratories for the Treasury Department. Several miscellaneous samples were identified for members of the general public who brought samples into the laboratory. There were 543 samples crushed and arc-fused in preparation for refractive index measurements.

The increase in productivity of the laboratory during the year has been very large. This has been effected by new instrumentation, new methods and direction, and a modest increase in staff. Increased production occurred in every category and over all ranged from a 160-per-cent increase in output of determinations in prospectors' samples to 565 per cent for Departmental geologists. The laboratory is still very poorly housed, but were it to be accommodated in an efficient laboratory, increased productivity and even better accuracy could be expected. During the year many alternative plans for a new laboratory were considered without a final decision being reached by the Department of Public Works.

The laboratory also began participation in the Canadian Standard Reference Materials Project, which is co-ordinated by the Mineral Science Division of the Department of Energy, Mines, and Resources, Ottawa. The project involves the distribution of samples of chosen reference materials to participating laboratories for the analysis of specified elements. This is a continuing programme with new reference materials being established as the need arises. The laboratory is also participating in a similar project sponsored by the Institute of Geological Sciences of the United Kingdom.

*Examinations for Assayers*

*Board of Examiners*

| | |
|---|---|
| W. M. Johnson | Secretary |
| N. G. Colvin | Member |
| F. F. Karpick | Member |

Examinations were held in June and December. In June, 12 candidates were examined, of whom four passed and eight failed. In the December examination there were four candidates, two of whom were passed, one was failed, and one was granted a supplemental examination.

### *Publication and Technical Services Section*

The Publication and Technical Services Section, under Dr. A. Sutherland Brown, carried out a variety of tasks to service the operation sections and laboratory; its main function nevertheless is to produce and publish maps and reports from manuscripts prepared by geologists whose labour is wasted unless put in permanent and reproducible form.

The following material was produced in 1973: *Geology, Exploration and Mining in British Columbia, 1972**; Bulletin 61, *Geology of the White Lake Basin,* by B. N. Church; Preliminary Map No. 10, *Preliminary Geological Map of Aspen Grove Area,* by P. A. Christopher; Preliminary Map No. 11, *Preliminary Geological Map of the Buck Creek Area,* by B. N. Church; Preliminary Map No. 12, *Preliminary Geological Map of the Northern Babine Lake Area,* by N. C. Carter; Preliminary Maps No. 13, *Geological Map of Owen Lake-Goosly Lake Area,* by B. N. Church, and Petrochemical overlay maps "a" to "g" for the same area, by J. Barakso and B. N. Church.

Manuscript and map preparation for the above and other publications produced outside the Department were under the direction of Mrs. R. J. Moir and K. S. Crabtree respectively.

Technical services under the direction of A. F. Shepherd included the Departmental library, equipment, and lapidary service. Lapidary and photographic work is done by R. E. Player.

### Aeromagnetic Surveys

The programme of airborne magnetometer mapping, jointly financed by the Geological Survey of Canada and the British Columbia Department of Mines and Petroleum Resources, continued in 1973. Twenty-eight map sheets lying between latitudes 49 degrees and 50 degrees 45 minutes north and longitudes 116 degrees and 120 degrees west were released during the year.

Maps released in former years as well as index maps showing the coverage by aeromagnetic mapping in British Columbia may be obtained from the British

* Delayed in publication.

Columbia Department of Mines and Petroleum Resources, Room 418, Douglas Building, Victoria, or the Geological Survey of Canada, 100 West Pender Street, Vancouver.

The basic data used in compiling the maps are on open file at the Geological Survey of Canada in Ottawa, where interested parties may arrange to obtain them for special processing.

## INSPECTION AND ENGINEERING DIVISION

Inspectors stationed at the places listed below inspect coal mines, metal mines, and quarries in the districts shown on Figure 2. They also may examine prospects, mining properties, roads and trails, and carry out special investigations under the *Mineral Act*. The Environmental Control Inspectors conduct dust, ventilation, and noise surveys at all mines and quarries and, where necessary, make recommendations to improve environmental conditions. H. Bapty supervises the roads and trails programme and prospectors' grub-stakes. J. D. McDonald administers the reclamation sections of the *Coal Mines Regulation Act* and *Mines Regulation Act*. A. R. C. James is Senior Inspector, Coal, and has additional duties as mining adviser to the Securities Commission.

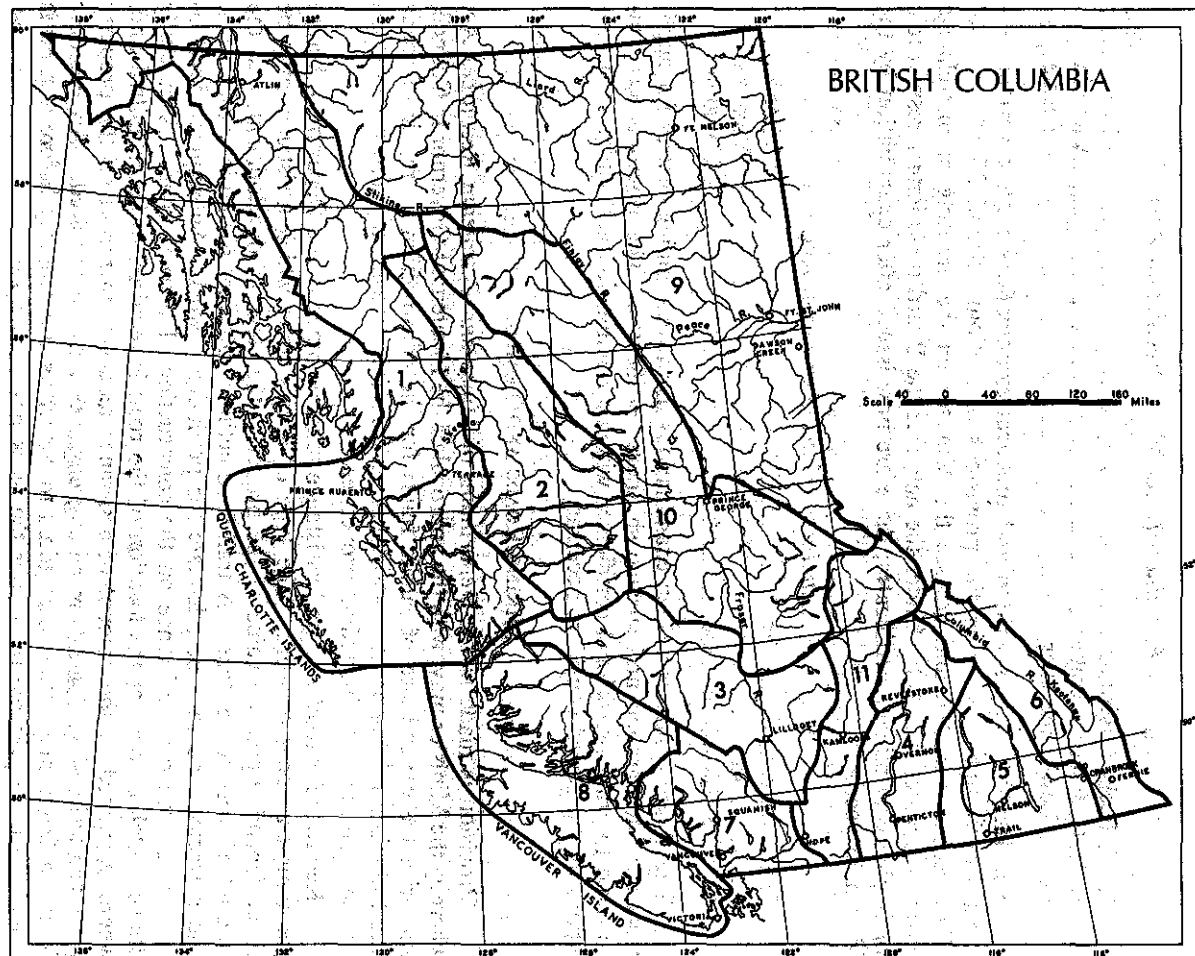
### STAFF

*Inspectors and Resident Engineers*

J. W. Peck, Chief Inspector ..... Victoria
J. E. Merrett, Deputy Chief Inspector of Mines ..... Victoria
V. E. Dawson, Senior Inspector, Electrical-Mechanical ..... Victoria
A. R. C. James, Senior Inspector, Coal; Aid to Securities ..... Victoria
Harry Bapty, Senior Inspector, Mining-roads ..... Victoria
J. Cartwright, Inspector, Electrical ..... Victoria
J. D. McDonald, Senior Inspector, Reclamation ..... Victoria
John Dick, Reclamation Inspector ..... Victoria
S. Elias, Senior Inspector, Environmental Control ..... Vancouver
J. W. Robinson, Inspector and Resident Engineer ..... Vancouver
W. C. Robinson, Inspector and Resident Engineer ..... Nanaimo
R. W. Lewis, Inspector and Resident Engineer ..... Fernie
David Smith, Inspector and Resident Engineer ..... Kamloops
E. Sadar, Inspector and Resident Engineer ..... Kamloops
R. Heistad, Inspector-Technician, Mechanical ..... Kamloops
B. M. Dudas, Inspector and Resident Engineer ..... Prince Rupert
P. E. Olson, Inspector and Resident Engineer ..... Nelson
D. I. R. Henderson, Inspector and Resident Engineer ..... Prince George
A. D. Tidsbury, Inspector and Resident Engineer ..... Prince George
J. F. Hutter, Inspector and Resident Engineer ..... Smithers
W. H. Childress, Technician, Noise Surveys ..... Vancouver

*Co-ordinators, Mine-rescue Stations*

E. C. Ingham, Co-ordinator, Rescue Training ..... Prince George
G. J. Lee, Co-ordinator, Rescue Training ..... Nelson
A. Littler, Co-ordinator, Rescue Training ..... Fernie
T. H. Robertson, Co-ordinator, Rescue Training ..... Nanaimo
J. A. Thomson, Co-ordinator, Rescue Training ..... Kamloops




## INSPECTORS

1 Mr. B. M. Dudas,
Court House,
Prince Rupert, B.C.

2 Mr. J. F. Hutter,
Box 877,
Smithers, B.C.

3 Mr. E. Sadar,
Fulton Field R.R. 1,
Kamloops, B.C.

4 Mr. D. Smith,
Fulton Field R.R. 1,
Kamloops, B.C.

5 Mr. P. E. Olson,
701 Front Street,
Nelson, B.C.

6 Mr. R. W. Lewis,
Box 1290,
Fernie, B.C.

7 Mr. J. W. Robinson,
2747 East Hastings Street,
Vancouver, B.C.

8 Mr. W. C. Robinson,
2226 Brotherstone Road,
Nanaimo, B.C.

9 Mr. D.I.R. Henderson,
1652 Quinn Street,
Prince George, B.C.

10 Mr. A. D. Tidsbury,
1652 Quinn Street,
Prince George, B.C.

11 Mr. T. M. Waterland,
Fulton Field R.R. 1,
Kamloops, B.C.

*Staff Changes*

In March, John Dick, Reclamation Inspector, joined the headquarters staff, and in April, J. D. McDonald, Senior Reclamation Inspector, rejoined the staff to replace W. B. Montgomery on his retirement. In August, J. F. Hutter replaced W. G. Clarke as Inspector and Resident Engineer in Smithers. In October, R. Heistad joined the staff as Inspector of Mines-Technician, Mechanical, and resident at Kamloops.

T. M. Waterland was transferred to the Kamloops office to organize a survival rescue course and to revise other mine-rescue training course details.

## Board of Examiners

*Board of Examiners (Coal Mines Regulation Act)*

J. W. Peck, Chairman ..... Victoria
A. R. C. James, member ..... Victoria
R. W. Lewis, member ..... Fernie

The Board conducts written and practical examinations for the various certificates of competency under the provisions of sections 25 and 26 of the *Coal Mines Regulation Act,* and advises the Minister on the granting of interchange certificates under this Act. Under the new Act the Board is no longer responsible for issuing coal miners' certificates; these are now issued after examination by the District Inspector.

*Board of Examiners (Mines Regulation Act)*

J. E. Merrett, Chairman ..... Victoria
A. R. C. James, member ..... Victoria
W. C. Robinson, member ..... Nanaimo

The Board conducts written examinations in various mining centres for applicants for underground and surface shiftboss certificates. The Board is also empowered to grant provisional certificates without examination and under such conditions as the Board considers necessary.

## Mining Roads and Trails

Provision is made in the *Department of Mines and Petroleum Resources Act* whereby the Minister may, with the approval of the Lieutenant-Governor in Council, authorize the expenditure of public funds for the construction or repair of roads and trails into mining areas. Assistance on a half-cost basis may also be provided on roads and trails to individual properties.

Requests for road and trail assistance must be made to the Department before the commencement of work. The type of access upon which assistance may be given depends upon the value of the property, the stage of development, and the amount of work to be done. A trail is sometimes sufficient for initial exploration, and a tractor-road may be adequate for preliminary work. Subsequent development might warrant assistance on the construction of a truck road. A carefully drawn sketch or plan of the location of the road is required to be submitted and, where warranted by the amount of assistance requested, a report on the property by a professional geological or mining engineer may be required. An engineer from the Department may be required to report on the property before a grant is made and to inspect the road after the work has been done.

The total mileages and expenditures under "Grants in Aid of Mining Roads and Trails" during the 1973/74 fiscal year were as follows:

| | Miles | Cost $ |
|---|---|---|
| Roads— | | |
| Construction | 27 | 269,549.94 |
| Maintenance | 281 | 174,485.03 |
| Bridges— | | |
| Construction | — | 38,503.11 |
| Maintenance | — | 36,094.95 |
| Total | | 518,633.03 |

Construction was completed under Project 763 (Barnett-McQueen Ltd.)—Stikine River bridge. This completes the Department of Mines and Petroleum Resources' participation in the Stewart–Cassiar Road built under the "Road to Resources" agreement between the Government of Canada and the Government of British Columbia. The construction was done by contract under the supervision of the Department of Highways on behalf of the Department of Mines and Petroleum Resources. All future responsibility for the road has been transferred to the Department of Highways.

Total expenditure on the road to this date is $31,665,296.82. The Federal Government's commitment of $7,500,000 was expended by the end of September 1967, and since then the whole cost of construction has been borne by the Provincial Government. The financing of the Stewart–Cassiar Road has been a remarkable achievement for our Department.

Project 763 for $323,223.29 completes 400 miles of north-south road connecting our most northerly saltwater port of Stewart on the Alaska-British Columbia boundary to Mile 648 on the Alaska Highway. This road opens a whole new part of northwest British Columbia to water and road transportation.

The Omineca Road, extending 240 miles northwest of Fort St. James, was advanced an additional 22 miles to Moosevale airstrip. This portion of new road will be completed and further construction will be undertaken to Thorne Lake. Logging interests improved 31 miles of road to Sylvester Creek, and logs are being hauled over the road 60 miles to Fort St. James.

During the year the British Columbia Parks Board designated four new park areas along the Omineca Road. The road is becoming a popular area for recreation, fishing, and hunting. Consequently, many requests are received to upgrade the road above the standard required for mine exploration and development. The cost of road maintenance has increased as the road receives greater use and heavier traffic.

For the purpose of encouraging the development of the petroleum and natural gas resources in the northeastern part of the Province, an additional grant of $17,000 was provided to maintain vehicle approaches to and over the British Columbia railway bridge across the Fort Nelson River.

## Grub-staking Prospectors

Under the authority of the *Prospectors' Grub-stake Act* the Department has provided grub-stakes each year since 1943 to a limited number of applicants able to qualify. Grub-stakes up to $500 for food, shelter, and clothing, plus a reasonable travelling allowance, are available to a limited number of qualified prospectors who undertake to prospect in British Columbia in areas considered favourable by

the Department in accordance with a long-range plan for the development of the Province. Experienced prospectors may be granted a maximum of $300 for travelling expenses if prospecting is to be done in remote areas where air transportation is necessary.

Application forms and terms and conditions under which grub-stakes are granted may be obtained from H. Bapty, Senior Inspector, Department of Mines and Petroleum Resources, Victoria.

Samples received from grub-staked prospectors are assayed free of charge and mineralogical identifications may be made on request.

*Grub-stake Statistics*

| Field Season | Approximate Expenditure | Men Grub-staked | Samples and Specimens Received at Department Laboratory | Mineral Claims Recorded |
|---|---|---|---|---|
| | $ | | | |
| 1943 | 18,500 | 90 | 773 | 87 |
| 1944 | 27,215 | 105 | 606 | 135 |
| 1945 | 27,310 | 84 | 448 | 181 |
| 1946 | 35,200 | 95 | 419 | 162 |
| 1947 | 36,230 | 91 | 469 | 142 |
| 1948 | 35,975 | 92 | 443 | 138 |
| 1949 | 31,175 | 98 | 567 | 103 |
| 1950 | 26,800 | 78 | 226 | 95 |
| 1951 | 19,385 | 63 | 255 | 137 |
| 1952 | 19,083 | 50 | 251 | 95 |
| 1953 | 17,850 | 41 | 201 | 141 |
| 1954 | 19,989 | 48 | 336 | 123 |
| 1955 | 21,169 | 47 | 288 | 183 |
| 1956 | 20,270 | 47 | 163 | 217 |
| 1957 | 22,000 | 46 | 174 | 101 |
| 1958 | 24,850 | 47 | 287 | 211 |
| 1959 | 21,575 | 38 | 195 | 202 |
| 1960 | 28,115 | 50 | 358 | 241 |
| 1961 | 29,175 | 47 | 309 | 325 |
| 1962 | 26,730 | 52 | 233 | 189 |
| 1963 | 29,000 | 50 | 150 | 843 |
| 1964 | 31,751 | 53 | 213 | 351 |
| 1965 | 24,717 | 42 | 241 | 219 |
| 1966 | 26,787 | 43 | 224 | 239 |
| 1967 | 29,891 | 47 | 148 | 432 |
| 1968 | 31,224 | 47 | 234 | 402 |
| 1969 | 21,758 | 27 | 151 | 221 |
| 1970 | 30,614 | 39 | 84 | 423 |
| 1971 | 21,081 | 23 | 29 | 348 |
| 1972 | 20,838 | 27 | 64 | 190 |
| 1973 | 21,146 | 22 | 89 | 47 |
| Totals | 845,372 | 1,729 | 8,628 | 6,923 |

Thirty-one applications were received, and 22 grub-stakes were authorized. Grantees unable to complete the terms and conditions of the grant received only partial payment. Four prospectors were given grants for the first time. Two grantees proved to be unsatisfactory.

E. R. Hughes interviewed applicants and contacted grantees in the field, giving advice and direction to those requiring additional instruction and field guidance.

Personnel in Government Agents' offices and local Mine Inspectors throughout the Province generously assisted in administering the programme. The following notes comprise summaries by Mr. Hughes of prospecting activities in the various mining districts. These summaries are from field observations and from information contained in diaries submitted by grantees.

*Alberni Mining Division*—An intrusive north of the west side of Saunders Creek, near Gold River, contains pyrite, arsenopyrite, and minor amounts of copper. Rocks seen in the area are limestone and granite.

In the Donner Lake area, west of Strathcona Park, creeks were mapped and 56 samples of water were collected for analysis. A grid was laid out for soil sampling and 171 soil samples were taken. The rocks in the area are granite, porphyry, limestone, and dolomite. Copper was seen in porphyry. Pyrite and minor amounts of zinc were also found in the area. Two mineral claims were staked, and 101 feet 6 inches of diamond drilling was done. One sample taken in the area assayed gold, 0.01 ounce per ton; silver, 0.2 ounce per ton; copper, 0.19 per cent; lead, 0.005 per cent; zinc, 0.03 per cent. A grab sample assayed a trace of gold and a trace of silver.

A two-man team spent the season on Brooks Peninsula. On Gold Creek, which flows into Amos Creek, tiny specks of gold were recovered by panning. Several quartz veins were observed in granodiorite, but no mineralization was seen. A calcite vein, 6 feet wide, contains massive pyrite. Eight samples taken in the area assayed a trace in gold and silver.

On Amos Creek, above Gold Creek, iron boulders were seen and a substantial deposit of iron was found. It is reported to be 400 feet wide and was traced on the surface for a length of 800 feet. A semiquantitative spectrochemical analysis on a sample indicated in excess of 20 per cent iron.

*Clinton Mining Division*—From a base camp near Mosley Creek, south of Bluff Lake, some prospecting was done westward along Clay Creek and through the steeply walled Clay Creek canyon. The sedimentary rocks, including siltstone, sandstone, shale, and conglomerate, were reported to be underlain by igneous intrusions. Large amounts of fragmental porphyritic andesite and basalt, as well as greywacke and quartz diorite, were found in the bed of the creek. Two water samples were taken for analysis.

On Deer Creek, near its confluence with Mosley Creek, fossil leaf impressions were seen in siltstone. Approximately 5 miles easterly from Mosely Creek the channel of Deer Creek deepens and cuts through shale and sandstone. The waters of the small creeks feeding into Deer Creek are high in iron. Quartz and basalt fragments are abundant on the north and south slopes of the valley. Some fragments contain minor pyrite, chalcopyrite, and arsenopyrite. Narrow quartz veins were seen in the lower cliffs and large gneiss boulders were found near a dried-up drainage channel. Folded beds of sedimentary and metamorphic rocks are exposed at higher elevations, but no mineralization was seen. Veins and pockets of pyrrhotite and pyrite were found on Butler Creek, east from Bluff Lake.

On Blackhorn Mountain, about 15 miles southwesterly from Bluff Lake, some prospecting was done in the area adjacent to the site of the abandoned Homathko gold mine where some development took place during 1937, 1938, and 1939. Chalcopyrite and bornite are abundant in float and some gold is present in quartz boulders. Samples from narrow quartz veins, from large boulders, and from the old mine adit gave encouraging assay results in gold and silver.

Some prospecting was done south of Tatlayoko Lake and adjacent to the former Morris gold mine where there was some activity during 1935 to 1938. No mineral claims were recorded and no new discoveries were reported.

*Kamloops Mining Division*—The creeks draining into Eakin Creek, west of Little Fort, were panned and total heavy metals tested for over a distance of approximately 5 miles with negative results. No mineralization was observed. In the Lac des Roches, Birch Lake, and Thuya Lake area, the rock types encountered were

granite, diorite, and porphyry. Panning and testing for total heavy metals gave negative results. South of Thuya Lake, minor amounts of chalcopyrite and malachite were found in float. The walls of some creeks exposed massive unaltered granite.

On a newly constructed logging-road, about 8 miles northwest of Avola, excavation for the right-of-way exposed rocks previously covered by heavy overburden. In 1 mile of construction, three rock cuts were examined. In the centre cut was a narrow discontinuous vein containing a minor amount of chalcopyrite. Numerous samples were submitted for assay from this area. Three samples assayed 0.95 per cent, 0.79 per cent, and 0.39 per cent copper. Thirty other samples assayed traces of gold and silver.

*Liard Mining Division*—A search was made for the extension of a gold-bearing quartz vein on Table Mountain, east of Cassiar. Quartz veins up to 6 feet wide were seen, but they contained no mineralization. On the west side of Blackfox Mountain, in an area underlain by rocks of the Sylvester Group, samples containing minor amounts of native silver, lead, and zinc were taken from a narrow quartz vein. Blowpipe tests of samples taken in this area show minor amounts of lead and copper and appreciable amounts of silver.

On Needlepoint Mountain, southeast of Cassiar and east of the Stewart-Cassiar road, several narrow veins were seen containing minor amounts of bornite, chalcopyrite, pyrrhotite, and silver. On the southwest side of Needlepoint Mountain, two granodiorite stocks were seen intruding the sediments. Samples collected near the stocks contained pyrite and pyrrhotite in dolomite. East of the British Columbia Railway right-of-way, south of Dease Lake, a camp was made near the Tanzilla River bridge. A sedimentary-granite contact was examined, but no significant mineralization was found.

*Nanaimo Mining Division*—In the Upper Quinsam Lake-Iron River area, some prospecting was done along a metamorphic-volcanic intrusive contact. Some trenching and searching for rock exposures was done in and adjacent to old open-cuts on abandoned logging-roads and on the hillsides. Minor amounts of pyrite, arsenopyrite, and chalcopyrite were seen in several places.

*Nelson Mining Division*—Some work was done in the Blazed, Summit, and Jersey Creek areas where the Aldridge, Creston, Kitchener, Mount Nelson, Irene, Toby, Dutch, and Horsethief Formations were examined. Quartz lenses were observed, but these were found to be barren. Minor amounts of sulphides were seen in stained boulders. Some brown-stained outcrops of argillaceous quartzite were seen about 1 mile north of the confluence of Blazed and Summit Creeks. Blowpipe tests on samples collected in this prospecting work did not indicate any significant mineralization.

*New Westminster Mining Division*—Negative results were reported in soil sampling in the 13, 17, and 30-mile areas near the Skagit River road, south of Hope. Minor sphalerite was found on the west side of Shawatum Mountain. Minor amounts of arsenopyrite were seen near Ten Mile Creek.

North of the abandoned Coquihalla branch of the Canadian Pacific Railway right-of-way, 13 to 17 miles east of Hope and in the higher elevations between Ladner Creek and Boston Bar Creek, some conventional prospecting was done. The rocks encountered were diorite, granite, argillite, slate, and conglomerate. The mineralization seen included minute flakes of molybdenite and minor amounts of pyrite.

*Omineca Mining Division*—Some prospecting was done in the Mount Greer-Hallett Lake area. Three samples were sent for assay and some soil and silt sampling was done. A wide variety of rock was encountered near the contact of the Takla Group volcanic rocks and the Topley intrusions, with some younger rhyolitic dykes. Much pyrite was seen in coarse-grained diorite north of Hallett Lake. Four mineral claims were located north of Hallett Lake.

North of Germansen Lake, much pyrite was seen in dacitic rocks. South of Germansen Lake, some detailed sampling was done. Some pyrite was found in fine-grained sedimentary rocks. A small amount of float containing chalcopyrite was seen.

Some chalcopyrite and molybdenite were reported and six mineral claims were located north of Chuchi Lake. Trail work was done to provide access to the claims.

An area of gossans was prospected south of Germansen Lake near a batholith and volcanic contact. Several small quartz veins were found and small amounts of pyrite and sphalerite was seen. Six mineral claims were located near a breccia pipe on Nation Mountain. A long traverse was made west of Ahdatay Lake and an occurrence of chalcopyrite in limestone near an instrusive contact was examined. An insignificant amount of sulphide was found in diorite.

North of Woodcock and west of Kitwanga, the tailings dump from an old adit was found to be well mineralized with galena, pyrite, and sphalerite. Two mineral claims were staked over the old workings. All the creeks running into the east side of Kitwanga River were tested with negative results. Shales and dolomites were encountered adjacent to Moonlit Creek. Results of panning in the creek and testing for total heavy metals were negative.

A two-man team was flown to Spinel Lake adjacent to the northern boundary of the Omineca Mining Division. On the east side of Spinel Lake, large mica-rich granite float was seen and at higher elevations mica schist was found overlain with a skarn zone carrying massive pyrrhotite. In the Flat Top Mountain area, garnets were plentiful in creek pannings. In tributaries of Kechika River, mica schist, quartzite, skarn, and many quartz veins and stringers were seen.

South of Spinel Lake, quartz-calcite veins were seen containing chalcopyrite and malachite. Eighteen mineral claims were located in the vicinity of a vein approximately 300 feet long and from 4 inches to 4 feet wide. The over-all copper mineralization is approximately 1,000 feet in strike length, but is not continuous and in parts is up to 6 feet wide. A narrow quartz stringer in shale, well mineralized with galena and sphalerite, was found between Spinel Lake and Obo River. Two mineral claims were located to cover the exposure.

*Osoyoos Mining Division*—Near Mile 4 on the Ashnola River forest access road, black sand concentrate containing some small red garnets and minor amounts of scheelite was panned. Small garnets and minor scheelite were also found near Mile 30. Pegmatite, skarn, and small red garnets were seen in float near Easygoing Creek that flows easterly into the Ashnola River. Limestone and sandstone float was also found on Easygoing Creek. Minor pyrite, quartz, chert, and argillite float were seen on Ewart Creek.

*Similkameen Mining Division*—Eight mineral claims were located on the east side of Pasayten River, about 3 miles south of Similkameen Falls, in an area underlain by rocks of the Nicola group. More than 1 mile of tractor road was constructed and some surface trenching was done. A D-8 tractor was used in this work. The rocks seen were argillite and arkose. A few specks of pyrite were seen in surface exposures. Eight samples submitted for assay gave negligible results.

Ten mineral claims were located south of Lorne Lake, about 7 miles southeast of Princeton, and preparations were being made to cut grid lines for a dip-needle survey.

*Trail Creek Mining Division*—On the western slope of Lookout Mountain, south of the city of Trail, a bulldozer was used to clear the debris from the front of an old portal. On the old Ural property the short adit was cleaned out and retimbered to the face where a quartz vein 4 to 5 inches wide was seen. Work done in 1935 and 1936 yielded 4 tons of ore containing 5 ounces of gold and 9 ounces of silver. Further bulldozing and hand-stripping were done in an effort to find an extension of the vein, but this work was inconclusive.

*Vancouver Mining Division*—The area in and adjacent to the old Ashloo mine, on Ashlu Creek, 26 miles north of Squamish, was prospected and 100 feet of diamond drilling was done. Three samples were taken and assayed: (1) gold, 12.76 ounces per ton; silver, 21.8 ounces per ton; and copper, 2.70 per cent: (2) gold, 35.51 ounces per ton; and silver, 18.3 ounces per ton: (3) gold, 11.53 ounces per ton; silver, 3.9 ounces per ton; and copper, 1.84 per cent. Newly constructed logging-roads provide improved access into the area.

## TITLES DIVISION

### Staff

E. J. Bowles ——— Chief Gold Commissioner
R. Rutherford ——— Deputy Chief Gold Commissioner
J. G. B. Egdell ——— Gold Commissioner, Vancouver

Gold Commissioners, Mining Recorders, and Sub-Mining Recorders, whose duties are laid down in the *Mineral Act* and *Placer-mining Act*, administer these Acts and other Acts relating to mining. Mining Recorders, in addition to their own functions, may also exercise the powers conferred upon Gold Commissioners with regard to mineral claims within the mining division for which they have been appointed.

Recording of location and of work upon a mineral claim as required by the *Mineral Act* and upon a placer-mining lease as required by the *Placer-mining Act* must be made at the office of the Mining Recorder for the mining division in which the claim or lease is located. Information concerning claims and leases and concerning the ownership and standing of claims and leases in any mining division may be obtained from the Mining Recorder for the mining division in which the property is situated or from the Department's offices at Victoria, and Room 320, 890 West Pender Street, Vancouver. Officials in the offices of the Gold Commissioner at Victoria and the Gold Commissioner in Vancouver act as Sub-Mining Recorders for all mining divisions. Sub-Mining Recorders, who act as forwarding agents, are appointed at various places throughout the Province. They are authorized to accept documents and fees, and forward them to the office of the Mining Recorder for the correct mining division. Officials and their offices in various parts of the Province are listed in the following table.

## List of Gold Commissioners and Mining Recorders

| Mining Division | Location of Office | Gold Commissioner | Mining Recorder |
|---|---|---|---|
| Alberni | Port Alberni | T. S. Dobson | T. S. Dobson. |
| Atlin | Atlin | P. J. Newall | P. J. Newall. |
| Cariboo | Quesnel | H. S. Tatchell | H. S. Tatchell. |
| Clinton | Clinton | W. R. Anderson | W. R. Anderson. |
| Fort Steele | Cranbrook | W. L. Draper | W. L. Draper. |
| Golden | Golden | W. G. Mundell | W. G. Mundell. |
| Greenwood | Grand Forks | G. A. Broomfield | G. A. Broomfield. |
| Kamloops | Kamloops | N. R. Blake | N. R. Blake. |
| Liard | Victoria | E. A. H. Mitchell | E. A. H. Mitchell. |
| Lillooet | Lillooet | K. J. Weir | K. J. Weir. |
| Nanaimo | Nanaimo | R. H. Archibald | R. H. Archibald. |
| Nelson | Nelson | G. L. Brodie | G. L. Brodie. |
| New Westminster | New Westminster | F. E. Hughes | J. Hoem. |
| Nicola | Merritt | L. P. Lean | L. P. Lean. |
| Omineca | Smithers | A. W. Milton | A. W. Milton. |
| Osoyoos | Penticton | T. S. Dalby | T. S. Dalby. |
| Revelstoke | Revelstoke | D. G. B. Roberts | D. G. B. Roberts. |
| Similkameen | Princeton | W. L. Marshall | W. L. Marshall. |
| Skeena | Prince Rupert | T. H. W. Harding | T. H. W. Harding. |
| Slocan | Kaslo | T. P. McKinnon | T. P. McKinnon. |
| Trail Creek | Rossland | A. Sherwood | A. Sherwood. |
| Vancouver | Vancouver | J. Egdell | Mrs. S. Jeannotte (Deputy). |
| Vernon | Vernon | N. A. Nelson | N. A. Nelson. |
| Victoria | Victoria | E. A. H. Mitchell | E. A. H. Mitchell. |

## Central Records Offices (Victoria and Vancouver)

Transcripts of all recordings in Mining Recorders' offices throughout the Province are sent to the office of the Chief Gold Commissioner in Victoria twice each month. The records and maps showing the approximate positions of mineral claims held by record and of placer-mining leases may be consulted by the public during office hours at Victoria and at the office of the Gold Commissioner at Vancouver, Room 320, 890 West Pender Street. The approximate position of mineral claims held by record and of placer-mining leases is plotted from details supplied by locators.

During 1973, five investigations were carried out pursuant to section 80 of the *Mineral Act*. One investigation with regard to certificates of work being wrongfully or improperly obtained resulted in two certificates of work being cancelled. Four investigations were made with regard to mineral claims having been located or recorded otherwise than in accordance with the *Mineral Act*, two of which resulted in 77 mineral claims being cancelled.

## Maps Showing Mineral Claims and Placer Leases

Maps showing the approximate locations of placer-mining leases, mineral leases, and mineral claims held by record may be seen at the Central Records Offices at Victoria and at Room 320, 890 West Pender Street, Vancouver. Prints are obtainable on request made to the Chief Gold Commissioner at Victoria, and accompanied by the proper sum. The charges are $1.25 per sheet. The maps conform to the reference maps issued by the Legal Surveys Branch, Department of Lands, Forests, and Water Resources, in size and geographical detail.

The Department of Mines and Petroleum Resources is now engaged in replacing the above-mentioned maps with maps based on the National Topographic System of mapping. The new sheets cover 15 minutes of longitude and 15 minutes of latitude, and are available from this Department at 50 cents per sheet at a scale approximately 1¼ inches to 1 mile, or $1 per sheet at a scale of 2 inches to 1 mile (including tax).

# GOLD COMMISSIONERS AND MINING RECORDERS

## *Office Statistics, 1973*

| Mining Division | Free Miners' Certificates | | Lode-mining | | | | | | | Placer-mining | | | | | Revenue | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Individual | Company | Mineral Claims | Rental on Recording of Mineral Claims | Certificates of Work | Cash in Lieu | Certificates of Improvements | Bills of Sales, Etc. | Leases | Placer Claims | Leases | Certificates of Work | Cash in Lieu | Bills of Sale, Etc. | Free Miners' Certificates | Mining Receipts | Total |
| | | | | $ | | $ | | | | | | | $ | | $ | $ | $ |
| Alberni | 61 | 4 | 644 | 1,380.00 | 1,904 | 3,700.00 | — | 108 | — | — | 1 | — | — | — | 1,705.00 | 26,915.75 | 28,620.75 |
| Atlin | 145 | — | 314 | 950.00 | 1,246 | 10,300.00 | — | 41 | — | — | 113 | 105 | 3,250.00 | 118 | 725.00 | 35,245.75 | 35,970.75 |
| Cariboo | 882 | 11 | 2,718 | 9,390.00 | 6,257 | 15,908.00 | 25 | 133 | 4 | — | 135 | 356 | 5,000.00 | 106 | 6,190.00 | 122,018.75 | 128,208.75 |
| Clinton | 30 | 2 | 1,484 | 6,370.00 | 3,965 | 1,800.00 | — | 84 | — | — | 3 | 57 | — | 14 | 746.00 | 61,331.00 | 62,077.00 |
| Fort Steele | 213 | 2 | 568 | 840.00 | 5,510 | 7,724.00 | — | 55 | — | — | 51 | 92 | 1,250.00 | 54 | 1,623.00 | 45,012.53 | 46,635.53 |
| Golden | 88 | 4 | 187 | 620.00 | 1,248 | 5,600.00 | — | 36 | — | — | 1 | — | 250.00 | 14 | 1,616.00 | 16,910.25 | 18,526.25 |
| Greenwood | 136 | 1 | 546 | 2,380.00 | 2,832 | 6,684.00 | — | 75 | — | — | 4 | 16 | 250.00 | 5 | 699.00 | 32,185.00 | 32,884.00 |
| Kamloops | 427 | 15 | 3,711 | 290.00 | 26,067 | 33,700.00 | 18 | 360 | 1 | — | 2 | 22 | 750.00 | 1 | 5,985.00 | 60,894.45 | 66,879.45 |
| Liard | 228 | 1 | 1,969 | 11,450.00 | 14,879 | 91,600.00 | — | 276 | — | — | 51 | 148 | 2,000.00 | 32 | 1,312.00 | 202,444.25 | 203,756.25 |
| Lillooet | 61 | 1 | 738 | 3,140.00 | 1,397 | 17,606.00 | — | 36 | — | — | 9 | 40 | — | 1 | 380.00 | 37,562.00 | 37,942.00 |
| Nanaimo | 174 | 3 | 1,353 | 620.00 | 6,522 | 9,596.00 | 94 | 96 | 7 | — | 2 | — | — | — | 1,637.00 | 66,651.25 | 68,288.25 |
| Nelson | 227 | 5 | 419 | 1,770.00 | 776 | 4,672.00 | — | 57 | — | — | 8 | 9 | 250.00 | — | 2,639.00 | 16,777.50 | 19,416.50 |
| New Westminster | 509 | 8 | 738 | 2,740.00 | 2,774 | 6,380.00 | — | 86 | — | 3 | 6 | 93 | — | 13 | 4,249.00 | 32,634.00 | 36,883.00 |
| Nicola | 59 | 1 | 1,773 | 4,110.00 | 6,915 | 7,300.00 | — | 197 | — | — | — | — | — | — | 449.00 | 59,316.50 | 59,765.50 |
| Omineca | 266 | 3 | 12,414 | 28,530.00 | 27,795 | 53,328.00 | 80 | 529 | 2 | — | 56 | 112 | 2,750.00 | 48 | 2,090.00 | 326,279.50 | 328,369.50 |
| Osoyoos | 136 | 1 | 951 | 4,260.00 | 2,153 | 29,624.00 | — | 38 | — | — | — | — | — | — | 1,061.00 | 47,599.25 | 48,660.25 |
| Revelstoke | 55 | 1 | 120 | 700.00 | 179 | 4,304.00 | — | 16 | — | — | 12 | 26 | — | 2 | 675.00 | 8,462.75 | 9,137.75 |
| Similkameen | 108 | 2 | 2,279 | 2,820.00 | 5,725 | 18,100.00 | — | 422 | — | — | 32 | 151 | 7,812.50 | 58 | 1,110.00 | 88,110.50 | 89,220.50 |
| Skeena | 195 | 5 | 538 | 1,020.00 | 1,979 | 26,000.00 | — | 122 | — | — | 5 | 14 | — | — | 2,154.00 | 16,057.25 | 18,111.25 |
| Slocan | 80 | 2 | 254 | 1,330.00 | 1,486 | 9,104.00 | — | 52 | — | — | 2 | 3 | — | — | 780.00 | 24,617.25 | 25,397.25 |
| Trail Creek | 40 | 3 | 102 | 780.00 | 75 | 1,184.00 | — | 19 | — | — | — | — | — | — | 1,375.00 | 4,359.75 | 5,734.75 |
| Vancouver | 2,251 | 418 | 780 | 3,600.00 | 4,223 | 9,100.00 | — | 114 | — | — | 27 | 3 | 500.00 | 37 | 133,265.00 | 59,823.97 | 193,088.97 |
| Vernon | 226 | 4 | 681 | 269.00 | 639 | 3,160.00 | — | 46 | — | — | 7 | 29 | — | 2 | 2,280.00 | 14,409.00 | 16,689.00 |
| Victoria | 487 | 66 | 378 | 240.00 | 2,095 | 800.00 | — | 28 | — | — | 20 | 18 | — | 27 | 31,155.00 | 52,341.09 | 83,496.09 |
| Totals for 1973 | 7,084 | 563 | 35,659 | 89,599.00 | 128,641 | 357,134.00 | 217 | 3,026 | 14 | 3 | 547 | 1,294 | 24,062.50 | 532 | 205,900.00 | 1,457,959.29 | 1,663,859.29 |
| Totals for 1972 | 9,032 | 927 | 78,901 | — | 97,573 | 371,606.00 | 24 | 3,665 | 155 | 5 | 284 | 1,168 | 12,875.00 | 502 | 212,700.00 | 1,545,826.99 | 1,758,526.49 |

It is advisable to order claim maps from an index, which will be supplied on request.

### COAL

Information concerning the ownership and standing of coal licences and coal leases may be obtained upon application to the Chief Gold Commissioner, Department of Mines and Petroleum Resources, Victoria. Maps showing location of coal licences and coal leases are also available upon application and payment of the required fee.

*Coal Revenue, 1973*

| | $ |
|---|---|
| Licences— | |
| Fees | 46,798.00 |
| Rental | 406,296.31* |
| Total | 453,094.31 |

* Includes $51,300.86 performance bond which forfeited to the Crown.

During 1973, no coal licences were issued. As of December 31, 1973, a total of 1,562 coal licences, amounting to 899,387 acres, was held in good standing.

## PUBLICATIONS

A list of publications of the Department of Mines and Petroleum Resources is available free on request to the Petroleum Resources Branch or the Chief Geologist, Mineral Resources Branch, Douglas Building, Victoria.

Publications that are in print may be obtained from the Department of Mines and Petroleum Resources, Douglas Building, Victoria, and from the Geological Survey of Canada, 100 West Pender Street, Vancouver. Current publications may also be obtained from the Gold Commissioner's Office, Room 320, 890 West Pender Street, Vancouver.

Publications are available for reference use in the Departmental Library, Room 430, Douglas Building, Victoria, in the reading-room of the Geological Survey of Canada, 100 West Pender Street, Vancouver, in the offices of the Inspectors of Mines in Nelson and Prince Rupert, as well as in some public libraries.

## ROCK AND MINERAL SETS

Sets of rocks and minerals are available for sale to prospectors, schools, and residents of British Columbia. Information regarding them may be obtained from the Chief Geologist, Mineral Resources Branch, Douglas Building, Victoria.

# Petroleum and Natural Gas

## CHAPTER 4

CONTENTS

PETROLEUM AND NATURAL GAS—*Continued*



## LIST OF ILLUSTRATIONS

### DRAWINGS

PETROLEUM AND NATURAL GAS—*Continued*

DRAWINGS—*Continued*

## TITLES DIVISION

The Titles Division, under the direction of the Commissioner, is responsible for the administration of the *Petroleum and Natural Gas Act, 1965,* which includes all matters related to and affecting title to Crown petroleum and natural gas rights and includes the collection of revenue from fees, rents, disposition, and royalties. Regulations governing geophysical operations and petroleum-development roads are also administered by the Commissioner.

Information concerning all forms of title issued under the *Petroleum and Natural Gas Act* may be obtained upon application to the office of the Commissioner, Department of Mines and Petroleum Resources, Victoria. Maps showing the locations of all forms of title issued under the *Petroleum and Natural Gas Act* are available, and copies may be obtained upon application to the office of the Department of Mines and Petroleum Resources, Victoria. Monthly land reports and monthly reports listing additions and revisions to permit-location maps and listing changes in title to permits, licences, and leases, and related matters are available from the office of the Commissioner upon application and payment of the required fee.

During the year, there were four dispositions of Crown reserve petroleum and natural gas rights resulting in tender bonus bids amounting to $17,776,441, a decrease of $2,719,221 from the previous year. A total of 468 parcels was offered and bids were accepted on 276 parcels covering 1,780,206 acres. The average price per acre was $9.99, which is an increase of $2.87 per acre over the previous year. Average bonus price per acre was respectively—permits, $5.42; leases, $60.50; and drilling reservations, $14.40.

During the year, 10 geophysical licences were renewed or issued.

During the year, two petroleum-development road applications were received and processed for approval.

A total of 118 notices of commencement of exploratory work was recorded during the year. These notices are required prior to the commencement of any geological or geophysical exploration for petroleum or natural gas.

During the year, one unit agreement was approved.

As of December 31, 1973, 24,528,742 acres or approximately 38,326 square miles, a decrease of 2,780,460 acres under the 1972 total, of Crown petroleum and natural gas rights, issued under the *Petroleum and Natural Gas Act,* were held in good standing by operators ranging from small independent companies to major international ones. The form of title held, total number issued, and acreage in each case were as follows:

| Form of Title | Number | Acreage |
|---|---|---|
| Permits | 452 | 17,410,475 |
| Natural gas licences | 2 | 20,751 |
| Drilling reservations | 37 | 419,878 |
| Leases (all types) | 3,642 | 6,677,608 |
| Total | | 24,528,742 |

*Title Transaction Statistics, 1973*

| | Permits | | Leases | | Drilling Reservations | | Natural Gas Licences | |
|---|---|---|---|---|---|---|---|---|
| | No. | Acres | No. | Acres | No. | Acres | No. | Acres |
| Issued | 54 | 1,999,988 | 542 | 1,111,819 | 23 | 215,809 | 2 | 20,781 |
| Cancelled or surrendered | 84 | 4,349,446 | 550 | 1,292,760 | 29 | 218,134 | — | — |
| Renewed or extended | 379 | — | 3,066 | — | 8 | — | — | — |
| Assigned | 42 | — | 458 | — | 11 | — | — | — |
| Acreage amendments | 6 | 96,759 | 65 | 110,083 | — | — | — | — |
| Crown reserve dispositions | 47 | 1,452,144 | 206 | 112,253 | 23 | 215,809 | — | — |

*Petroleum and Natural Gas Revenue, 1973*

| | $ | $ |
|---|---|---|
| Rentals and fees— | | |
| Permits | 1,524,431 | |
| Drilling reservations | 77,344 | |
| Natural gas licences | 803 | |
| Petroleum, natural gas, and petroleum and natural gas leases | 6,500,830 | |
| Total rentals and fees | | 8,103,408 |
| Disposal of Crown reserves— | | |
| Permits | 7,877,134 | |
| Drilling reservations | 3,108,092 | |
| Leases | 6,791,215 | |
| Total Crown reserves disposal | | 17,776,441 |
| Royalties— | | |
| Gas | 6,061,250 | |
| Oil | 14,543,621 | |
| Processed products | 42,675 | |
| Total royalties | | 20,647,546 |
| Miscellaneous fees | | 27,028 |
| Total petroleum and natural gas revenues | | 46,554,423 |

## *Acreage of Crown Petroleum and Natural Gas Rights Held, 1964–73*

| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Acres | Acres | Acres | Acres | Acres | Acres | Acres | Acres | Acres | Acres |
| Petroleum and natural gas permits | 22,417,836 | 23,517,709 | 29,716,610 | 23,214,363 | 32,622,739 | 31,893,990 | 21,379,461 | 18,726,137 | 19,891,946 | 17,410,475 |
| Petroleum and natural gas leases | 11,289,962 | 10,642,259 | 10,439,595 | 10,596,352 | 10,029,674 | 8,837,265 | 7,765,668 | 7,226,320 | 6,493,633 | 6,196,570 |
| Natural gas licences | 9,669 | ——— | 27,815 | ——— | ——— | ——— | ——— | ——— | ——— | 20,781 |
| Natural gas leases | 555,829 | 540,088 | 524,612 | 549,218 | 518,826 | 475,419 | 472,964 | 471,919 | 470,260 | 479,754 |
| Petroleum leases | 2,568 | 2,568 | 2,568 | 644 | 644 | ——— | ——— | 1,284 | 1,284 | 1,284 |
| Drilling reservations | 451,998 | 534,868 | 503,603 | 462,138 | 384,925 | 350,546 | 292,402 | 337,656 | 452,079 | 419,878 |
| Totals | 34,727,862 | 35,237,492 | 41,214,803 | 34,822,715 | 43,556,808 | 41,557,220 | 29,910,495 | 26,763,316 | 27,309,202 | 24,528,742 |

## *Petroleum and Natural Gas Revenue, 1947–73*

| | Cumulative, 1947–64 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | Cumulative, 1947–73 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Rentals and Fees* | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ |
| Permits | 37,155,979 | 1,176,501 | 1,661,591 | 1,369,232 | 1,184,457 | 1,772,064 | 1,426,448 | 1,615,619 | 1,729,829 | 1,524,431 | 50,616,151 |
| Drilling reservations | 590,777 | 114,483 | 113,496 | 86,303 | 87,759 | 79,796 | 48,156 | 79,120 | 107,537 | 77,344 | 1,384,771 |
| Natural gas licences | 63,788 | ——— | 1,466 | ——— | ——— | ——— | ——— | ——— | ——— | 803 | 66,057 |
| Leases (all) | 28,225,210 | 7,013,187 | 8,432,386 | 8,901,196 | 9,349,480 | 8,488,114 | 7,699,844 | 7,733,584 | 6,976,517 | 6,500,830 | 99,320,348 |
| Total rentals | 66,035,754 | 8,304,171 | 10,208,939 | 10,356,731 | 10,621,696 | 10,339,974 | 9,174,448 | 9,428,323 | 8,813,883 | 8,103,408 | 151,387,327 |
| *Crown Reserve Disposition Bonuses* | | | | | | | | | | | |
| Permits | 16,376,841 | 1,825,322 | 6,982,439 | 8,428,409 | 9,554,004 | 16,516,392 | 9,506,074 | 14,688,570 | 13,818,020 | 7,877,134 | 105,573,205 |
| Drilling reservations | 12,491,302 | 3,278,641 | 4,657,510 | 3,013,979 | 1,785,527 | 1,394,215 | 1,825,404 | 2,486,763 | 3,011,025 | 3,108,092 | 37,052,458 |
| Leases | 35,605,257 | 13,057,470 | 4,199,528 | 2,855,428 | 3,737,489 | 3,735,845 | 5,008,323 | 5,010,918 | 3,666,617 | 6,791,215 | 83,668,090 |
| Crown reserve disposition total | 64,473,400 | 18,161,433 | 15,839,477 | 14,297,816 | 15,077,020 | 21,646,452 | 16,339,801 | 22,186,251 | 20,495,662 | 17,776,441 | 226,293,753 |
| *Crown Royalties* | | | | | | | | | | | |
| Gas | 7,379,248 | 1,682,444 | 2,256,725 | 2,870,656 | 3,217,227 | 3,730,634 | 3,948,356 | 4,209,793 | 5,580,434 | 6,061,250 | 40,936,767 |
| Oil | 10,566,265 | 3,697,668 | 5,449,663 | 6,678,245 | 7,677,405 | 9,017,352 | 9,483,937 | 10,415,656 | 9,845,125 | 14,543,621 | 87,374,937 |
| Processed products | 656,336 | 93,226 | 61,568 | 58,536 | 50,762 | 48,847 | 42,314 | 42,517 | 44,379 | 42,675 | 1,141,160 |
| Crown royalties total | 18,601,849 | 5,473,338 | 7,767,956 | 9,607,437 | 10,945,394 | 12,796,833 | 13,474,607 | 14,667,966 | 15,469,938 | 20,647,546 | 129,452,863 |
| Miscellaneous fees | 191,257 | 17,790 | 18,073 | 17,917 | 17,955 | 19,025 | 21,843 | 35,604 | 42,775 | 27,028 | 409,867 |
| Total petroleum and natural gas revenue | 149,302,260 | 31,956,732 | 33,834,445 | 34,279,901 | 36,662,065 | 44,802,884 | 39,010,699 | 46,318,144 | 44,822,258 | 46,554,423 | 507,543,811 |

## PETROLEUM RESOURCES BRANCH

### GENERAL

The Petroleum Resources Branch was established pursuant to the *Department of Mines and Petroleum Resources Act*, as amended, during the Second Session of the 1973 Legislative Assembly, and assented to on November 7, 1973. In effect, the former Petroleum and Natural Gas Branch and the Petroleum and Natural Gas Titles Section of the former Administration Branch were combined to bring all matters concerning petroleum and natural gas under a single branch. The one exception is the administration of the royalty regulations, which was assumed by the Mineral Revenue Division of the Department.

The Petroleum Resources Branch, under the direction of the Associate Deputy Minister of Petroleum Resources, is responsible for the administration of the *Petroleum and Natural Gas Act, 1965* and the regulations made thereunder, including the Drilling and Production Regulations, the Geophysical Regulations, the Drilling Reservation Regulations, and the Development Road Regulations. It also administers the *Underground Storage Act, 1964*. In general, the Branch is responsible for all matters related to the disposition of Crown-owned petroleum and natural gas rights, and for the regulation of exploration, development, and production activities conducted by the oil and gas industry.

The Branch is organized into three divisions, namely, the Engineering Division, the Geological Division, and the Titles Division, which are supervised, on an interim basis, by A. J. Dingley, W. M. Young, and R. E. Moss respectively, pending approval of the organization and the required new positions by the Public Service Commission.

### STAFF

On December 31, 1973, the professional and technical staff included the following:

*Headquarters Staff*

| | |
|---|---|
| J. D. Lineham, P.Eng. | Associate Deputy Minister and Chief of Branch |
| A. J. Dingley, P.Eng. | Chief Engineer |
| W. L. Ingram, P.Eng. | Senior Development Engineer |
| B. T. Barber, P.Eng. | Senior Reservoir Engineer |
| P. S. Attariwala, P.Eng. | Reservoir Engineer |
| P. K. Huus | Reservoir Technician (Engineering) |
| M. B. Hamersley, C.E.T. | Development Technician (Engineering) |
| W. M. Young, P.Eng. | Chief Geologist |
| S. S. Cosburn, P.Eng. | Economic Geologist |
| T. B. Ramsay, P.Eng. | Economic Geologist |
| J. Y. Smith, P.Eng. | Economic Geologist |
| R. Stewart, P.Eng. | Reservoir Geologist |
| R. E. Moss | Commissioner |
| W. W. Ross | Assistant Commissioner |

*Field Office, Charlie Lake*

| | |
|---|---|
| D. L. Johnson, P.Eng. | District Engineer |
| T. B. Smith, P.Eng. (until September 19) | Field Engineer |
| D. A. Selby | Field Technician (Engineering) |
| G. T. Mohler | Field Technican (Engineering) |

W. B. Holland, C.E.T. — Field Technician (Engineering)
J. W. D. Kielo — Field Technician (Engineering)
G. L. Holland — Field Technician (Engineering)
J. L. Withers — Geophysical Technician (Engineering)

*Staff Changes*

G. L. Holland, Field Technician (Engineering), joined the staff on January 22.
T. B. Smith, Field Engineer, resigned effective September 19.
J. L. Withers, Geophysical Technician (Engineering), joined the staff on October 15.
W. W. Ross, Deputy Chief Petroleum and Natural Gas Commission, transferred to the Mineral Revenue Division as Assistant Director on December 5.

## BOARD OF ARBITRATION

Chairman: A. W. Hobbs, Q.C.
Vice-Chairman: S. G. Preston, P.Ag.
Member: J. D. Lineham, P.Eng.

The Board of Arbitration, established under the authority of the *Petroleum and Natural Gas Act, 1965,* grants right of entry to oil and gas companies upon alienated land and determines condition of entry and compensation therefor. It also terminates the right of entry when a company has ceased to use the land.

In 1973, three applications for right of entry were submitted to the Board.

Two right of entry orders were issued and three were terminated after the parties reached agreement.

A hearing was held on December 11 at Fort St. John. The six cases scheduled to be heard were disposed in 1973 as follows:

One compensation award order was issued:
One award order was issued, but the compensation quantum was set aside until both parties are heard in 1974:
One compensation award order was pending at the end of the year awaiting inspection of the site:
One compensation award order was pending awaiting establishment by the Board of the compensation; and
Two cases were set aside until 1974, one by request of the land-owner involved and the other due to the absence, at the hearing, of the land-owner.

Six cases were outstanding at the end of the year. These involve one where the award will be determined after weather conditions permit inspection of the site; one where the award will be determined after both parties have been heard again in 1974; one where both parties have been heard but the award has not yet been established; two where the cases were set aside to be heard in 1974; and one application received late in the year.

## CONSERVATION COMMITTEE

The Conservation Committee, established on October 11, 1957, under the *Petroleum and Natural Gas Act, 1965,* is responsible to the Minister of Mines and Petroleum Resources. Its duties are as follows:

(1) To act as an advisory committee to the Minister on such questions of conservation that the Minister, in writing, shall refer to the Committee for consideration and recommendation.

(2) To deal with such questions of conservation and production in the various fields of British Columbia as may arise between two or more operators in the same field or between operators and the Branch when appeals on such questions are made to the Minister and referred by him to the Committee.

No officers are currently named for the Committee, and it did not meet in 1973.

## FIELD OPERATIONS

### General

The field office of the Petroleum Resources Branch is located at Charlie Lake, B.C., near Mile 52 on the Alaska Highway. This office is responsible for the enforcement of all sections of the Drilling and Production Regulations, and of the Geophysical Regulations, which pertain to field operations throughout the entire Province.

During 1973, 10 vehicles were driven 181,993 miles to conduct inspections and (or) perform surveys pertaining to the drilling and production phases of the oil and gas industry.

### Laboratories

Core and sample storage and examination facilities are located at the field office. All cores from British Columbia wells must be placed in labelled boxes and delivered by the operator to the Geological Laboratory for permanent storage. Cores received during 1973 numbered 584 boxes from 54 wells, bringing the total stored at the end of the year to 31,802 boxes from 1,951 wells. In 1973, 1,853 boxes of core from 133 wells were studied by oil company personnel and other interested individuals. Core from five wells was temporarily removed from the laboratory by operators for more detailed study. Since the core-examination equipment at Charlie Lake was made available in February, 1961, 90,304 boxes of core have been removed from the racks for examination.

Unless otherwise directed, any operator who drills a well is required to sample the drilled rock (bit cuttings) at least every 10 feet of depth. Each sample is placed in a small bag at the well, identified, and submitted to the Geological Laboratory, where it is washed and bottled. Each 10-foot sample is divided, resulting in three complete sets of samples for each well. One set is retained in the sample library at the field office, one is sent to headquarters in Victoria, and the other is forwarded to the Institute of Sedimentary and Petroleum Geology, Geological Survey of Canada, in Calgary. The remainder of the 10-foot sample is retained for a period of one year should further samples be required.

The main sample-examination equipment made available by the Branch is at the field office, with limited facilities at Victoria. Complete sample libraries of all samples from British Columbia wells drilled since 1948 are retained at the Charlie Lake and Calgary locations. The Victoria library has samples from wells drilled since September 1957. At the end of 1973, the Charlie Lake storage contained 869,267 samples, while 863,290 samples were retained in the Victoria library. During 1973, samples from 155 wells were delivered to the field office and a total of 47,965 10-foot samples was washed and bottled. Industry and personnel from other government agencies studied samples from 31 wells during the year.

The Provincial calibration standard for selective oilfield pressure measurement equipment is located at the Charlie Lake field office. During 1973, 852 calibrations were performed on subsurface pressure gauges. Thirty field dead-weight gauges were

calibrated and numerous spring gauges were checked for accuracy. All calibrations and typed results were furnished without charge to the industry.

A specialized wireline truck was employed to conduct pressure and temperature surveys of 72 potential or producing wells. These surveys were conducted to check and supplement pressure data submitted by operating companies.

### Inspections

Inspections on many production and sales meters were performed in 1973. Complete meter calibrations were done on 574 gas meters, while 440 were given a fast meter check. In total, 1,014 meter checks were made to ensure that proper production practices were being employed. Complete meter calibrations were witnessed on 15 positive displacement meters.

Crude oil production facilities were inspected on 311 occasions, while 2,731 routine inspections were made at producing, potential, or abandoned well locations, and 466 sites were visited during active drilling operations.

Tests on 40 natural gas wells were witnessed and four tests were conducted on producing oil wells. These tests were performed to verify production characteristics of the wells and to ensure that data received by the Engineering Section are accurate.

### Spillages, Accidents, and Fires

One of the important functions of the field office staff is to investigate and report any spillages of petroleum products that occur. The British Columbia Oil Spill Contingency Plan, initiated by the industry in 1971, continued to provide an organization to deal with any emergency in the field. Equipment was located at strategic places in the producing area of the Province to assist company personnel in the containment and rapid clean-up of any spilled products. The Department co-operated with the contingency organization by providing liaison and communication with the various governmental agencies that became involved.

During 1973 there were 21 spillages, three fires, and one fatal accident reported to the Branch. Three of the incidents, one of them resulting in fire, involved more than 1,000 barrels of oil. Seventeen of the 21 spillages were concerned with pollution by petroleum, two by water, and one each by condensate and diesel fuel. Spills involving battery locations numbered 13, while four occurred at pipe-line installations, three at well locations, and one at a tank farm. Corrosion was considered responsible for nine of the spillages, while faulty equipment and human error were concluded to be the cause in six cases each.

One of the major incidents occurred at the Wildmint oil battery. Its cause is speculative but the result was a loss of an estimated 1,770 barrels of oil and a serious fire. The other two cases of major proportion were due to failures in pipeline facilities.

A fatal accident happened on July 13 when an employee unloading pipe from a truck was struck by the handle of a boomer. Upon releasing the handle of the boomer the man was hit on the side of the head and neck and killed almost instantly.

## GEOLOGICAL DIVISION

### General

The Geological Division is responsible for the preservation and evaluation of certain well data and the administration of the Branch well-evaluation requirements. Data resulting from the drilling of wells, geophysical surveys, and other related sources in the Province in the search for and development of accumulation of oil

and gas are supplied to the Branch. These data are made use of by staff geologists as a basis for report on, and maps and cross-sections of, the economically important sedimentary rocks of the Province. The Division is responsible for providing data and opinion to attract and encourage the exploration and development of the petroleum resources of the Province.

In the administration of the Branch well-evaluation requirements, the Division stipulates the sampling and coring requirements for each well location approved and assigns a classification to the well based on the Lahee System as defined by the American Association of Petroleum Geologists. A summary of the wells classified by the Lahee System is shown in Table 13. Six classifications are used that are based upon geological interpretation, which are described as follows: (1) New field wildcat—drilled in a geological environment where hydrocarbons have not yet been discovered; (2) new pool wildcat—drilled in a geological horizon where other pools have been found but the geological conditions are such that searching for a new pool is very hazardous; (3) outpost—drilled with the intent of extending an already partly developed pool by a considerable distance; (4) and (5) deep-pool and shallow-pool tests—drilled within the known limits of a pool with the intent of searching for hydrocarbons below or above respectively the pool of producible horizon; and (6) development—drilled with the intent of further exploiting the pay horizon or pool within the area which has already been essentially proved for production.

All geological and geophysical reports submitted to the Branch in support of work requirements are assessed to ensure that the Department receives full value for credits or other benefits granted.

## Reservoir Geology and Regional Subsurface Mapping

During the year, members of the geological staff worked in selected geographical areas of the Western Canadian sedimentary basin on reservoir geological and regional subsurface mapping assignments. In general, the purpose of carrying forth both reservoir and regional studies is to provide the Department and industry with continuing geologic evaluations of rock-stratigraphic units which have attained a position of economic importance in the development of the Province's hydrocarbon resources.

Reservoir geologists working in co-ordinated studies with the Reservoir Engineering Section completed the annual updating and inclusion of new well data for the yearly *Hydrocarbon and By-products Reserves* publication. In addition, subsurface pool-mapping projects were completed on new gas pools and (or) extensions established at Kotcho East and Grizzly; associated gas pools at Cecil and Oak, and one associated oil pool at Eagle.

A minor amount of reservoir work covered the geological appraisal of submission studies involving the control of remedial work, cycling, repressuring, and secondary recovery projects. In this respect the responsibility of the reservoir geologist is to continue the economic geological work during the productive period of the field. Production data supplement and complete the previously accumulated subsurface information, and the geological interpretations of reservoirs are revised accordingly in the production stage of oil and gas fields.

A number of regional subsurface mapping projects were continued from the previous year within that portion of the Western Canadian Sedimentary Basin underlying northeastern British Columbia. The discovery of Mississippian and Cretaceous shallow gas north of Fort Nelson has induced a considerable amount of exploratory drilling activity during the past year. Basal Cretaceous sandstone

developments have a considerable amount of area distribution within the general Kotcho Lake region. Porous sand deposits which are in part discontinuous, range in thickness from zero to 80 feet, with reasonably good reservoir characteristics. Hydrocarbon entrapment is partly stratigraphic and partly structural in nature.

The Mississippian Shunda-Pekisko and Debolt subcrop sequences to the north of the latter Cretaceous clastic depositional edge is another area of potential shallow gas entrapment. Reservoir development and hydrocarbon accumulation are directly associated with the Pre-Cretaceous erosional unconformity.

Regional studies of the Cretaceous Bullhead Group were extended from Fort St. John south to the Grizzly Valley area. Isopach and structural maps of the Bullhead Group were projected into the latter area, which is currently undergoing an active exploratory drilling programme.

Mapping of the Halfway Formation has been updated with a concentrated study on the continuous or blanket phase of the Formation within the general Fort St. John area. Several commercial discoveries have been made during the past year along the depositional edge of the continuous Halfway phase.

### Drilling Highlights

In relation to the previous year, the 1973 drilling programme registered a 26-per-cent reduction or a decline of 44 to 167 in the number of wells completed. The independent segment of the industry, as has been the case in the past few years, predominated in exploratory drilling and in the development drilling of established fields.

New Field, New Pool, and Outpost drilling was down 22 per cent over last year with the completion of 28 new pool discoveries out of a total of 96 wells drilled. Of the latter discoveries, 25 were completed as gas wells and three were completed as potential oil producers. None of the 25 completions were given major discovery status.

With the exception of one unsuccessful well drilled in the Bowser basin, all exploratory completions took place in the Western Canadian sedimentary basin of northeastern British Columbia. Wildcat drilling extended from the southeastern portion of the basin within the Lone Mountain-Grizzly Valley area to the Windflower-Tattoo area south of Maxhamish Lake near the Yukon-British Columbia border.

An undetermined amount of gas was recovered from the Triassic in the drilling of Quasar Grizzly a-85-G/93-I-15. Production testing of gas-bearing intervals will be required to confirm deliverability and reserve potential of the apparent new field gas discovery. In addition to the Quasar Grizzly well, two other gas discoveries worthy of mention were made in shallow sands and carbonates of Mississippian age north of the town of Fort Nelson. The first discovery area wherein shallow gas was recovered from Mattson Formation sandstones lies to the south of Maxhamish Lake. The second area, also noted for its discovery of shallow gas, lies to the north of Kotcho Lake and is associated with carbonates of the Mississippian erosional subcrop. The development of major reserves in the shallow gas area is considered much less probable than gas reserves associated with the deeper Triassic horizons in the Grizzly Valley area.

Reserves allocated to new pool discoveries within the general Fort St. John and Fort Nelson areas are considered to be minimal, with the possible exception of the Bluesky and Slave Point east of Kotcho.

Development drilling activity was down 31 per cent from last year, with 39 wells completed out of a total of 71 drilled. Most of the latter drilling took place within the limits of established reserves.

*Oil Discoveries, 1973*

| Well Authorization No. | Well Name | Location | Total Depth (Ft.) | Productive Horizon |
|---|---|---|---|---|
| 3239 | Scurry CanPlac Eagle 6-27-84-18 | 6-27-84-18 W6M | 6,070 | Belloy. |
| 3364 | Scurry CanPlac Eagle 6-22-84-18 | 6-22-84-18 W6M | 6,120 | Belloy. |
| 3370 | Scurry CanPlac Eagle 6-34-84-18 | 6-34-84-18 W6M | 6,051 | Belloy. |

*Gas Discoveries, 1973*

| | | | | |
|---|---|---|---|---|
| 3181 | Quasar N Grizzly a-85-G | a-85-G/93-I-15 | 17,243 | Confidential. |
| 3268 | Penzi Mesa Fontas d-77-H | d-77-H/94-J-8 | 8,250 | Pine Point. |
| 3291 | Aquit et al Tattoo a-78-L | a-78-L/94-O-10 | 3,750 | Mattson. |
| 3319 | KM AEG Mast d-80-A | d-80-A/93-P-3 | 11,718 | Dunlevy. |
| 3330 | Aquit AmMin et al Windflower d-87-A | d-87-A/94-O-11 | 2,700 | Mattson. |
| 3117 | Pacific et al Caribou d-27-H | d-27-H/94-A-16 | 3,970 | Gething. |
| 3174 | HB et al Moberly 16-20-79-25 | 16-20-79-25 W6M | 11,003 | Halfway. |
| 3180 | Quasar et al N Grizzly b-62-G | b-62-G/93-I-15 | 9,297 | Dunlevy. |
| 3240 | Fina Bearberry d-95-L | d-95-L/94-A-11 | 5,400 | Dunlevy. |
| 3241 | Atapco et al Klua b-19-G | b-19-G/94-J-9 | 7,724 | Slave Point. |
| 3297 | HB Union Bogbean b-6-B | b-6-B/94-H-8 | 3,420 | Halfway. |
| 3308 | Cdn Res Quintana Pac E Kotcho d-71-G | d-71-G/94-I-14 | 6,642 | Confidential. |
| 3322 | Amoco et al Thetlaandoa c-34-L | c-34-L/94-P-6 | 2,250 | Debolt. |
| 3345 | CanDel et al LL&E Trutch b-2-K | b-2-K/94-G-10 | 6,912 | Confidential. |
| 3416 | AmMin Thetlaandoa d-37-C | d-37-C/94-P-11 | 1,890 | Confidential. |
| 3413 | Amoco et al Thetlaandoa d-89-G | d-89-G/94-P-6 | 2,280 | Confidential. |
| 3107 | Cdn Res Quintana E Kotcho b-43-J | b-43-J/94-I-14 | 6,552 | Slave Point. |
| 3235 | Penzi Mesa Clarke a-36-C | a-36-C/94-J-9 | 7,050 | Slave Point. |
| 3269 | Woods Wainoco Oak 11-24-86-18 | 11-24-86-18 W6M | 4,192 | Halfway. |
| 3321 | Ipex et al Currant d-73-K | d 73-K/94-A-9 | 4,089 | Halfway. |
| 3342 | Pacific Tepee d-31-K | d-31-K/94-G-8 | 4,858 | Halfway. |
| 3350 | Amoco et al Thetlaandoa c-30-K | c-30-K/94-P-6 | 3,400 | Shunda. |
| 3392 | SOC et al W Jeans d-11-F | d-11-F/94-A-13 | 4,495 | Dunlevy. |
| 3273 | Anadarko Cdn-Sup Buick b-44-J | b-44-J/94-A-11 | 3,780 | Dunlevy. |
| 3393 | Chevron Birch b-47-I | b-47-I/94-A-13 | 6,245 | Confidential. |

## Geophysical and Geological Coverage

All the geological exploration was in northeastern British Columbia. During the year, 143 crew weeks of seismic work were completed, with February the most active month. Several companies had surface geologists in the field in July.

During the year, 79 work-requirement assessment reports on petroleum and natural gas leases and permits were submitted to the Department by operating companies. These reports, which covered exploration expenditures of over $7 million, were mainly based on geophysical surveys completed in northeastern British Columbia.

## ENGINEERING DIVISION

### RESERVOIR ENGINEERING SECTION

#### GENERAL

The Reservoir Engineering Section is responsible for determination of reservoir and production characteristics of oil and gas pools in the Province. This involves interpretation of reservoir pressure, rock and fluid properties, and production data. These parameters are used to forecast ultimate recoveries obtainable from oil and gas accumulations in the Province, and the rates at which these volumes will be produced. The Section maintains files of reservoir data, obtained from both industry and Branch sources, and reviews such data for quality. Oil and gas allowable rates are set by the Section, and recommendations concerning proposed improved recovery and produced fluid disposition schemes are made. The Section is concerned with technical aspects of matters affecting conservation and correlative rights.

#### OIL ALLOWABLES, MPRS, AND IMPROVED RECOVERY SCHEMES

Maximum permissive rates (MPRs) are assigned to all oil wells in the Province, either as individual wells or as groups of wells in the form of project or unit MPRs. Single-well MPRs are based on well-bore net-pay properties, while project MPRs are derived from mapped pore volume data and the estimated recovery factor for the production scheme in effect.

Monthly oil allowables are established from MPR values, and periodic checks are made to ensure that wells and projects are being produced in accordance with regulations governing over-production. Table 16 presents the individual well and project MPRs in effect at December 31, 1973. The areas included in projects or units are shown on the maps following Table 15.

During 1973, in addition to the individual well MPRs assigned or revised, modifications were made to the MPRs or operating schemes for a number of projects. Additional injection wells were approved for use in Inga Unit 1, Wildmint Halfway project, Inga Unit 2, and Peejay Unit 3. Approval was granted to inject water into the gas cap area in Boundary Lake Unit 1; this proposal had been under review at year-end 1972. Also at the end of 1972, review and discussion with the Alberta Energy Resources Conservation Board was under way concerning an application to that Board to waterflood the portion of the Boundary Lake zone pool, Boundary Lake field, that extends into Alberta. The Board approved the scheme subject to conditions respecting voidage in the area of the leaseline formed by the Provincial border.

The Beatton River West Unit 1 was granted a waterflood MPR in October 1973, when it became apparent that reservoir withdrawals could be adequately balanced by injection. The waterflood scheme in Inga Unit 4 was granted a primary MPR in March. Waterflooding did not start until November, however, and a waterflood allowable was not in effect at the end of 1973 pending demonstration of ability to balance withdrawals.

An application to install a waterflood scheme in Inga Unit 5 had been under review at year-end 1972. In January 1973 the scheme was approved, contingent on the filing of acceptable plans for installation of an associated-gas conservation scheme. Water injection started in August 1973, although the previously approved waterflood allowable was still not in effect at year-end due to inability to balance reservoir withdrawals. A waterflood scheme was also approved for Milligan Creek Unit 2, again subject to submission of acceptable plans for associated-gas conservation. Water injection was started in August 1973, but the primary MPR was still

in effect at year-end. Because of the geometry of this project, the waterflood MPR will not apply until performance demonstrates that waterflooding is an effective improved recovery mechanism in the unit.

During 1973, off-target penalty factors were waived with respect to the MPR of a well in the Cecil Lake field and another in the Wolf field. Relief from gas-oil ratio penalty, applied to daily oil allowable, was granted for a 60-day period to two wells in the Flatrock field. This was to enable special testing to be carried out. The results indicated that the Halfway pool in which the wells were completed was in fact a condensate reservoir and the wells were subsequently reclassified as gas wells. An application seeking relief from gas-oil ratio penalties on production from Fort St. John Unit 1 was under review at the end of 1973.

An application was received in October 1973 for a Halfway pool primary MPR for the Weasel West field. No action had been taken on this at year-end, pending submission of additional data by the applicant.

### Associated and Solution Gas Conservation Schemes

Solution gas is always produced as a by-product of oil production. This gas is dissolved in the oil at reservoir pressure and temperature conditions, but due to decreases in these as the oil is brought to the surface much of the dissolved gas is evolved. In addition, many oil pools are discovered in which the oil is originally overlain with a gas cap. In these it is often impossible to produce the oil without also producing some gas-cap gas, together with the solution gas. This could adversely affect ultimate oil recovery, since production of the gas cap reduces the reservoir energy available to produce the oil.

In some cases, the volume of associated gas produced in excess of lease equipment fuel requirements is very small. In such cases it is not feasible to install conservation facilities and the gas is flared. Where conservation is feasible, two possibilities exist—either it can be collected and marketed, or it can be collected and injected back into the producing reservoir or a storage zone. Such conservation is encouraged by incentives. In the case of schemes with marginal economics, a reduced royalty rate may be applied to gas that is sold, or the gas-oil ratio adjustment factor may be modified if gas is conserved. However, in the case that gas-cap gas is to be marketed, the Branch needs to be satisfied that such concurrent production will optimise hydrocarbon recovery. At the beginning of 1973, associated gas produced from 17 projects was being collected and delivered for sale, and in five projects associated gas was being collected and injected into the reservoir. It is the policy of the Branch to require, from the operator of a proposed improved recovery project, a statement concerning disposition of associated gas production. If it is not considered economic to conserve the gas, justification for this is required. Otherwise, a submission for a gas-conservation scheme is required, following the guidelines included in the Drilling and Production Regulations. As a result of this, applications to continue flaring gas from Inga Unit 4 and Inga Unit 5 had been under review at year-end 1972. Analysis by the Branch indicated that in both cases conservation could be supported by the economics of the oil-production scheme. Consequently, as mentioned previously, proposals for gas conservation were required from the operators of both projects. These proposals were received and approved, and the facilities are scheduled to go on-stream in the spring of 1974. Proposals for gas conservation in Milligan Creek Unit 2 were also approved.

During 1973, 82 per cent of the associated gas produced in the Province was conserved or used as fuel. Flared gas comprised only 16 per cent of that produced from those projects subject to some form of conservation scheme. Gas from such projects accounted for 91 per cent of the total associated gas production.

## Gas Allowables and Well Tests

The "daily gas allowables" or production rate limits (PRLs) for gas-wells in the Province are established from the results of absolute open-flow potential (AOF) tests. These tests are witnessed by Branch field personnel, and the data collected are interpreted by the Reservoir Engineering Section to establish PRLs, and also for use in reservoir engineering studies.

Restriction of individual well production rates is not considered necessary in some gas pools, and in these cases either Project Allowables have been issued, or the pools' operators have approval to produce according to "Good Engineering Practices" (GEP). Table 17 presents AOF test data, individual well PRLs, Project Allowables, and GEP schemes in effect at year-end 1973. The areas included in the various Project Allowable and GEP schemes are shown on the maps following Table 15.

During 1973, two GEP projects were approved—one covered a single spacing area in the Kotcho Lake field (Map 20) and the other a single spacing area in the Petitot field (Map 27). These were implemented to alleviate technical and deliverability problems. By the end of the year an application was under review that sought GEP status for practically all of the Kotcho Lake field. Well-testing schedules were reviewed for all producing gas pools in the Province, and, where necessary, flaring of gas was allowed for this purpose (three wells). Some 300 AOF and (or) reservoir pressure survey test results were analysed during the year and appropriate daily gas allowables issued.

Toward the end of 1973, gas production from the Province was falling short of maximum day demand due to production problems being encountered in the Beaver River field. As a result, several testing schedules were modified in order to ensure that production down-time from other fields was kept to a minimum. For this same reason, Inga Unit 3 was allowed to continue producing even though it was in an overproduction condition and should have been shut in. This overproduction will now be retired during 1974. In the meantime, gas-oil contact water injection rates were increased to offset the increased withdrawal rate.

## Hydrocarbon and Associated Sulphur Reserves

The Provincial reserves of oil, gas, and gas by-products, as of December 31, 1973, are summarized in Table 18. Details of pool-by-pool estimates are published in the Departmental report *Hydrocarbon and By-products Reserves in British Columbia, December 31, 1973*. This report includes individual-pool rock and fluid property data. Complementary reservoir fluid data are presented here in Tables 19 and 20, for oil and gas reservoirs respectively.

The proved oil reserves in the Province as of December 31, 1973, are estimated at some 131 MMSTB. Drilling during 1973 proved-up only 1.9 MMSTB of reserves, while revision to previous estimates increased these by 2.8 MMSTB. However, 21.2 MMSTB were produced during the year, resulting in a net decrease in proved reserves of 16.6 MMSTB when compared with reserves at the end of 1972.

Proved reserves represent oil for which it is believed there is a 90 per cent or better chance that the estimated volumes will be recovered. Probable reserves are carried where the probability is estimated to be 50 per cent or more. These include primary reserves on undrilled acreage and reserves attributable to probable increases in ultimate recovery from pools under improved recovery schemes, or for which such schemes are planned. Probable oil reserves are estimated at 153.2 MMSTB, as of December 31, 1973, an increase of 1.2 MMSTB over the estimated of December 31, 1972.

The gas and gas by-products reserves shown in Table 18 are "established" reserves. These comprise the proved reserves plus a percentage (usually 50 per cent) of the estimated probable reserves. As of December 31, 1973, the established raw gas reserves are estimated at 10.3 TSCF. Adjustment for removal of a percentage of the liquid hydrocarbons and acid gases results in established residue gas reserves of 8.9 TSCF, or 9.1 TSCF when converted to a standard heat content of 1,000 Btu/SCF. These volumes represent decreases over the 1972 estimates of 0.3 TSCF raw gas, and 0.3 TSCF residue gas. Drilling during 1973 added 0.2 TSCF raw gas, while net revisions to previous estimates were negligible. In addition, 0.5 TSCF of raw gas was produced during the year.

Natural gas liquids reserves at year-end 1973 are estimated at 103.9 MMSTB, a decrease of 7.3 MMSTB from the 1972 estimate. Sulphur reserves, at 4,045 thousand long tons, were down 128 thousand long tons compared with estimates made in 1972. Sulphur reserves have again been included for pools serviced by the Fort Nelson gas plant; sulphur-extraction facilities are currently being constructed.

It should be noted that residue gas, natural gas liquids, and sulphur production and reserves estimates are based on theoretical calculations of the quantities of these materials contained in the raw-gas reserves. Comparisons between actual and theoretical production during 1973 are included in footnotes to Table 18. The low apparent sulphur-extraction efficiency is due to the fact that the theoretical values include the sulphur not in fact extracted from the gas in the Fort Nelson plant.

### Miscellaneous

Applications for permission to dispose of produced salt water into a subsurface formation are reviewed by the Reservoir Engineering Section, although the actual mechanical completion of the disposal well is approved by the Development Engineering Section. In reviewing applications, several factors are considered, such as the compatibility between injected and formation water, the water quality in the disposal zone, and the effect on this of the injected water, and whether the planned water disposal will affect hydrocarbon reserves. In addition, when disposition of water into a hydrocarbon-productive zone is planned, the probable effect on reservoir performance is evaluated, together with the flood-out pattern and time of breakthrough of injected water into adjacent producing wells. Equity considerations of adjacent lessees are also taken into account. During 1973, 11 water-disposal schemes (or modifications to existing schemes) were approved.

During 1973, several reservoir analyses and other studies were completed. Many of these were undertaken as a result of submissions received with respect to proposed production schemes. Others were conducted for internal purposes. Among the latter were unsteady-state water-influx and material balance calculations in the Clarke Lake field, optimum production scheme evaluations in the Cecil Lake and Fort St. John fields, and preliminary reservoir analyses of the Oak and Flatrock fields' Halfway reservoirs in an effort to determine whether or not they were condensate pools or oil zones overlain with gas.

Production problems were experienced in the Beaver River field during the second half of 1973. These were caused by excessive water production in two of the wells. In order to minimize the possibility of the same problem arising in the other three wells, wellbore pressure differentials in these wells were decreased, resulting in a drastic loss of productivity from the field. Both the operator of the field and the Branch were, at year-end, attempting to determine the causes of the problem, to analyse the effect of various factors on the problem, and to evaluate the optimum production scheme for the field.

Problems were also encountered in Inga Unit 2 of the Inga Oil Field. It became apparent that injected water was bypassing the oil-zone in many instances, pressuring-up a "thief zone," and causing premature water production in several oil wells. The operator ran several tests during the year to attempt to define the problem and its solution. These tests were carried on into 1974 and it was anticipated that remedial action could be proposed in the near future. In the meantime, water-injection rates were severely curtailed during the second half of 1973 in an effort to decrease injection pressures. As a result, oil production rates had decreased by about 1,000 BOPD at year-end 1973 compared with the rate at the end of 1972.

Forecasts were prepared of oil and gas production rates from all known hydrocarbon accumulations during the latter half of 1973. The possible effect of various factors, such as installation of field gas compressors or changes in wellhead price, on these forecasts was evaluated. In addition, statistical data were assembled from which projections were made of future drilling activity in the Province, together with consequent oil and gas reserves discovery and production rates. These data were compiled into reports prepared for the British Columbia Energy Commission. A member of the Reservoir Engineering Section attended all sessions of the Energy Commission hearings into the natural gas industry in British Columbia, in order to provide advice as required. A report was also prepared for the Energy Commission in connection with the production problems encountered in Beaver River. This analysed the effects on Provincial gas supply, and the possibility of short-term solutions to any shortages relative to expected demand.

An application was received from Pacific Petroleums Ltd. seeking permission to prorate group water production in the Clarke Lake field back to individual wells on the basis of a meter-run temperature correlation. It was then proposed to use the resultant water-gas ratio data to determine dry-gas production rates from individual wells. The application was not approved, pending submission of additional performance data to establish the accuracy of the method. Applications for non-standard gas-metering arrangements in two fields were approved, subject to certain conditions. The applications concerned six wells operated by Pacific Petroleums Ltd. in the Kotcho field, and two wells in the Yoyo field.

During the course of the year, meetings were held with many of the operators of oil and gas producing facilities in the Province, at which current operations were reviewed and planned improved recovery schemes were discussed. In addition, meetings were held with representatives of Canadian Arctic Gas Study Ltd. and the Canadian Petroleum Association, at which the gas reserves situation in the Province was discussed. Progress reports pertaining to the projects listed in Table 16 were reviewed during the year, together with a progress report for the Slave Point project in Clarke Lake.

Reservoir-pressure survey proposals for a large number of oil and gas pools were reviewed during 1973, and some considerable time was occupied in analysing the results of these surveys. The Reservoir Engineering Section continued to provide assistance and information to other government and industry personnel. The annual publication of pool-by-pool hydrocarbon and associated sulphur reserves was prepared during the first quarter of 1973, detailing reserves estimates as of December 31, 1972. The Section advised the Titles Division with respect to the evaluation of 25 lease renewal applications during 1973, and the land-sale evaluation correlations were updated to reflect changed oil and gas prices and tax structures. The Section also advised the Titles Division with respect to unitization participation factors as they affected royalty allocation in six pools subject to unit operations agreements.

Many requests for miscellaneous information were dealt with during the year. As in previous years, a map was prepared to show maximum detected hydrogen sulphide concentrations in produced gases. This map is on file in the Charlie Lake field office for the benefit of anyone working in the field. The Reservoir Engineering and the Geology Sections prepared a combined paper on the "Developed Petroleum and Natural Gas Resources of British Columbia," which was delivered to the Annual Meeting of the Canadian Institute of Mining & Metallurgy in April 1973. Later in the year a staff member was appointed to the Canadian Metric Commission Sector Committee No. 4.2, and also to the Provincial Government Interdepartmental Metric Conversion Committee.

## DEVELOPMENT ENGINEERING SECTION

### General

The Development Engineering Section is responsible for all matters related to the location, drilling, completion, and abandonment of wells in the Province. This involves the assurance that operators of all wells drilled conform to the requirements of the Drilling and Production Regulations, which includes the submission of prescribed forms and information.

A well classification is assigned by the Section to each proposed drilling location. The classifications, as defined in the regulations, are basically twofold—development and exploratory. A location classified as development is located in a spacing area that is contiguous to a spacing area containing an oil or gas well in the same objective geological pool. An exploratory well is located beyond the described contiguous spacing area and is divided in two types—wildcat and outpost. An exploratory wildcat well is located farther than 4½ miles from a designated oil or gas well and an exploratory outpost well is in the area between development and wildcat wells. Development wells, and in certain instances exploratory outpost wells, are further classified as deep-pool or shallow-pool tests where an undeveloped pool below or above the objective zone is being explored.

Changes in assigned classifications are considered when an operator applies and submits the necessary supporting data. If the operator can show evidence that a separate potential pool is being drilled, an exploratory wildcat classification is assigned at the time the well authorization is issued. Following drilling and testing an operator can apply for discovery classification if the engineering and geological data obtained confirm that a separate pool has been encountered. Discovery wells receive the same location and confidentiality privileges as wildcat wells. The onus is on the individual operator to apply for any classification change.

The classification assigned to each well or, in the case of deep-pool or shallow-pool tests, to each formation, is important as it is the basis used to release the well information. Release of data for the wildcat classification is made one year after rig release, while the information from all other classifications is made 30 days after the rig-release date.

All submissions pertaining to drilling and completion operations are studied for approval by the Development Section. An operator must obtain such approval prior to commencing to drill a well, changing a well name, abandoning a well, or in any manner changing the physical characteristics of a well. When a submission is received by the Section, all pertinent information is reviewed, which may include details of the proposed programme, the title under which the petroleum and natural gas rights are held, and any other relevant requirements of the regulations. With each application to drill a well, a surveyed position must be given which is examined to assure conformation with target and spacing regulations. A spacing area is

assigned to a proposed well, based upon whether the primary objective, as stated by the operator, is oil or gas. If the location is off-target, the operator is advised of the production penalty that will be applied.

Any application that is submitted to alter the equipment in a well or change the proposed programme is handled in a similar manner. Details of the application are referred to the various sections of the Branch before final approval is granted. Prior to the abandonment of a well, the operator must transmit an abandonment programme to the field engineer for his approval, but all other types of alterations are studied at Victoria, where the official records are retained.

In addition, the Development Section collects and retains, for the convenience use of all Branch personnel, drilling and production records for each well. These same data are made available, provided the subject-matter is not confidential, to interested industry personnel who visit the Victoria office. Statistics are compiled on refineries, processing plants, and the many pipe-lines situated in the Province. The geological and geophysical reports submitted for work credits, in accordance with the *Petroleum and Natural Gas Act,* are received and filed by the Section. Requests for copying or examining these reports are directed to the Development Section, which is responsible for their release. Arrangements exist whereby copies of the reports or parts of the reports are made available to interested persons who do not wish to examine them at the Victoria office. In order to assure that only nonconfidential well information and geological reports are released, the Section has developed a verification system for security purposes.

Two monthly reports are prepared for distribution to subscribers, and a weekly drilling report is compiled to advise Departmental personnel of current activities. This latter report is initially compiled each Friday morning by the field office staff, who relay the information to the Victoria office for publication.

The Section is also responsible for co-ordinating and updating the Drilling and Production Regulations, as deemed necessary due to changes in field techniques and procedures. Many inquiries were answered during 1973 that related to the interpretation of the regulations and the methods of completing required reports or submissions.

## Drilling

Drilling operations completed in British Columbia during 1973 declined about 25 per cent compared to 1972. Well authorizations issued decreased by 65 to 161, while total footage drilled dropped 24 per cent to 874,753 feet. The significant decline recorded in 1973 followed three successive years of increased drilling. Contributing factors were the lack of hydrocarbon discoveries in the Province and a general orientation of exploration funds to other areas, notably northern Canada. The number of completed gas wells decreased slightly and a substantial drop was recorded in oil well completions. Only nine wells were completed as oil wells in 1973 compared to 39 during 1972.

Except for two wells, all the drilling activity took place in the northeastern corner of the Province east of the Rocky Mountains. The two exceptions were on abandonment in the Bowser basin and a well that was still drilling at year-end near Fernie. The Bowser basin well, about 150 miles north of Prince Rupert, was the second attempt in the area and did not reveal any evidence of hydrocarbon deposits. The Fernie location is in close proximity to the Alberta border and is expected to encounter difficult drilling conditions due to its mountainous location.

During 1973 the drilling operations were completed by 60 operating companies employing 53 individual drilling rigs which were owned by 16 different drilling contractors.

As in previous compilations, if more than one zone is completed in a well, each productive zone is counted as one well. Seven multiple wells were completed in 1973, all dual gas wells. At the end of 1973, four locations were awaiting evaluation to determine a final status and 23 locations were in the drilling process. Four locations were drilled and completed for water-injection purposes as an aid to oil production. Wells drilled and drilling are listed in Table 21 and annual footages drilled since 1947 are shown graphically in Figure 2.

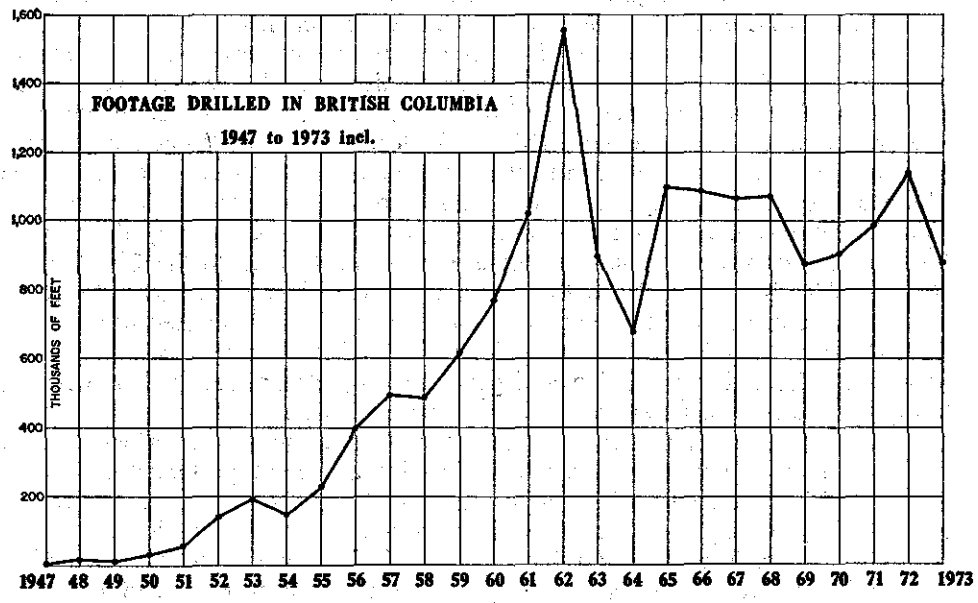



Figure 2. Footage drilled in British Columbia, 1947–73.

Workover operations were undertaken at many newly completed wells in addition to stimulation treatments performed on some of the declining wells. A workover is considered to be any operation carried out after rig-release date that changes the producing interval, or alters, or intends to alter, the producing characteristics of a well. A producing interval may be changed by perforating, cementing perforations, or by running casing or plugs. The producing characteristics of a well may be changed by any operation performed to increase the productivity of a well. Changes may include perforating, acidizing, fracturing, installing a pump, or changing a choke, but do not include the replacement of equipment. During 1973, operations were reported for 400 workovers performed on potential or producing wells in British Columbia.

Five new fields were designated by the Branch in 1973 and field boundaries were amended on 21 occasions. The new fields were at Bivouac, Grizzly North, Kotcho Lake East, Redeye, and Thetlaandoa. Field boundaries were changed once during 1973 for 11 fields and twice for Buick Creek, Currant, Eagle, Oak, and Osprey. At the end of 1973 there were 98 designated fields, which are listed in Table 22 and shown in Figure 3.

During 1973, 161 well authorizations were issued by the Development Section and 11 were cancelled where operators decided not to drill the wells.

Disposal of salt water produced with petroleum and natural gas was accomplished by injection into subsurface formations, preferably the formation from which the water originated. Storage of salt water is permitted in surface pits only

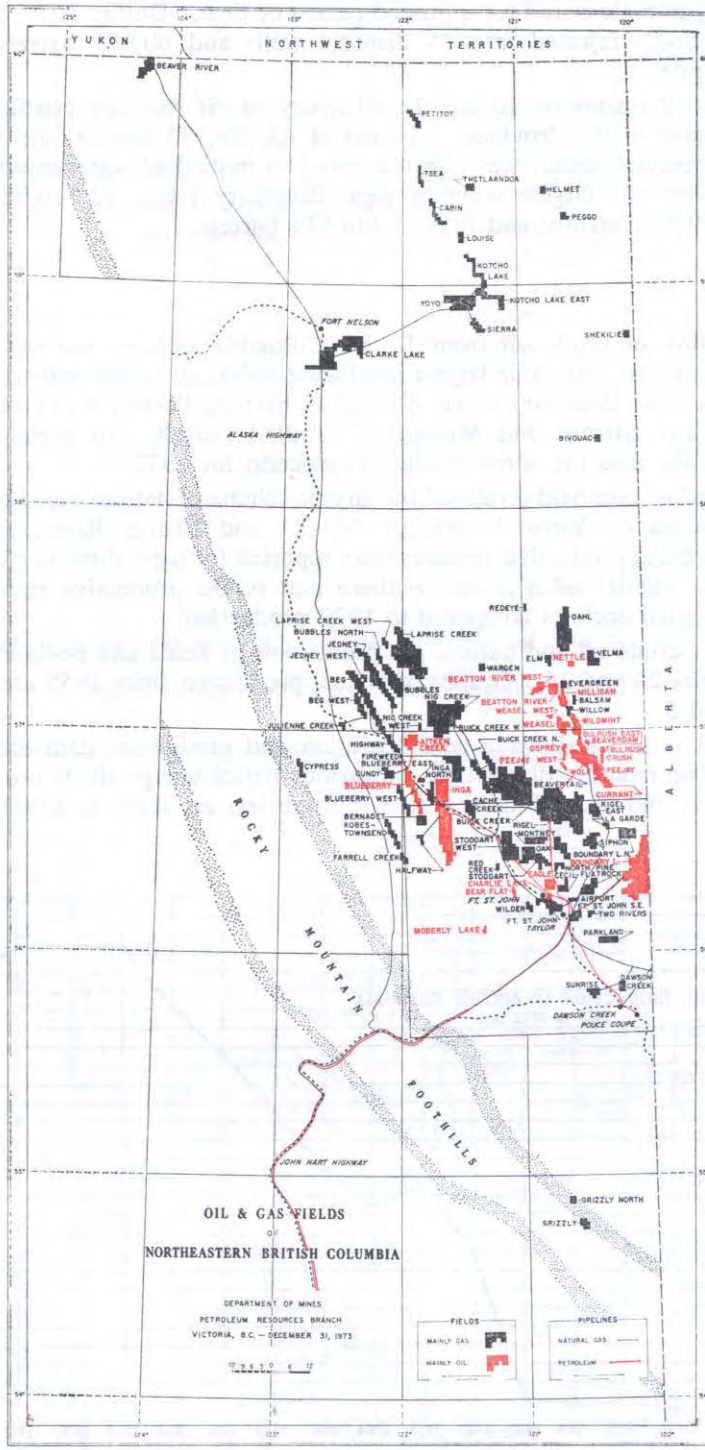



Figure 3. Petroleum and natural gas fields, 1973.

in emergency situations and for a limited period of time. During 1973, there were 7,868,175 barrels injected into 25 disposal wells and 60,875 barrels put into evaporation pits.

Waterflood operations to aid the efficiency of oil recovery continued in 10 producing pools in the Province. A total of 43,759,896 barrels, including both fresh and formation water, was injected into 166 individual water-injection wells. Fields receiving the largest volumes were Boundary Lake, 15,710,922 barrels; Peejay, 8,679,302 barrels; and Inga, 5,446,559 barrels.

## PRODUCTION

Production of crude oil from British Columbia oilfields during 1973 was 21,189,758 barrels. The four largest producing fields, all under active waterflood programmes, were Boundary Lake, 8,643,244 barrels; Peejay, 3,118,148 barrels; Inga, 3,087,267 barrels; and Milligan, 2,115,934 barrels. In each case these volumes are less than the corresponding production for 1972.

The Clarke Lake field produced the largest volume of natural gas, 124,289,024 MSCF, followed by Yoyo 71,990,208 MSCF, and Beaver River, 58,151,696 MSCF. Increased production volumes were reported for these three northern fields. However, the smaller fields in the southern part of the productive area generally showed continued declines compared to 1972 production.

Monthly crude oil and natural gas production by fields and pools for 1973 is given in Tables 24 and 25. Graphs of annual production since 1955 are shown in Figures 4 and 5.

General statistics showing well operation and production data are given in Table 26. The monthly dispositions of various petroleum products are shown in Tables 27, 28, and 29. Monthly values to producers are given in Table 30.

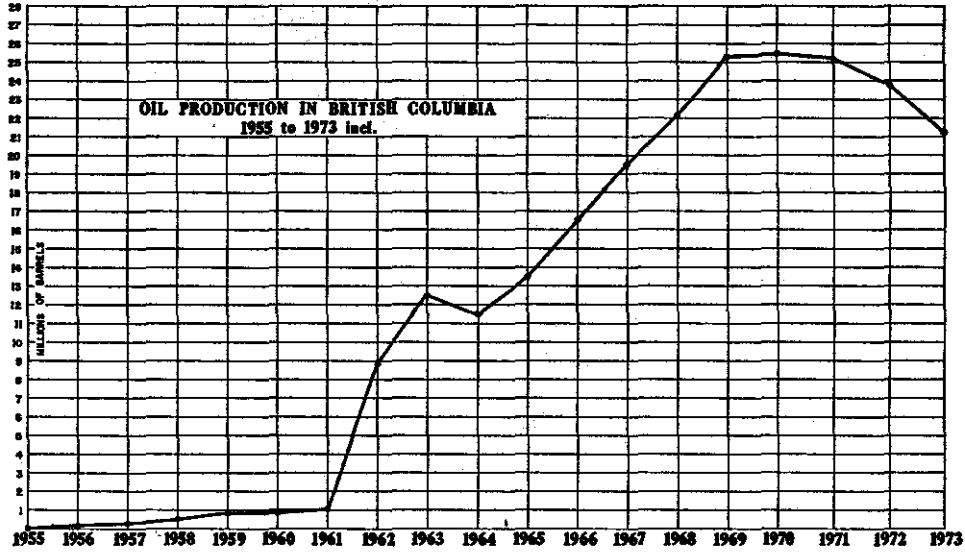



Figure 4. Oil production in British Columbia, 1955–73.

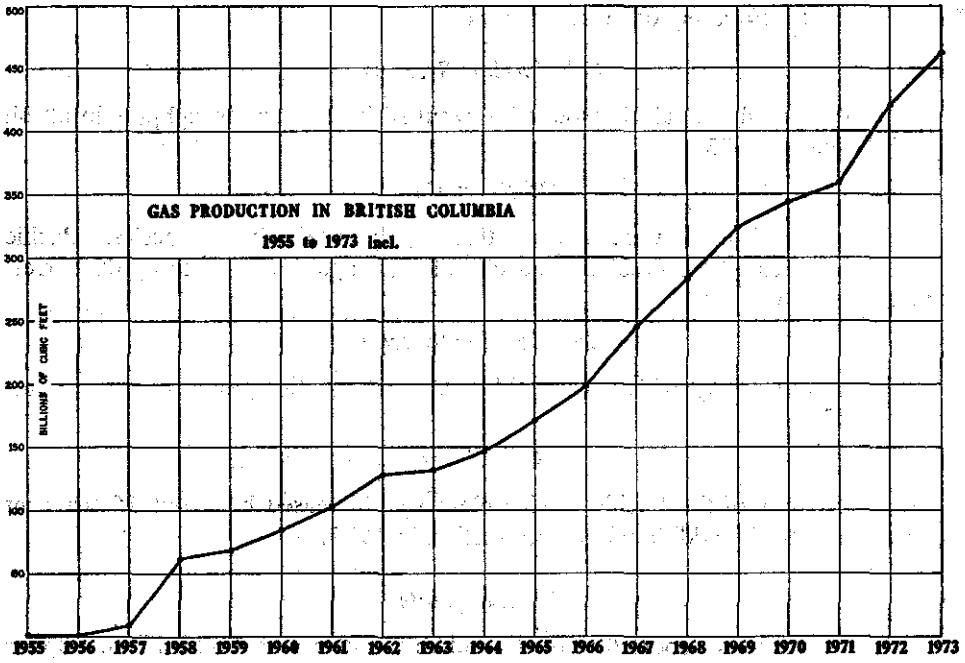



Figure 5. Gas production in British Columbia, 1955–73.

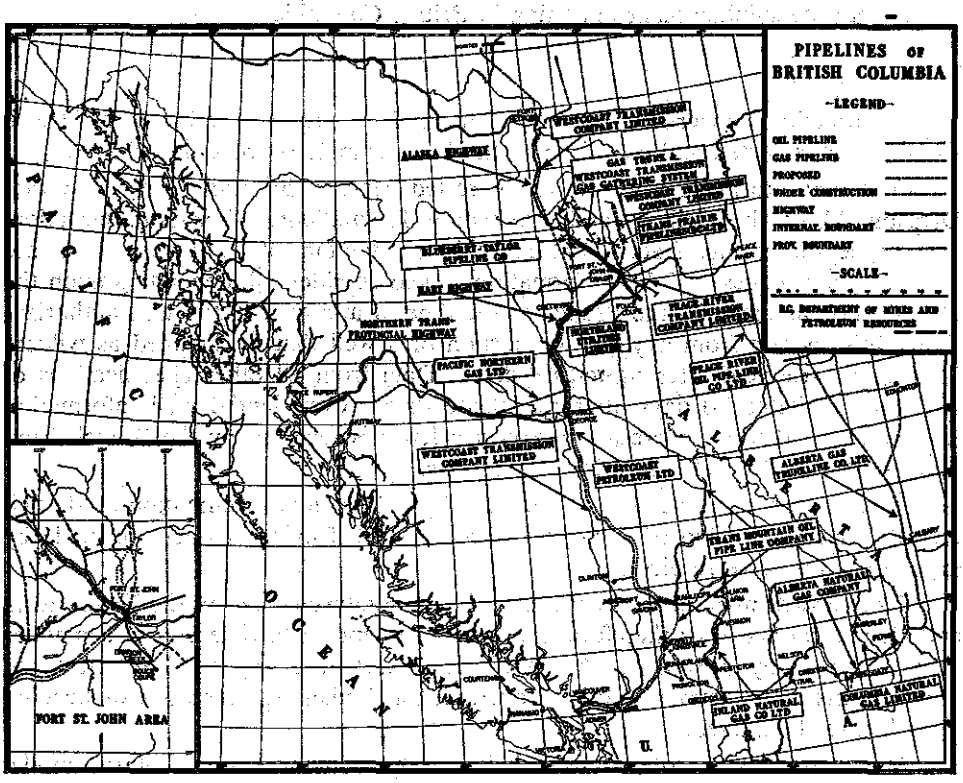



Figure 6. Petroleum and natural gas pipe-lines, 1973.

## Pipe-lines, Refineries, and Gas Plants

### *Oil Pipe-line Systems*

The decreased annual oil production resulted in smaller throughputs in all oil pipe-lines during 1973.

### *Oil Refineries*

Minor modifications were made at three of the established refineries. Pacific Petroleums increased the cracking capacity of the Taylor refinery to 4,400 barrels per calendar day.

### *Gas Pipe-line Systems*

There were many widespread additions made to the gas pipe-line systems during 1973.

### *Gas Plants*

The capacity of the Pacific Taylor plant was increased by about 15 per cent to accommodate the additional gas production in 1973.

### *Sulphur Plants*

No changes were reported at the Canadian Occidental Petroleum Ltd. sulphur plant at Taylor.

Tables 31, 32, 33, 34, and 35 provide data on the pipe-lines, refineries, gas plants, and the sulphur plant operating in British Columbia.

## Well Records

Information concerning the petroleum and natural gas industry in British Columbia is collected and compiled by the Petroleum Resources Branch.

The data are made available to interested persons, in strict accordance with Division 43 of the Drilling and Production Regulations. Location, elevation, current depth, casing, status, and monthly production of individual wells are released upon request. Other information is held confidential, depending upon the classification assigned by the Branch at the time of approval of the well authorization. Information from any well or portion of a well that is classified as wildcat is available one year after rig-release date. Data from all other classifications of wells are available 30 days after rig-release date. Confidential well information may be released to an interested person if a letter is received by the Branch from the operator of the well authorizing its release.

Information is provided by the Branch by publication, examination of Branch records, or reproduction of documents filed. Cost-defraying charges are made by the Branch for these services.

The records maintained by the Branch are in constant use by the Engineering and Geological Sections; therefore, they must be kept up to date and in a manner suitable for many purposes. As published reports are expanded to meet the requirements of industry and other governmental bodies, the methods of keeping records must be altered.

The Petroleum Resources Branch has adopted many features of the model forms prepared by the Statistical Committee which was established by the annual

Mines Ministers' Conferences. The Branch uses the following applications and reports:

| Form No. | Form Name |
|---|---|
| 1. | Well Register. |
| 2. | Application for a Well Authorization. |
| 3. | Application to Amend a Well Authorization. |
| 4. | Application to Change a Well Name. |
| 5. | Application to Abandon a Well. |
| 6. | Application to Alter a Well. |
| 7. | New Oil Well Report. |
| 8. | New Gas Well Report. |
| 9. | Application for MPR—Individual Well. |
| 9A. | Application for MPR—Unit/Project. |
| 10. | Report of Wells Connected to a Battery. |
| BCS1. | Test Data and Production Report. |
| BCS2. | Monthly Disposition and Crown Royalty Statement. |
| 15. | Monthly Gas-gathering Operations Report. |
| 16. | Monthly Natural Gas Plant Statement. |
| 17. | Monthly Natural Gas Processing Statement. |
| 18. | Monthly Sulphur Plant Operations Statement. |
| 19. | Monthly Refinery Operations Report. |
| 20. | Monthly Crude Oil and Condensate/Pentanes Plus Purchaser's Statement. |
| 21. | Monthly Liquefied Petroleum Gas Purchaser's Statement. |
| 22. | Well Completion Report. |
| 23. | Supplement to Well Completion Report. |
| 24. | Workover Report No. |
| *25. | Workover Card. |
| *26. | Monthly Operations Report. |
| 27. | Application for a Rig Licence. |
| 28. | Monthly Water Flood Operations Report. |
| 29. | Monthly Water Receipts and Disposal Report. |
| 30. | Statement of Nominations and Estimated Requirements for British Columbia Crude Oil and Condensate/Pentanes plus. |
| 31. | New Service Well Report. |
| 32. | Production Allowable Report—Crude Oil. |
| *33. | Drilling Report. |
| 34. | Application for Test-hole Authorization(s). |
| *35. | Report of a Well Inspection. |
| 36. | Confidential D.S.T. Report. |
| *7C. | Meter Inspection Report. |
| *7D. | Battery Inspection Report. |
| | †Monthly Natural Gas Distributor's Statement. |
| | †Monthly Report on Oil Pipe-line Gathering Operations. |

* For Departmental use only.
† Used in conjunction with Statistics Canada.

REPORTS AND PUBLICATIONS

*Schedule of Wells*

An annual volume was compiled and published, giving all well information released during 1973. The data are arranged by geographical locations and provide the following information when applicable: Well authorization number, well name, location, classification, co-ordinates, elevation, total depth, status including geological pool, interval open to production, casing details, spud date, rig-release date, logs, core intervals, sample intervals, drill-stem test data, and geological markers determined by the Branch.

The information is condensed from reports submitted to the Branch by the various operators.

*Weekly Report*

A weekly report is published for Departmental use from data collected by the field office staff at Charlie Lake. The week reported is from 8 a.m. on Friday to the succeeding Friday. The following information is included:

(1) Spudded wells.
(2) Cancelled locations.
(3) Changes of well names.
(4) Changes of well classification.
(5) Changes of well status.
(6) Suspended wells.
(7) Finished drilling wells.
(8) Abandoned wells.
(9) Oil wells.
(10) Gas wells.
(11) Workovers.
(12) Operating wells.
(13) Approved wells not spudded.
(14) Summary of well count, giving the following totals:
    (*a*) Finished drilling wells.
    (*b*) Abandoned wells.
    (*c*) Oil wells.
    (*d*) Gas wells.
    (*e*) Water-injection wells.
    (*f*) Gas-injection wells.
    (*g*) Water-source wells.
    (*h*) Observation wells.
    (*i*) Disposal wells.
    (*j*) Completed wells.
    (*k*) Locations drilled.
    (*l*) Multiple completions.
    (*m*) Drilling wells.
    (*n*) Suspended wells.
    (*o*) Approved but not spudded wells.
    (*p*) Locations in good standing.
    (*q*) Locations approved.
    (*r*) Locations cancelled.

The number of completed wells is calculated by two methods to provide verification. The number of wells of different status, counting each zone of a multiple completion as a well, is compared to the number of locations drilled, less the multiple completions.

The number of locations in good standing is also calculated by two methods. The total number of locations drilled, drilling, suspended, and approved but not spudded is compared to the total number of locations approved, less the number of locations cancelled.

*Oil and Gas Production Report*

The Oil and Gas Production Report is prepared monthly from returns made by the operators of producing wells, pipe-lines, gas plants, oil refineries, and distribution facilities. All production data are compiled and maintained by a computer application. The contents of the report are as follows:

(1) Graphical presentations of the daily average oil production, the daily average marketable gas production, and the monthly footage drilled, with comparative graphs of the totals for the preceding year.
(2) Monthly summary of the drilling and completion activity, with cumulatives for the year.
(3) New oil- and gas-well reports received during the reported month.
(4) The number of producing and producible oil and gas wells by field and pool.
(5) Production of crude oil, condensate, natural gas, and water by individual well, project, or unit, field and pool with gas/oil and water/oil ratios calculated, where applicable. The quantities are given for the current month, the current year to date, and the all-time cumulative.
(6) Estimated oil production for the succeeding month, which is based upon the pipe-line returns reported to the Branch field office.
(7) Crude oil and condensate/pentanes plus disposition, with comparable totals for the same month of the preceding year.
(8) Tabulation of nominations and estimated requirements for British Columbia crude oil and condensate/pentanes plus.
(9) Natural gas supply and disposition, with comparable volumes for the same month of the preceding year.
(10) Value of natural gas sales to British Columbia distributors.
(11) Value of crude oil and natural gas to British Columbia producers.
(12) Production and disposition of butane, propane, and sulphur.
(13) Value of butane, propane, and sulphur to British Columbia producers.
(14) Waterflood operations showing the number of injection wells, and volumes of water by current month, current year, with total cumulative figures for each field and pool. The totals are also given for the same month of the preceding year.

This report is compiled and mailed to subscribers approximately three weeks after receipt of the returns from the operators.

*Drilling and Land Report*

The Drilling and Land Report is published and distributed monthly, concurrently with the Oil and Gas Production Report.

The Drilling Section is compiled from information forwarded by the Branch field office and contains the following:

(1) Monthly summary of drilling and completion activity, with cumulatives for the year.
(2) Summary of the well count, giving the following totals:
  (*a*) Locations drilled.
  (*b*) Finished drilling wells.
  (*c*) Abandoned wells.
  (*d*) Oil wells.
  (*e*) Gas wells.
  (*f*) Water-injection wells.
  (*g*) Gas-injection wells.
  (*h*) Water-source wells.
  (*i*) Observation wells.
  (*j*) Disposal wells.
  (*k*) Total wells completed.
(3) Well authorizations approved.
(4) Locations cancelled.
(5) Well authorizations outstanding.
(6) Changes of well status.
(7) Changes of well classification.
(8) Changes of well names.
(9) Suspended wells.
(10) Drilling and completed wells.
(11) Rig licences issued.
(12) Rig licences renewed.
(13) Rig licences cancelled.
(14) Well data released from confidential status.
(15) Geological reports released from confidential status.
(16) Descriptions of designated fields.
(17) Drilling and production schemes approved by the Branch during the reported month.

The Land Section is prepared by the Titles Division and contains the following:

(1) Acreage synopses.
(2) Summary of changes in acreage held under the following titles:
  (*a*) Permits.
  (*b*) Leases.
  (*c*) Natural gas licences.
  (*d*) Drilling reservations.
(3) Geophysical licences issued and renewed.
(4) Notices regarding dispositions of Crown petroleum and natural gas rights.
(5) Summary of disposition of permits, leases, natural gas licences, and drilling reservations.

## *Publications*

Various publications, maps, and services concerning petroleum and natural gas operations in British Columbia are available. A catalogue containing descriptions and prices is available from the Petroleum Resources Branch, Department of Mines and Petroleum Resources, Parliament Buildings, Victoria, B.C.

## TABLE 13—EXPLORATORY AND DEVELOPMENT WELLS COMPLETED, JANUARY TO DECEMBER 1973

| | Oil | | Gas | | Total Producers | | Abandonments | | Status Undetermined | | Service Wells | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Footage | No. | Footage | No. | Footage | No. | Footage | No. | Footage | No. | Footage | No. | Footage |
| New field wildcats | --- | ------ | 5 | 34,468 | 5 | 34,468 | 9 | 89,338 | --- | ------ | --- | ------ | 14 | 110,308 |
| New pool wildcats | 1 | 4,085 | 15 | 73,953 | 16 | 78,038 | 34 | 174,170 | 1 | 6,245 | --- | ------ | 51 | 258,453 |
| Deep-pool tests | --- | ------ | --- | ------ | --- | ------ | 21 | 9,471 | --- | ------ | --- | ------ | 2 | 9,471 |
| Outposts | 3 | 18,241 | 4 | 19,994 | 7 | 38,235 | 24 | 122,372 | 1 | 9,156 | --- | ------ | 32 | 169,763 |
| Total exploratory wells | 4 | 22,326 | 24 | 128,415 | 28 | 150,741 | 67 | 381,853 | 2 | 15,401 | --- | ------ | 97 | 547,995 |
| Total development wells | 5 | 21,821 | 27 | 123,671 | 32 | 145,492 | 32 | 147,423 | 2 | 16,850 | --- | ------ | 66 | 309,765 |
| Subtotals | 9 | 44,147 | 51 | 252,086 | 60 | 296,233 | 99 | 529,276 | 4 | 32,251 | 4 | 16,993 | 4 | 16,993 |
| Totals | 9 | 44,147 | 51 | 252,086 | 60 | 296,233 | 99 | 529,276 | 4 | 32,251 | 4 | 16,993 | 167 | 874,753 |

[1] Two deep-pool tests are not included in the well total as they are counted under "Development" and "Outpost." There were seven dual gas wells which were counted as single wells.

## TABLE 14—GEOPHYSICAL EXPLORATION, 1973

### *Seismic Surveys*

NOTE—Unless otherwise shown, the exploration method used is the reflection seismic survey. For indicating location, the National Topographic map-numbering system is used, except in the Peace River Block, where the township system is used.

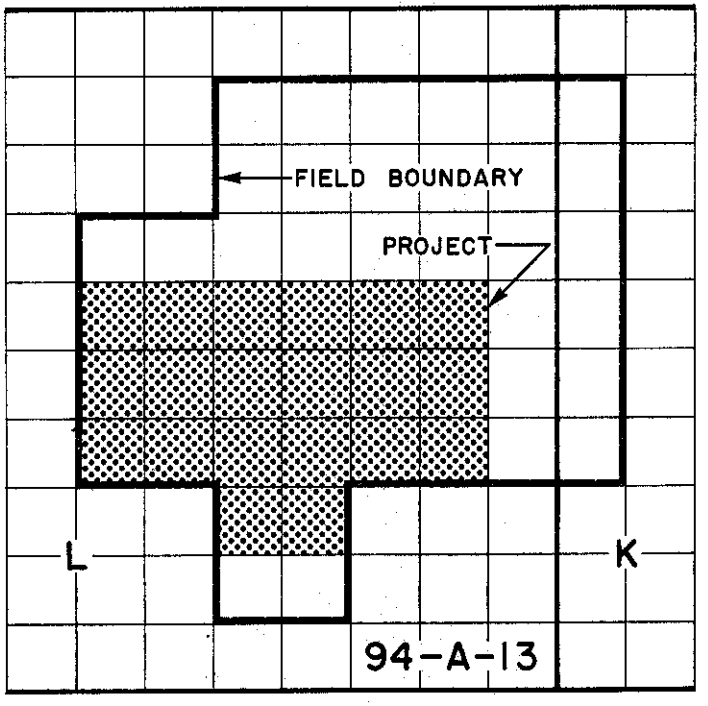
| Company | Location of Exploration | Number of Seismic Crews | Number of Crew-weeks |
|---|---|---|---|
| *January* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-I-7, -10, -11 | | |
| | 94-J-13 | | |
| | 94-O-3, -4 | 3 | 8.6 |
| | 94-P-5, -6 | | |
| | Tp 85, R. 13–16 W6M | | |
| Aquitaine Co. of Canada Ltd. | 94-O-5 | 1 | 1.1 |
| | 94-P-1, -2 | 1 | 0.3 |
| Chevron Standard | 94-I-10 | 1 | 2 |
| | 94-J-6 | 1 | 1 |
| | 94-P-3, -4 | 1 | 1 |
| Hudson's Bay Oil & Gas Co. Ltd. | 94-H-4, -5 | 1 | 2.5 |
| Quasar Petroleum Ltd. | 93-P-3 | 1 | 2 |
| Imperial Oil Limited | 94-J-2 | 1 | 4 |
| Union Oil Co. of Canada Ltd. | 93-I-9, -10 | 1 | 1 |
| J. M. Huber Corporation | 94-G-1 | 1 | 2 |
| BP Oil and Gas Ltd. | 94-O-8, -9 | 1 | 3 |
| | 94-P-5, -12 | | |
| Petrofina Canada Ltd. | Tp. 83, R. 23, 24 W6M | 1 | 0.5 |
| Texaco Canada Ltd. | 93-P-13, -14 | 1 | 2 |
| | 94-A-3, -4 | | |
| Tricentrol Canada Ltd. | 94-I-6 | 1 | 1 |
| General American Oil Ltd. | 94-A-5 | 1 | 2 |
| | 94-B-8 | | |
| Home Oil Company Limited | 94-B-15 | 1 | 0.1 |
| Tenneco Oil & Minerals, Ltd. | 94-I-13 | 1 | 1.2 |
| | 94-P-4, -5 | | |
| *February* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-A-13 | | |
| | 94-B-9, -10, -15, -16 | | |
| | 94-G-1 | | |
| | 94-H-4 | 3 | 7.8 |
| | 94-J-13 | | |
| | 94-I-9, -10, -11, -14, -15 | | |
| | 94-N-16 | | |
| | 94-O-3, -4, -13 | | |
| Aquitaine Co. of Canada Ltd. | 94-N-16 | 1 | 1 |
| | 94-O-13 | 1 | 1.2 |
| | 94-P-1, -2 | 1 | 1.4 |
| Chevron Standard | 94-I-13, -14 | 1 | 0.5 |
| | 94-P-3, -4 | | |
| | 94-J-9, 94-I-12 | 1 | 1 |
| | 94-J-14, -15 | 1 | 1 |
| | 94-J-10, -11 | 1 | 1.5 |
| Gulf Oil Canada Limited | 94-G-7 | 1 | 1 |
| | 94-B-1 | 1 | 2 |
| Hudson's Bay Oil & Gas Co. Ltd. | 94-H-4 | 1 | 0.5 |
| | 94-G-15 | 1 | 0.5 |
| Quasar Petroleum Ltd. | 93-P-3 | 1 | 4 |
| Imperial Oil Limited | 94-J-2 | 1 | 1 |
| | 94-J-11 | 1 | 1 |
| Union Oil Co. of Canada Ltd. | 93-I-9, -10 | 1 | 3.5 |
| PanCanadian Petroleum Limited | 94-K-15, -16 | 1 | 1 |
| Frio Oil Ltd. | 94-I-13 | 1 | 1.2 |
| | 94-H-9, -16 | 1 | 1 |
| BP Oil & Gas Ltd. | 94-O-8, -9 | 1 | 2 |
| | 94-P-5, -12 | | |
| | 94-G-13 | 1 | 0.7 |
| | 94-J-6, -11 | 1 | 1.4 |
| | Tp. 80, 81 R. 20, 21 W6M | 1 | 1 |
| Westcoast Petroleum Ltd. | 94-N-5 | 1 | 2 |
| Petrofina Canada Ltd. | Tp. 83, R. 23, 24 W6M | 1 | 0.5 |

TABLE 14—GEOPHYSICAL EXPLORATION, 1973—*Continued*
*Seismic Surveys*—Continued

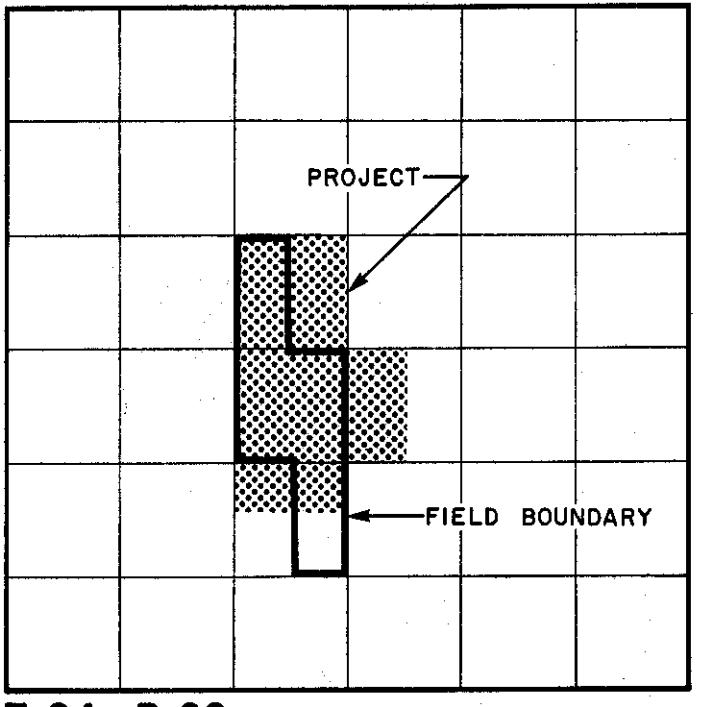
| Company | Location of Exploration | Number of Seismic Crews | Number of Crew-weeks |
|---|---|---|---|
| *March* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-A-13 | 3 | 3.1 |
| | 94-B-9, -10, -15, -16 | | |
| | 94-G-1 | | |
| | 94-H-4 | | |
| | 94-I-10, -11, -14, -15 | | |
| | 94-J-13 | | |
| | 94-O-3, -4 | | |
| Aquitaine Co. of Canada Ltd. | 94-O-16, 94-P-13 | 1 | 0.5 |
| | 94-O-10, -11 | 1 | 0.8 |
| Chevron Standard | 94-J-10, -11 | 1 | 1 |
| | 94-I-10, -11 | 1 | 1.5 |
| Gulf Oil Canada Limited | 94-B-8 | 1 | 1 |
| Quasar Petroleum Ltd. | 93-P-3, -5, -12 | 1 | 4 |
| PanCanadian Petroleum Limited | 94-K-15, -16 | 1 | 2 |
| Frio Oil Ltd. | 94-J-16 | 1 | 0.4 |
| BP Oil & Gas Ltd. | 94-O-9, 94-P-12 | 1 | 0.7 |
| | 94-J-16 | 1 | 0.4 |
| Westcoast Petroleum Ltd. | 94-K-9 | 1 | 1 |
| | 94-N-5 | 1 | 2 |
| Teck Corporation Ltd. | 94-A-13, -14 | 1 | 0.4 |
| Texaco Canada Ltd. | 94-J-9, -10 | 1 | 2 |
| *April* | | | |
| *Nil* | *Nil* | *Nil* | *Nil* |
| *May* | | | |
| Quasar Petroleum Ltd. | 93-P-5, -6 | 1 | 4 |
| *June* | | | |
| Quasar Petroleum Ltd. | 93-P-5, -6 | 1 | 4 |
| Kerr McGee Corporation | 93-I-15, -16 | 1 | 2 |
| | 93-P-2 | | |
| *July* | | | |
| Quasar Petroleum Ltd. | 93-P-3, -5 | 1 | 3 |
| Kerr McGee Corporation | 93-I-15, -16 | 1 | 3 |
| | 93-P-2 | | |
| BP Oil & Gas Ltd. | 93-P-4, -5, -6 | 1 | 1 |
| *August* | | | |
| *Nil* | *Nil* | *Nil* | *Nil* |
| *September* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-K-9, -10, -16 | 1 | 1.4 |
| BP Oil & Gas Ltd. | 93-P-4, -5, -6 | 1 | 0.7 |
| *October* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-K-9, -10, -16 | 1 | 4.3 |
| Hudson's Bay Oil & Gas Co. Ltd. | 94-B-15 | 1 | 0.5 |
| Wainoco Oil Limited | Tp. 78, 79 R. 14, 15 W6 | 1 | 0.5 |
| BP Oil & Gas Ltd. | 93-P-4, -5, -6 | 1 | 2.4 |
| *November* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-K-9, -10, -16 | 1 | 4.3 |
| | 94-B-6, -7 | | |
| Quasar Petroleum Ltd. | 93-P-5, -12 | 1 | 4 |
| Wainoco Oil Limited | Tp. 78, 79 R. 14, 15 W6 | 1 | 0.5 |
| Home Oil Company Limited | 94-A-6 | 1 | 0.1 |
| *December* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-B-6, -7 | 1 | 3.0 |
| Aquitaine Co. of Canada Ltd. | 94-O-14 | 1 | 1.2 |
| Quasar Petroleum Ltd. | 93-P-5, -12 | 1 | 2.0 |
| BP Oil & Gas Ltd. | Tp. 80, 81, 82 R. 14, 15 W6 | 1 | 2.0 |
| | 94-O-8, -9 | 1 | 1 |
| | 94-P-5, -12 | | |
| Western Decalta Petroleum Ltd. | 94-B-7 | 1 | 2 |

## TABLE 15—SURFACE GEOLOGICAL EXPLORATION, 1973

| Company | Location of Exploration | Number of Geologists | Number of Party-weeks |
|---|---|---|---|
| *June* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-J, K, N, O | 5 | 2.5 |
| | 93-O | 2 | 1.4 |
| *July* | | | |
| Amoco Canada Petroleum Co. Ltd. | 94-J, K, N, O | 5 | 4.7 |
| Chevron Standard | 94-B | 6 | 4 |

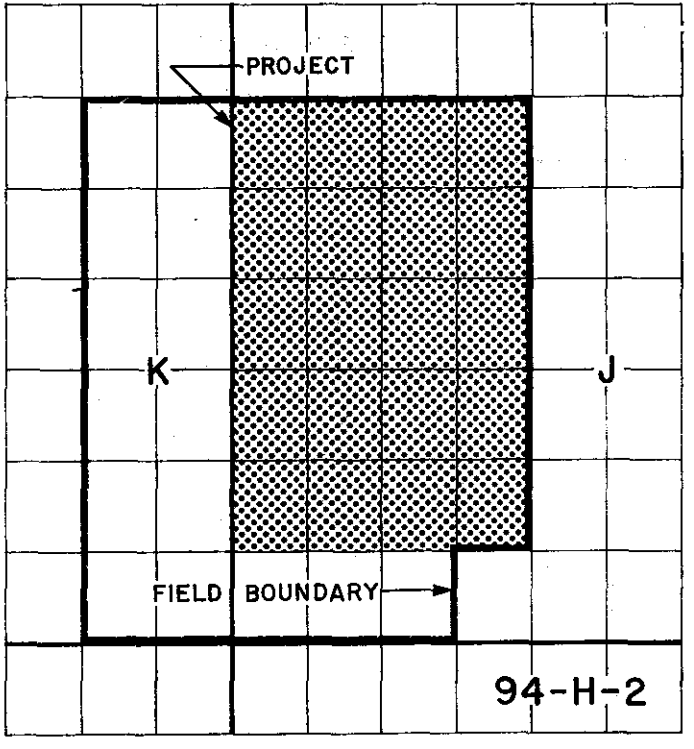



MAP 1
UNION OIL PROJECT
GETHING POOL
AITKEN CREEK FIELD

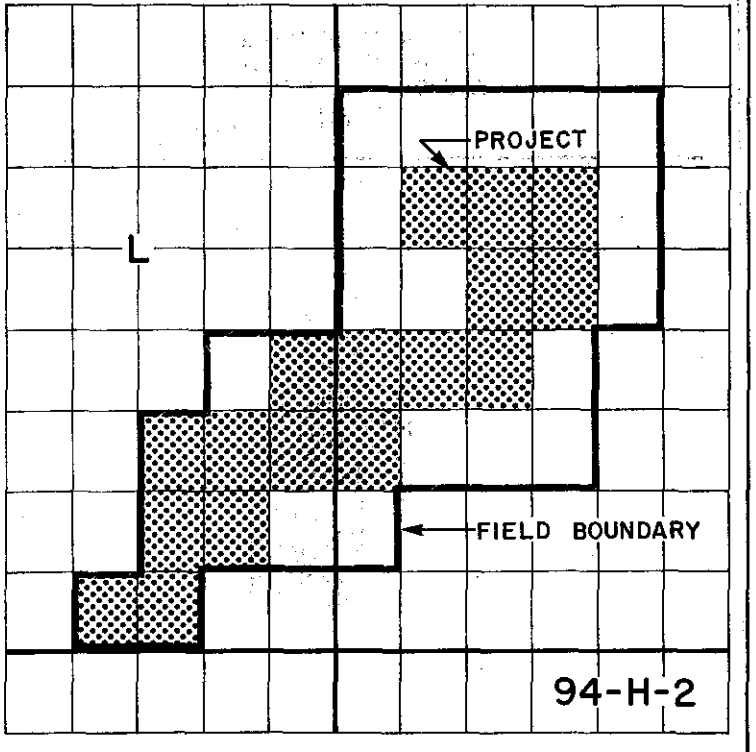



T. 84 R. 20

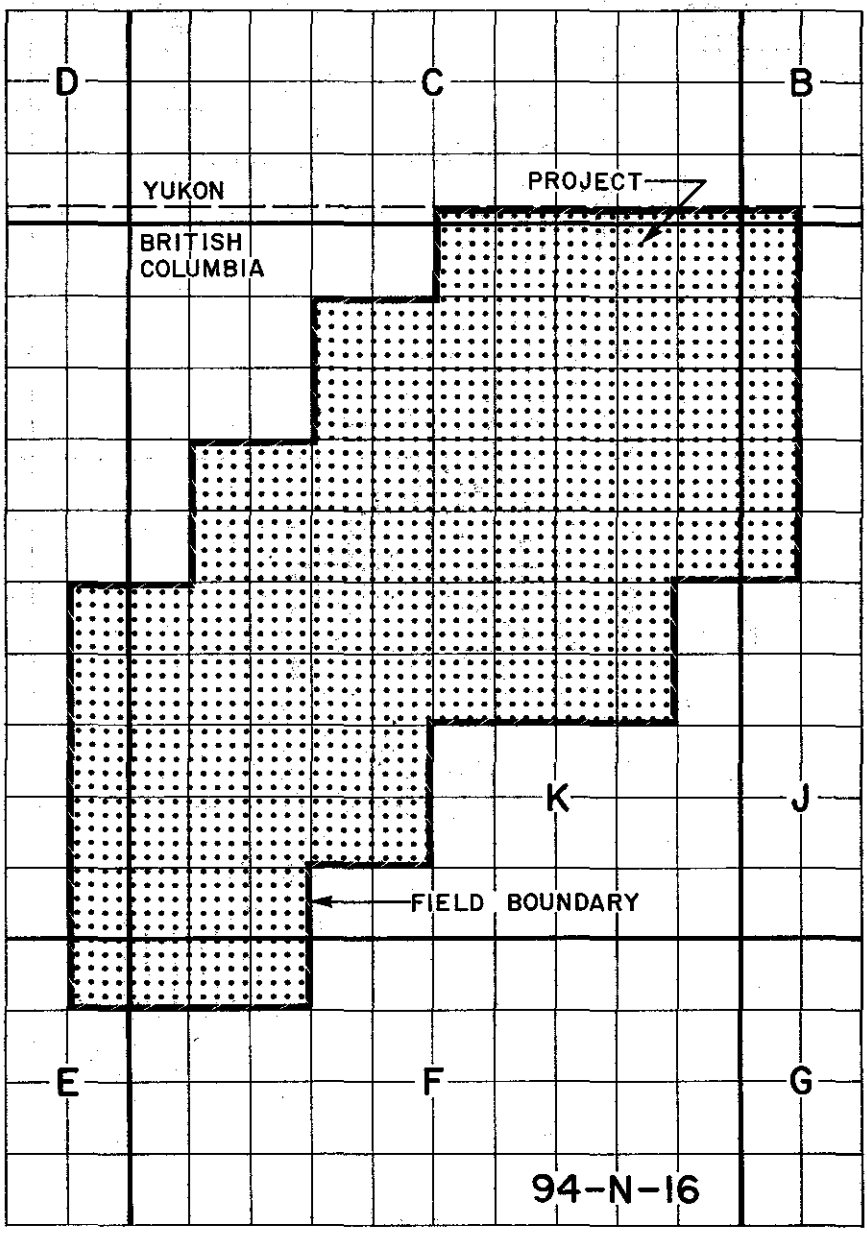
MAP 2
MONSANTO PROJECT
NORTH PINE POOL
BEAR FLAT FIELD



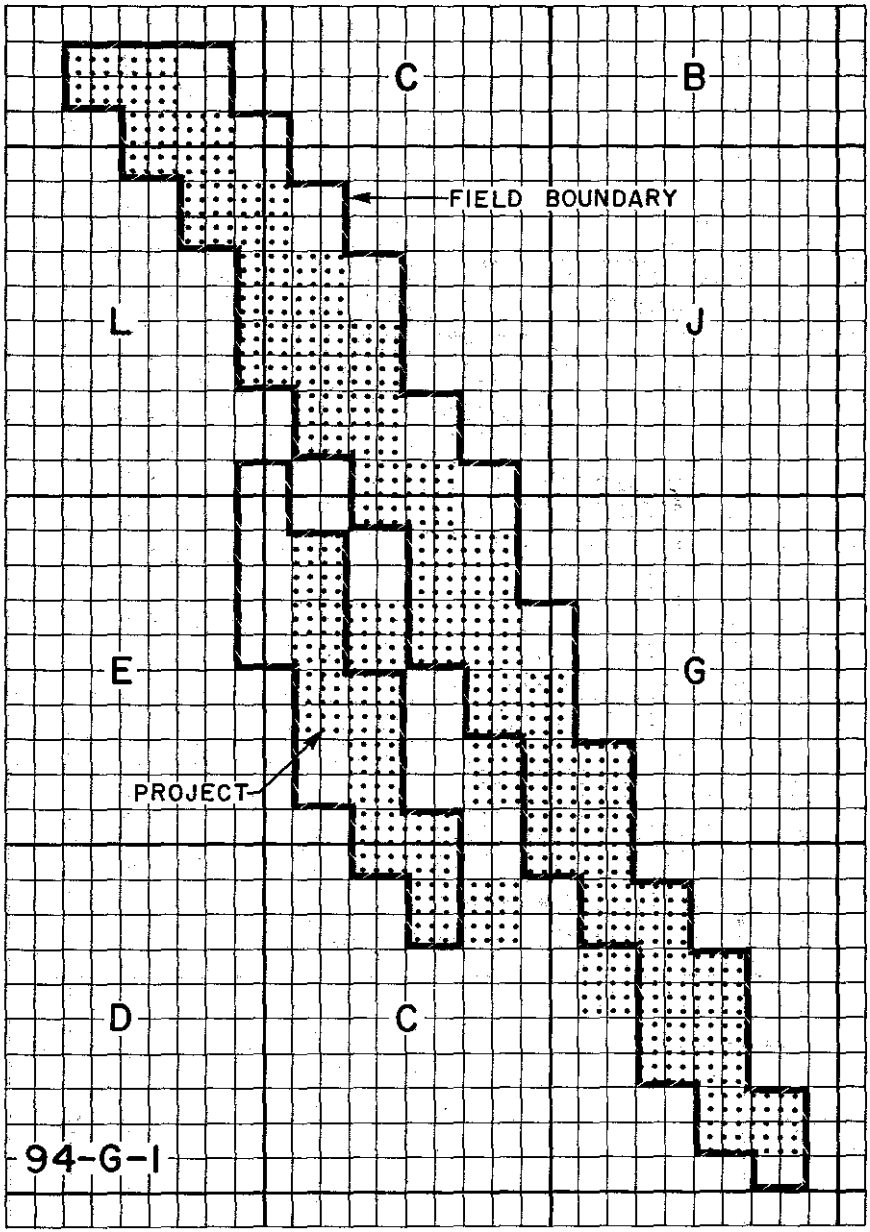

MAP 3
BP OIL PROJECT
HALFWAY POOL
BEATTON RIVER FIELD




MAP 4
BP OIL UNIT I
BLUESKY POOL
BEATTON RIVER WEST FIELD

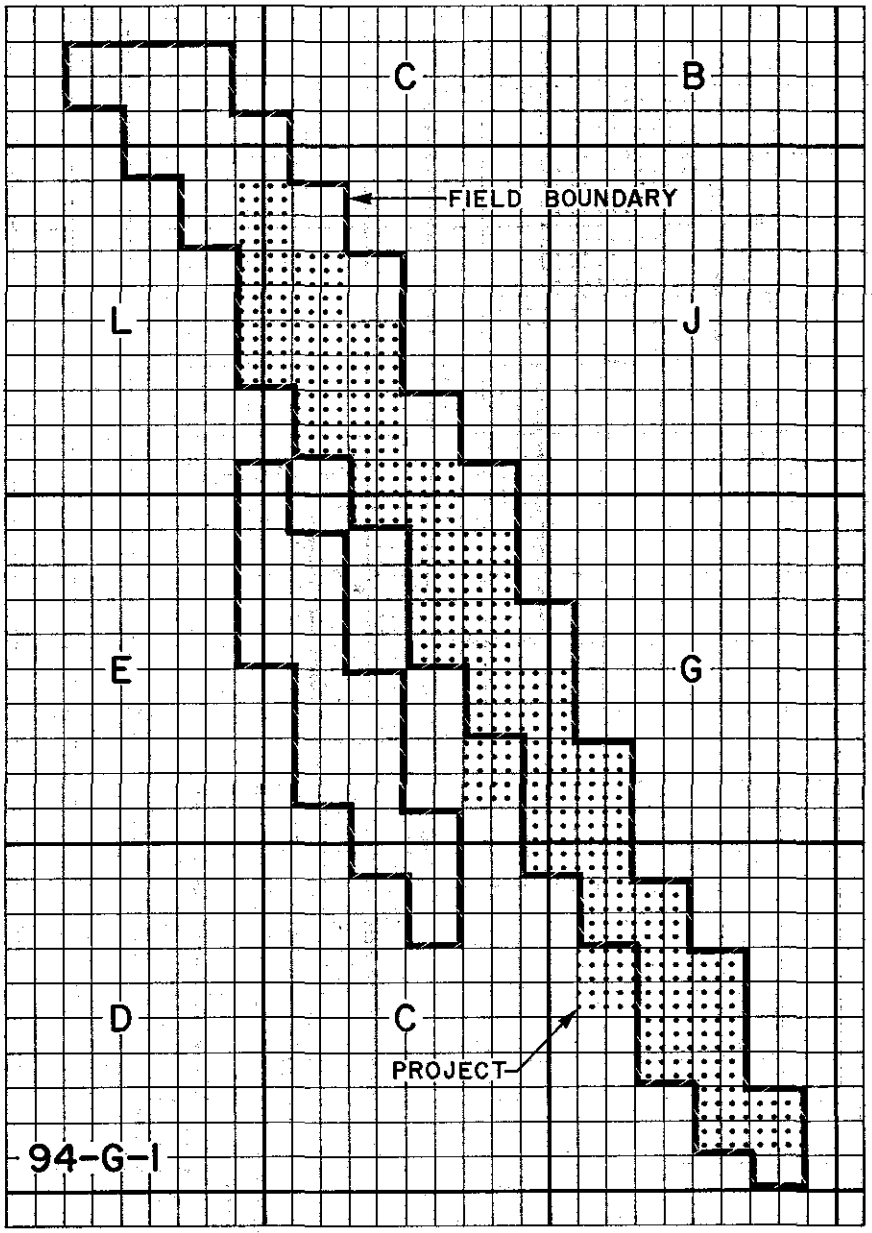



MAP 5
AMOCO PROJECT
NAHANNI POOL
BEAVER RIVER FIELD

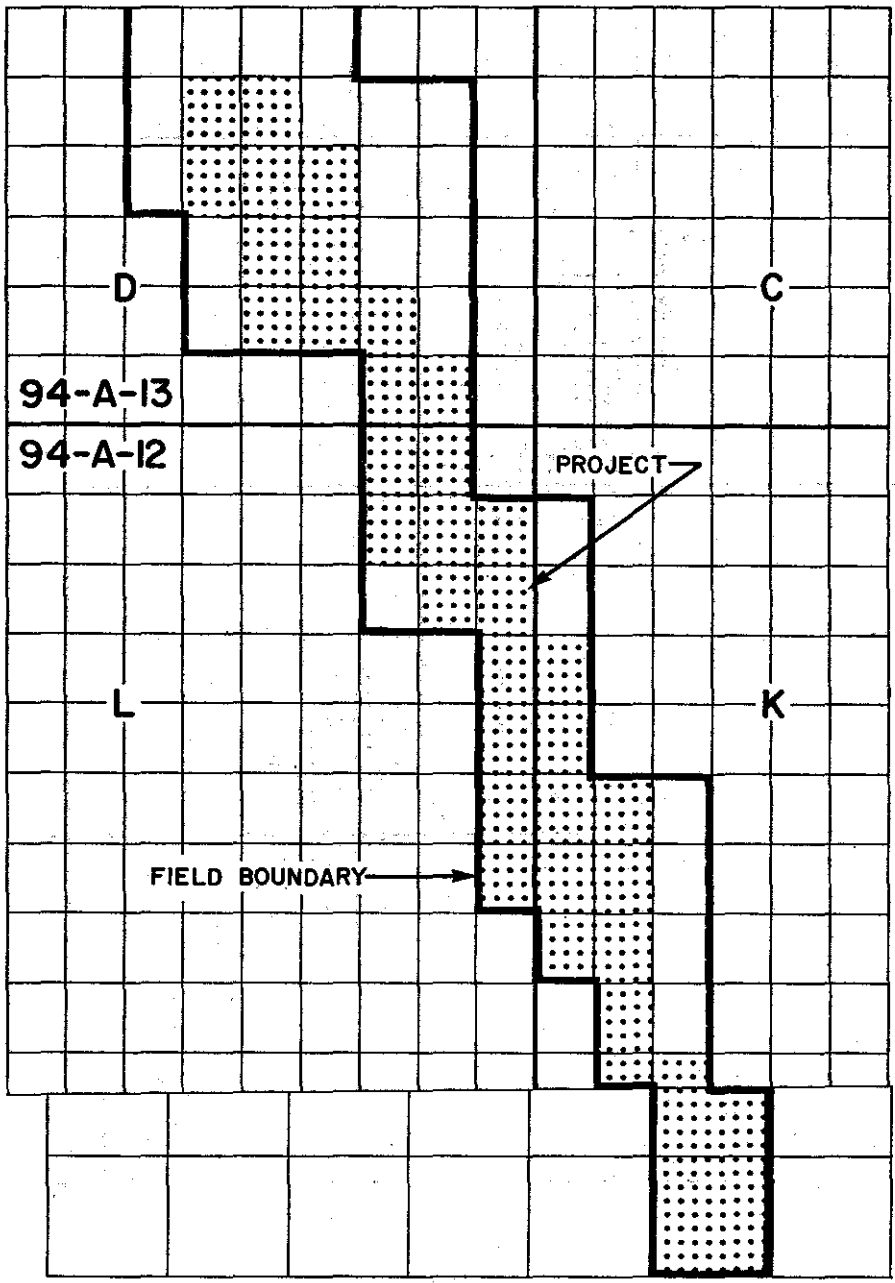



MAP 6

PACIFIC PETROLEUMS PROJECT
BALDONNEL POOL
BEG & BEG WEST FIELDS

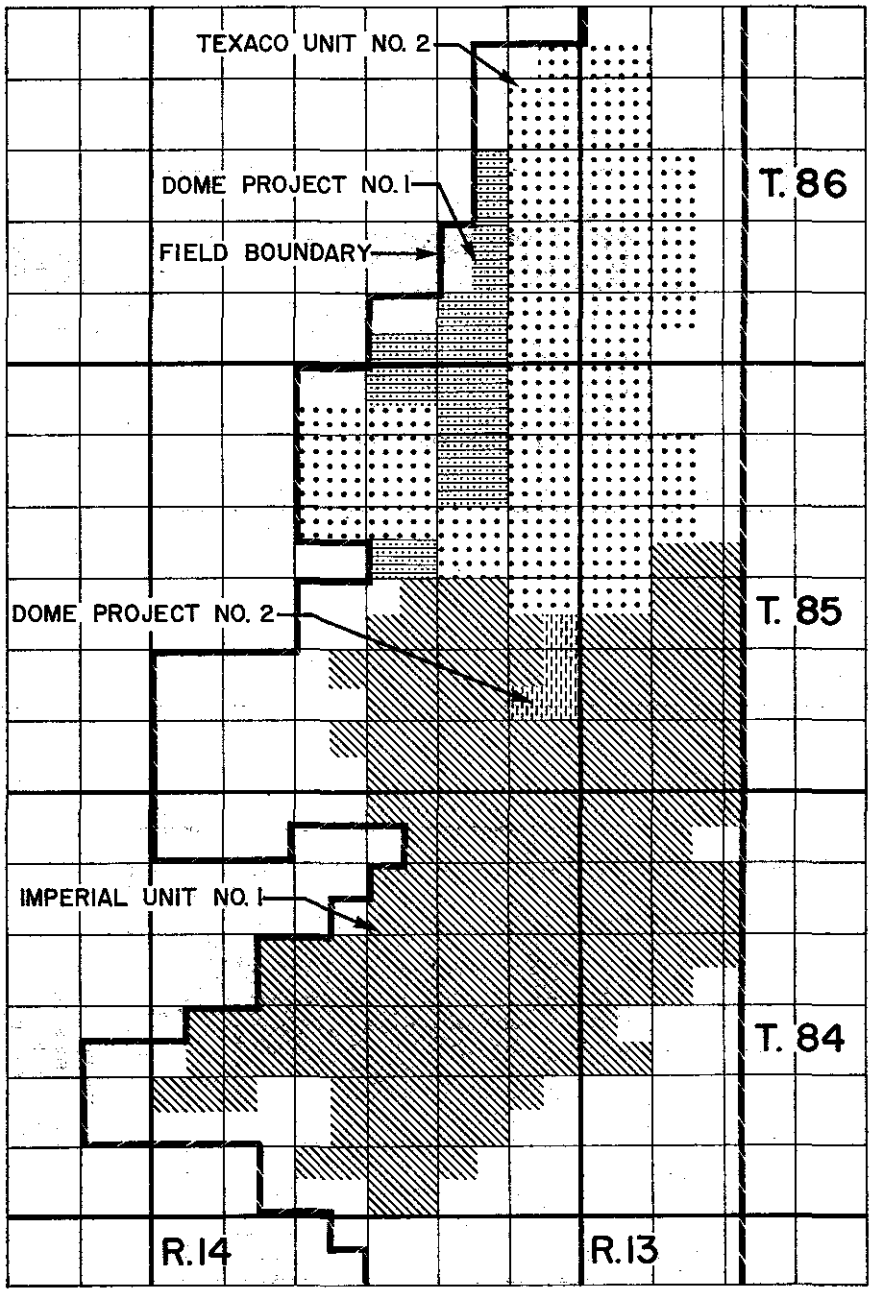



MAP 7
PACIFIC PETROLEUMS PROJECT
HALFWAY POOL
BEG FIELD

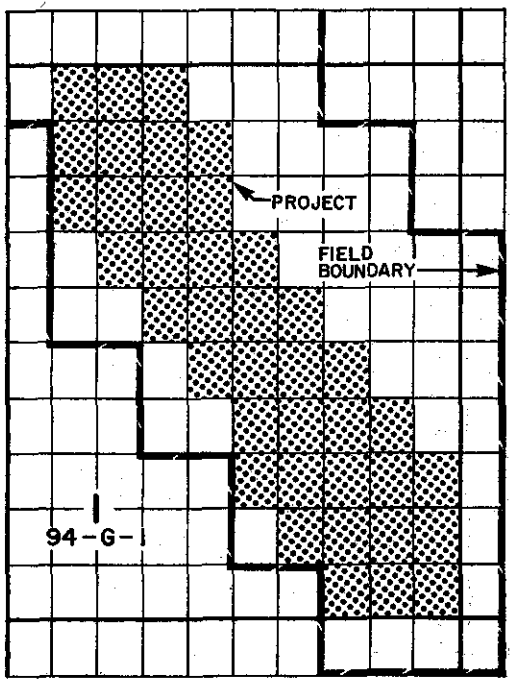



MAP 8

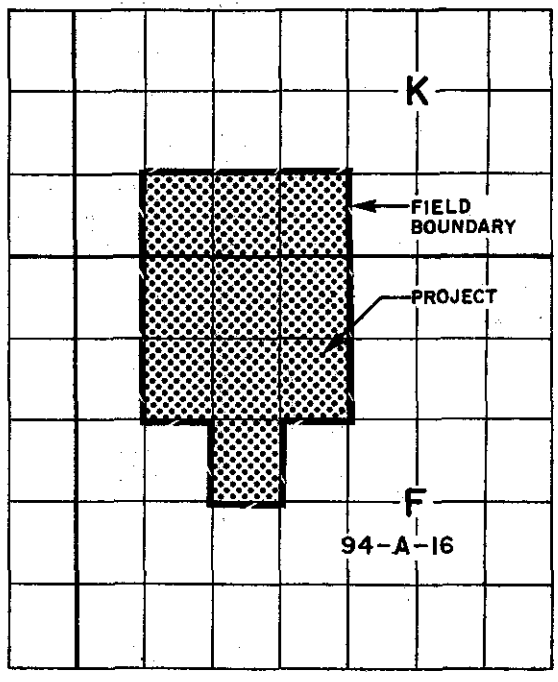
PACIFIC RETROLEUMS PROJECT
DEBOLT POOL
BLUEBERRY FIELD



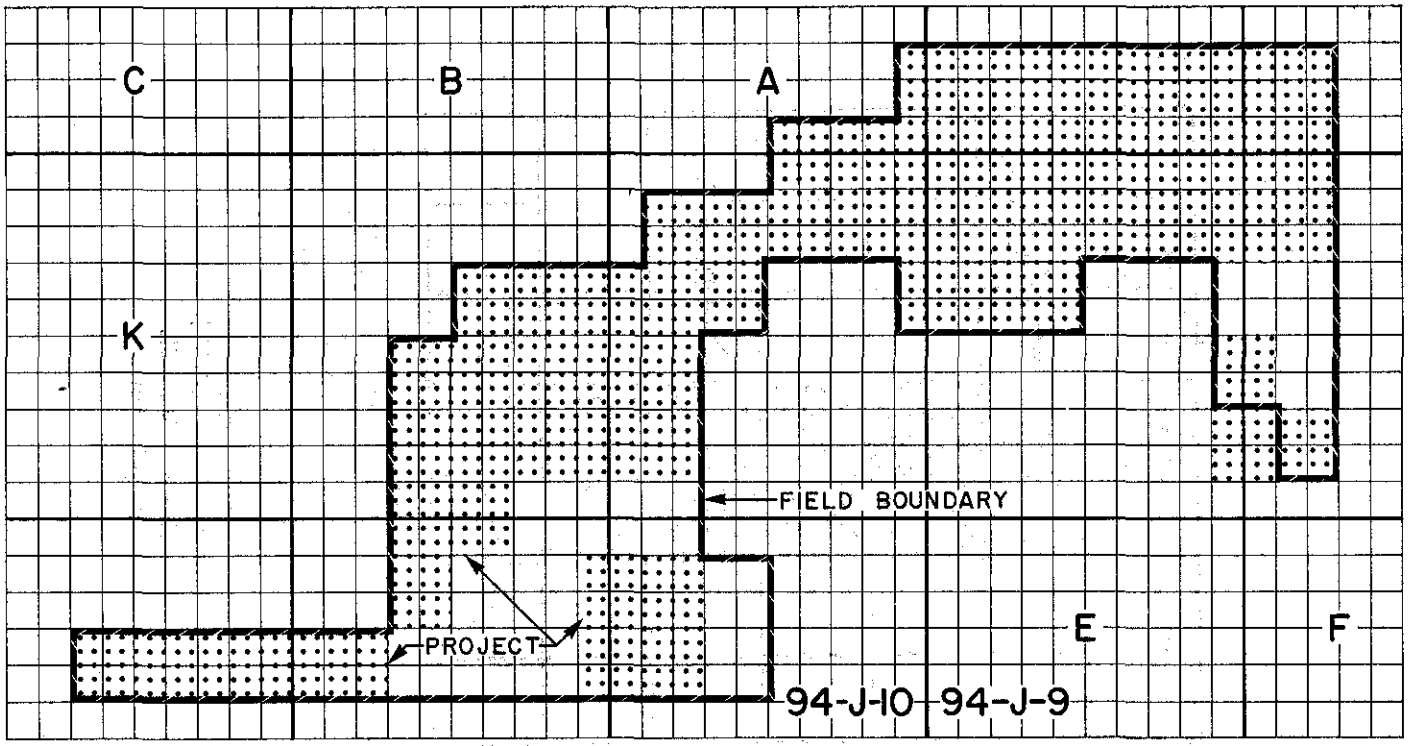

MAP 9
BOUNDARY LAKE POOL PROJECTS
BOUNDARY LAKE FIELD



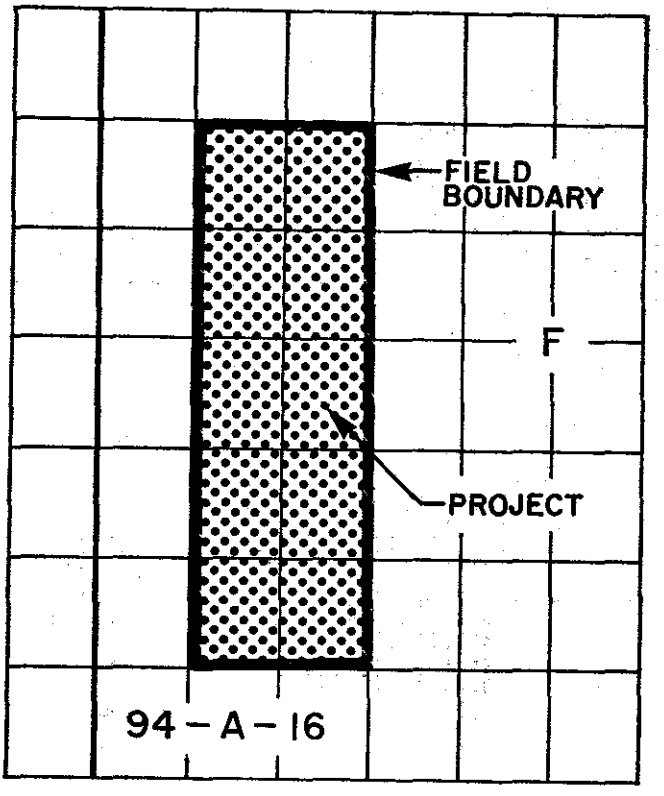

Map 10
PACIFIC PETROLEUMS PROJECT
BALDONNEL POOL
BUBBLES FIELD



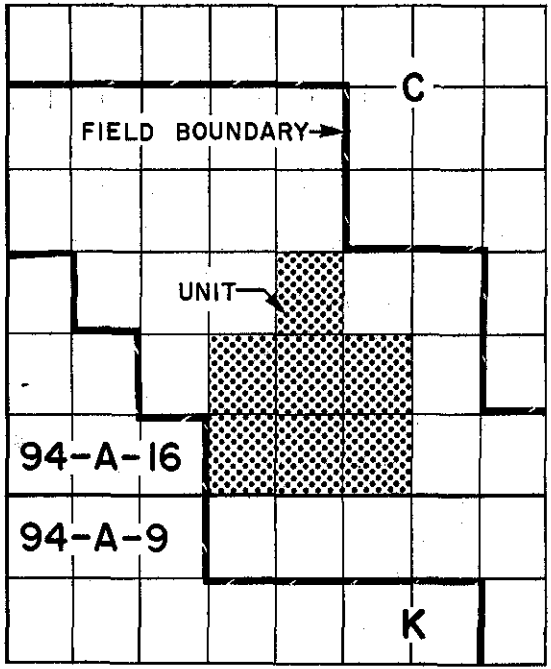

Map 11
UNION OIL PROJECT
HALFWAY POOL
BULRUSH FIELD



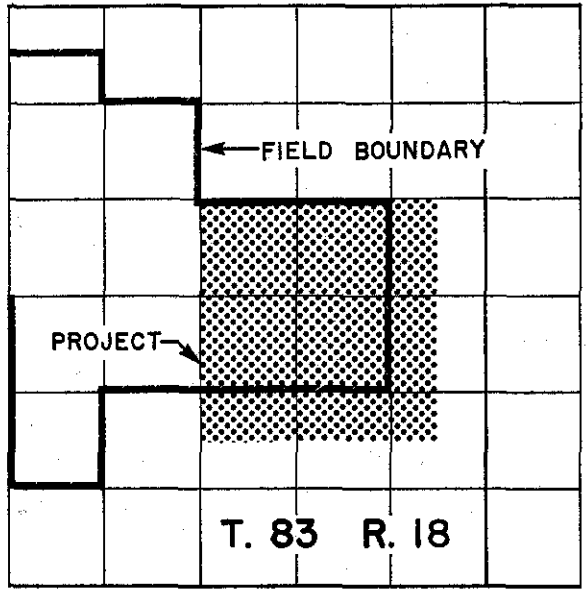

MAP 12
PACIFIC PETROLEUMS PROJECT
SLAVE POINT POOL
CLARKE LAKE FIELD



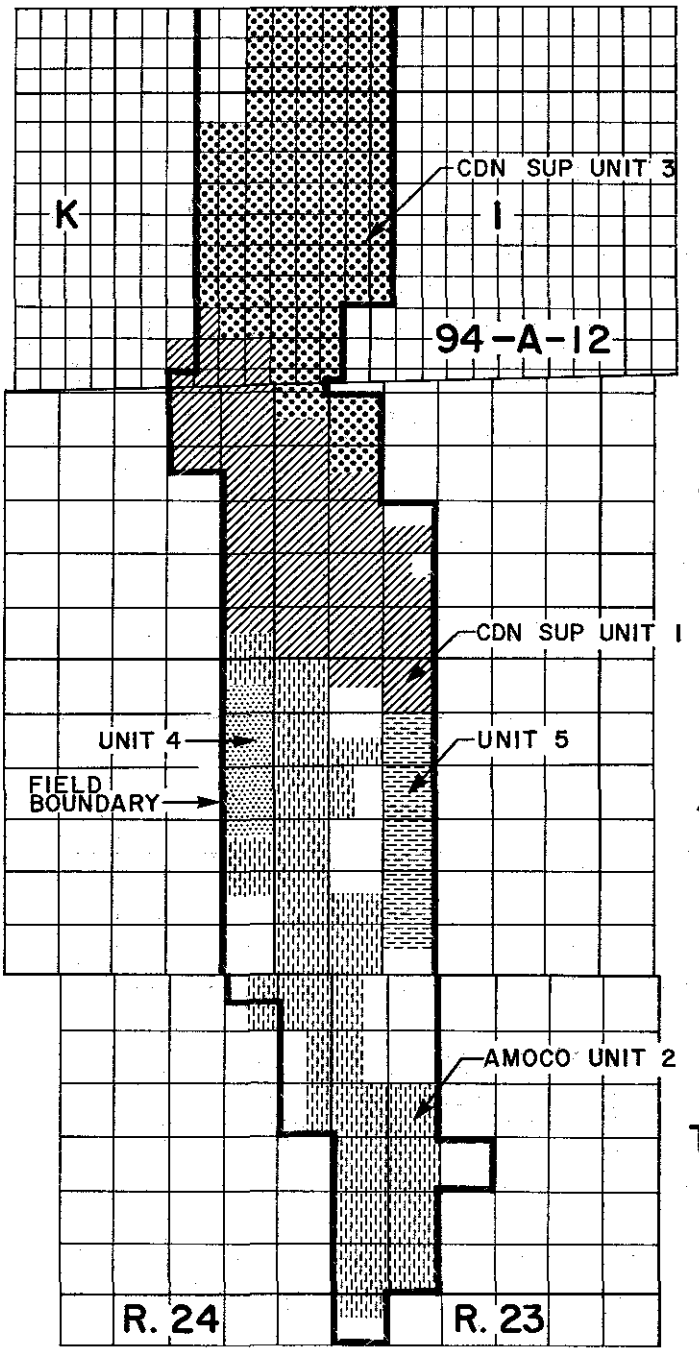

Map 13
UNION OIL UNIT I
HALFWAY-POOL
CRUSH FIELD



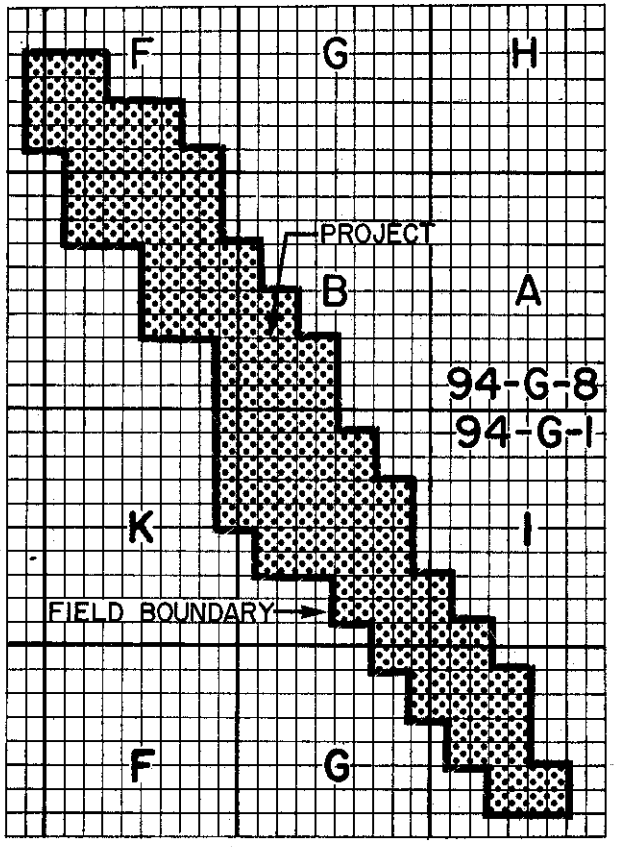

Map 14
PACIFIC PETROLEUMS UNIT I
HALFWAY POOL
CURRANT FIELD



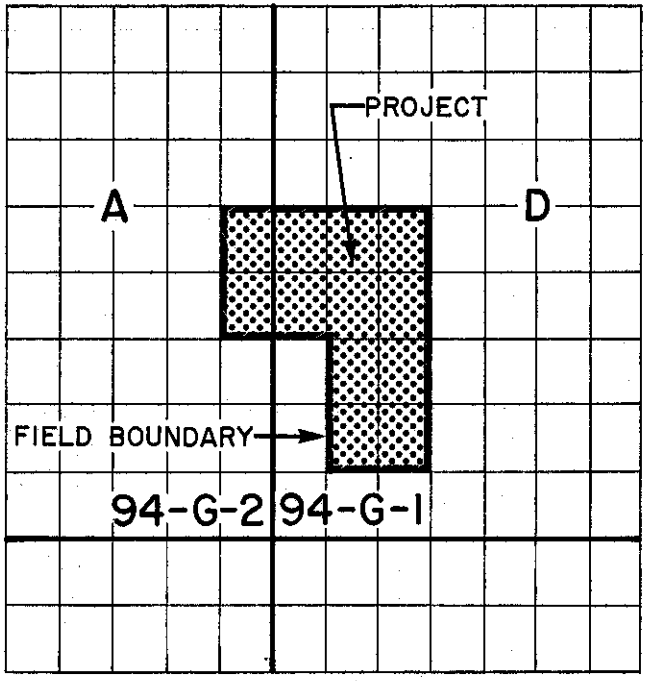

MAP 15
PACIFIC PETROLEUMS UNIT I
PINGEL POOL
FORT ST. JOHN FIELD



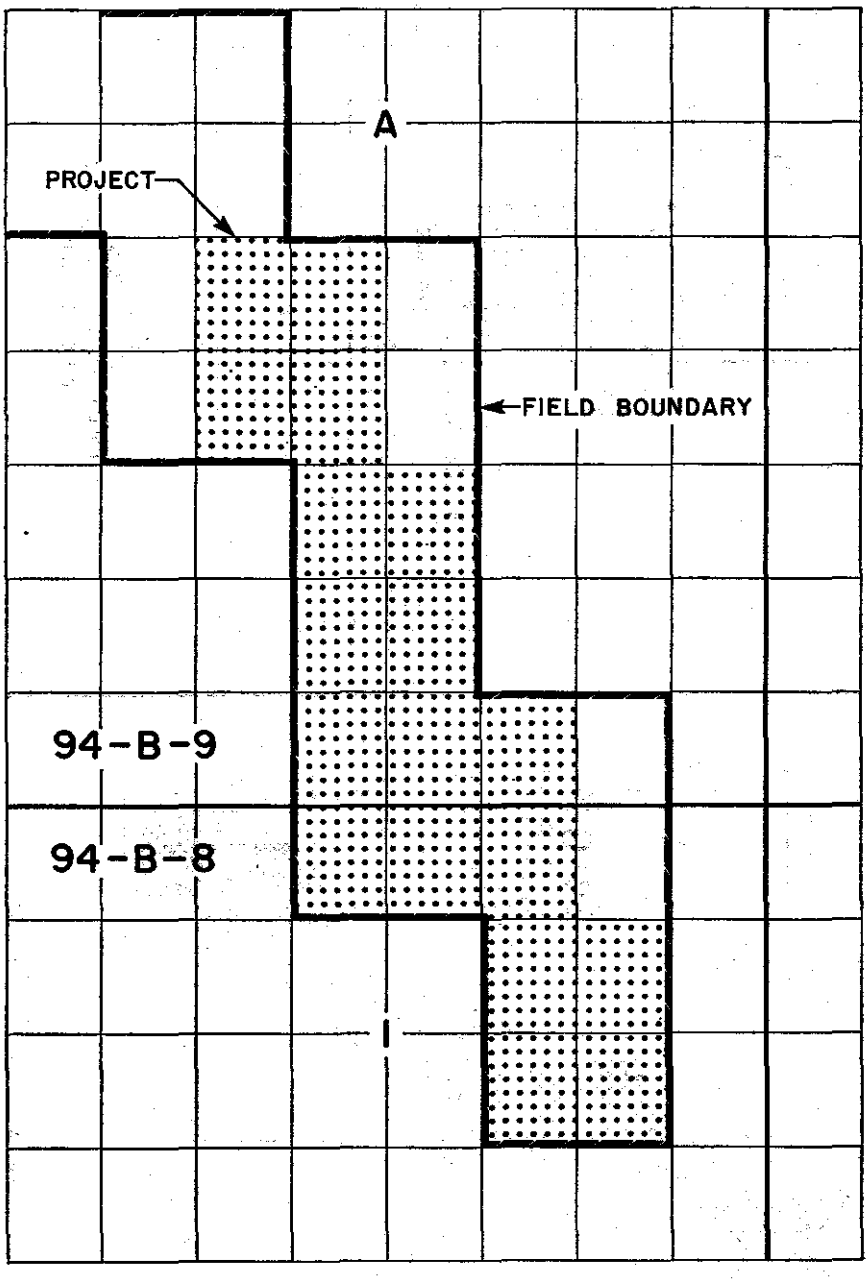

Map 16
INGA POOL UNITS
INGA FIELD



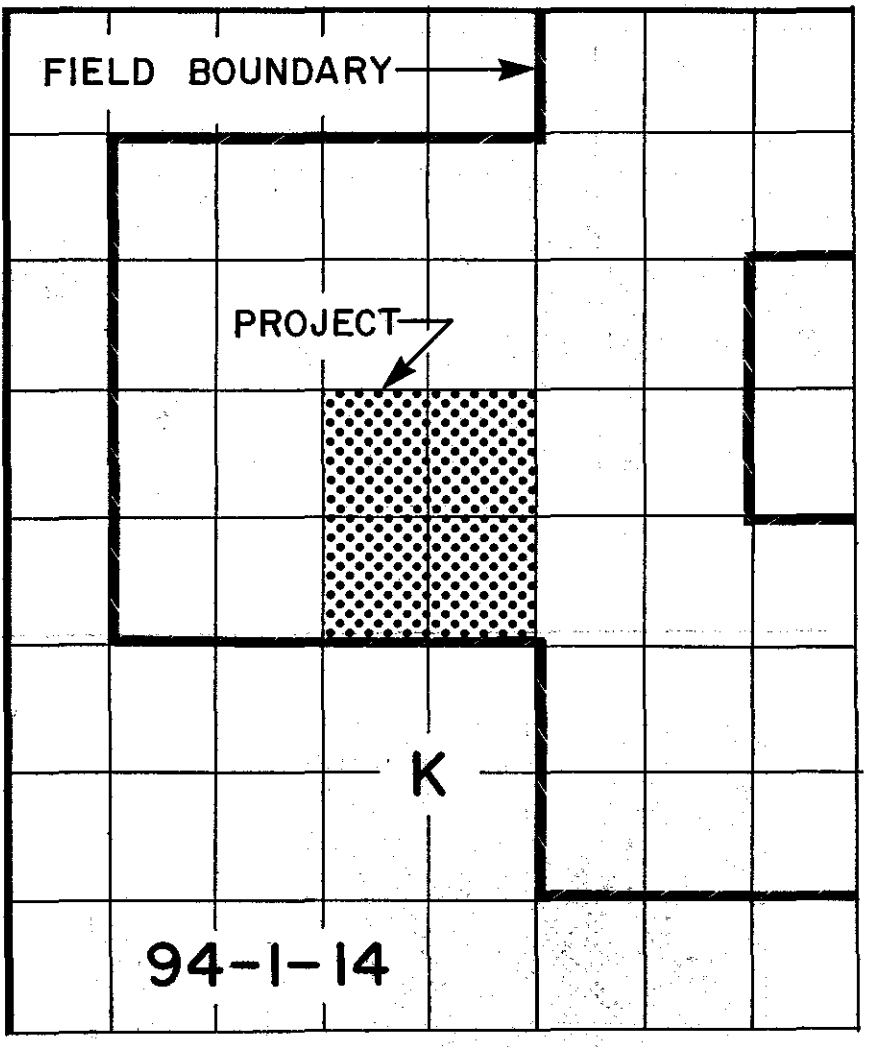

Map 17
PACIFIC PROJECTS
BALDONNEL & HALFWAY POOLS
JEDNEY FIELD




Map 18
ARCO PROJECTS
BALDONNEL & HALFWAY POOLS
JULIENNE FIELD

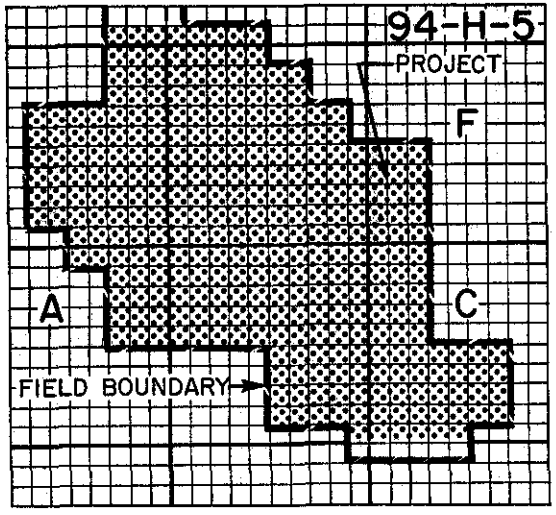



MAP 19
PACIFIC PETROLEUM PROJECT
HALFWAY POOL
KOBES-TOWNSEND FIELD

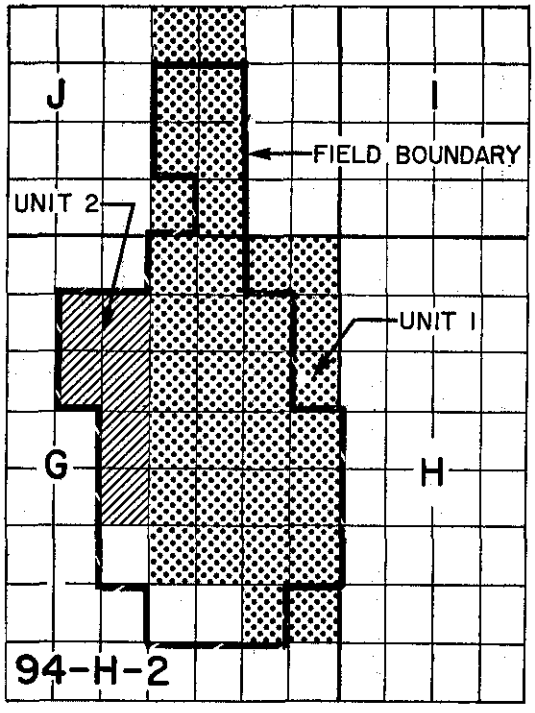



Map 20

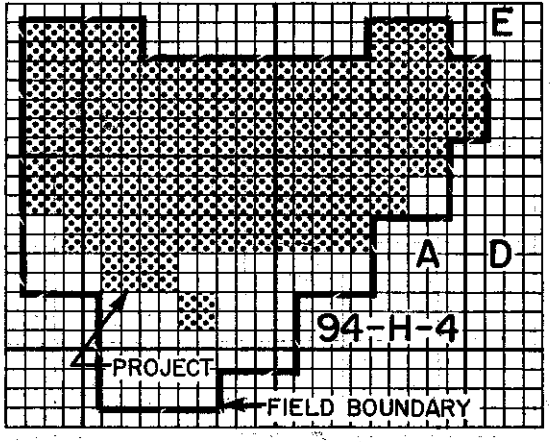
PACIFIC PETROLEUMS PROJECT
SLAVE POINT POOL
KOTCHO LAKE FIELD



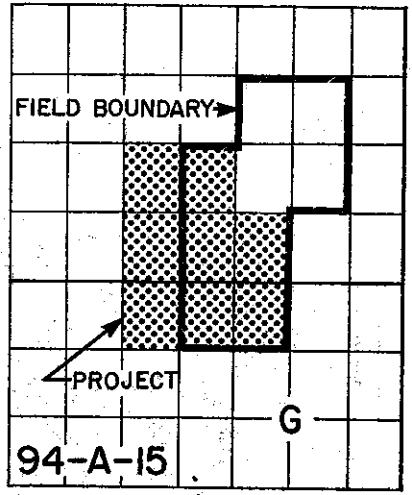

Map 21
BALDONNEL POOL PROJECT
LAPRISE CREEK FIELD



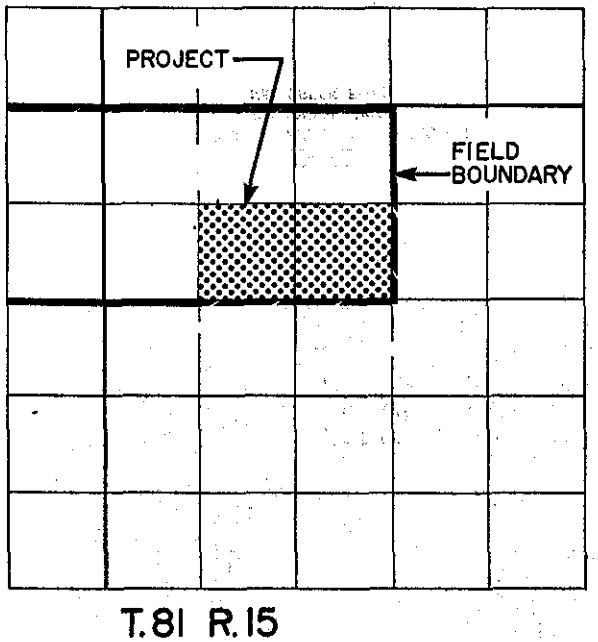

Map 22
UNION OIL UNITS
HALFWAY POOL
MILLIGAN CREEK FIELD



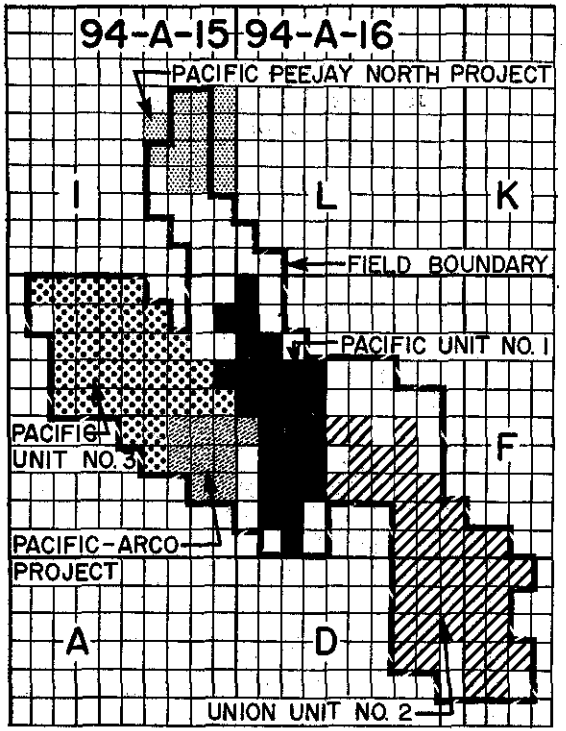

Map 23
TEXACO EXPLORATION PROJECT
BALDONNEL POOL
NIG CREEK FIELD



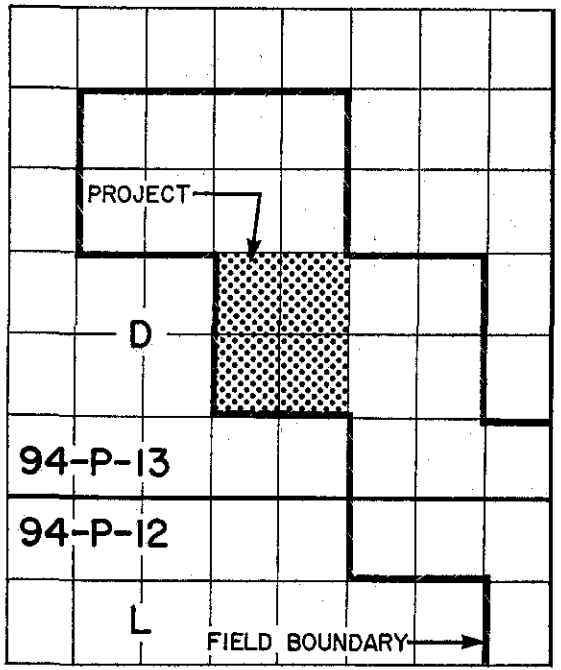

Map 24
PACIFIC PETROLEUMS PROJECT
HALFWAY POOL
OSPREY FIELD



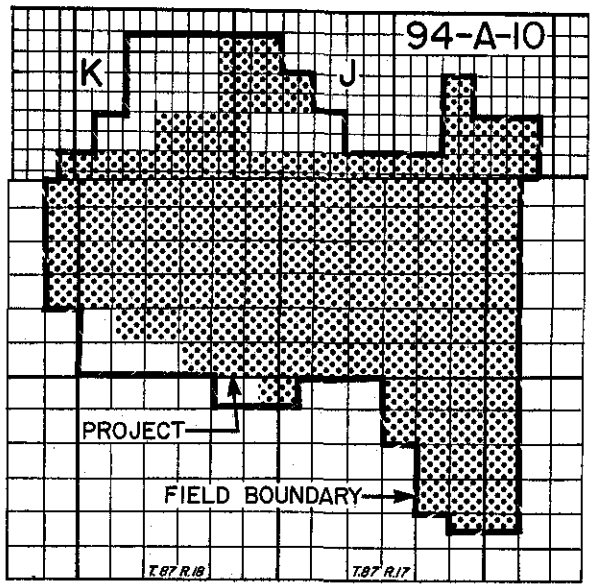

Map 25
PACIFIC PETROLEUMS PROJECT
WABAMUN POOL
PARKLAND FIELD



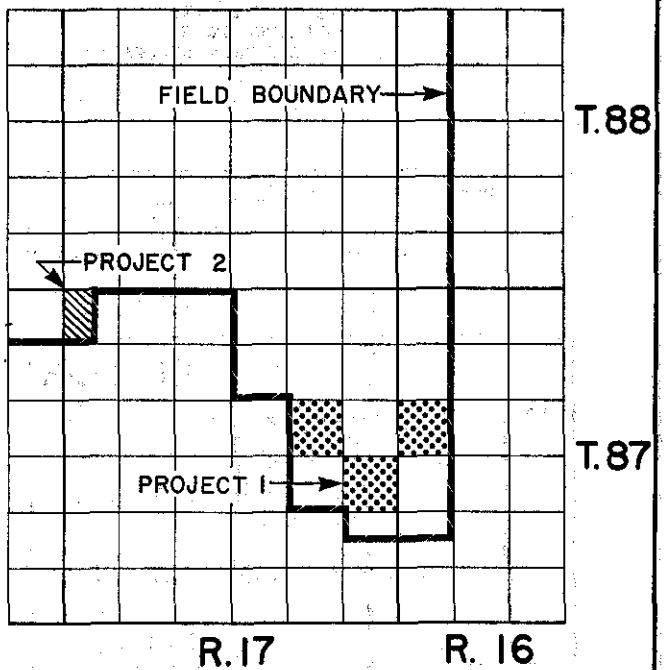

Map 26
HALFWAY POOL PROJECTS
PEEJAY FIELD



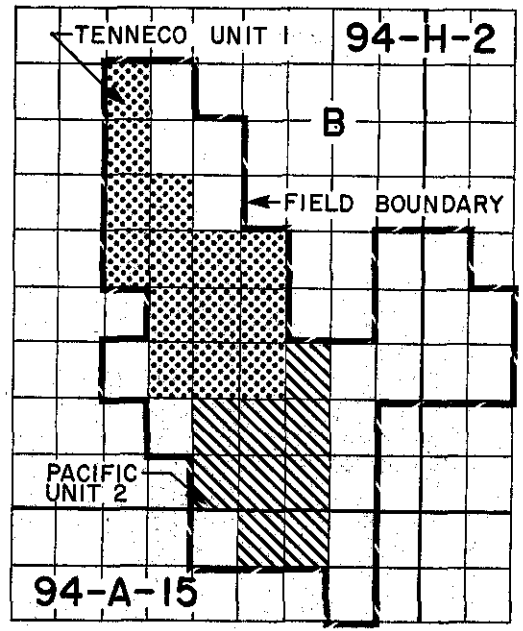

Map 27
PACIFIC PETROLEUMS PROJECT
SLAVE POINT POOL
PETITOT RIVER FIELD



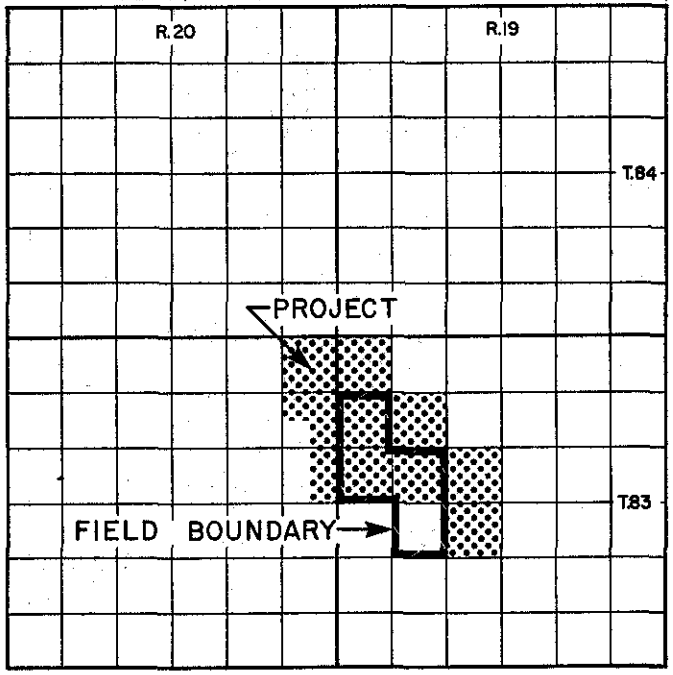

Map 28
DUNLEVY POOL PROJECT
RIGEL FIELD



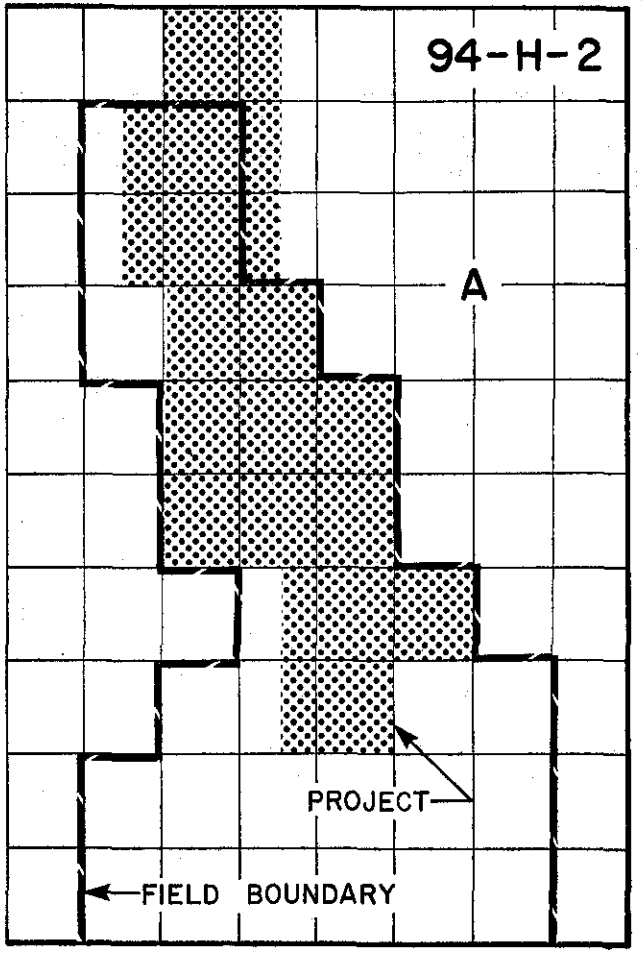

Map 29
MONSANTO CONSERVATION PROJECTS
DUNLEVY POOL
RIGEL FIELD




Map 30
HALFWAY POOL UNITS
WEASEL FIELD




Map 31
WAINOCO UNIT 1
HALFWAY & BELLOY POOLS
WILDER FIELD




Map 32
UNION OIL PROJECT
HALFWAY POOL
WILDMINT FIELD

## TABLE 16—PROJECT AND INDIVIDUAL WELL MPR DATA AT DECEMBER 31, 1973

| Field | Pool | Well or Project | Well Authorization No. | MPR STB/D | Project Data | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Reference Map | Area (Acres) | Cumulative Injection | | Number of Wells | | | |
| | | | | | | | MBW | MMSCF | Producers | | Injectors | |
| | | | | | | | | | Oil | Gas | Water | Gas |
| Aitken Creek | Gething | Union project | ---- | 1,125 | 1 | 1,009 | ---- | 28,431 | 6 | 4 | ---- | 1 |
| Balsam | Halfway | Ipex Cox Hamilton Balsam d-47-H/94-H-2 | 1840 | Suspended. | | | | | | | | |
| Bear Flat | North Pine | Monsanto project | ---- | 286 | 2 | 1,362 | ---- | 703 | 2 | ---- | ---- | 1 |
| Beatton River | Halfway | POR Ashland Beatton d-9-J/94-H-2 | 2909 | 184 | --- | ----- | ---- | ---- | ---- | ---- | ---- | ---- |
| | | CIGOL et al Beatton d-11-K/94-H-2 | 2915 | 184 | --- | ----- | ---- | ---- | ---- | ---- | ---- | ---- |
| | | CIGOL et al Beatton d-21-K/94-H-2 | 3002 | 78 | --- | ----- | ---- | ---- | ---- | ---- | ---- | ---- |
| | | Triad et al Beatton d-41-K/94-H-2 | 869 | Suspended. | | | | | | | | |
| | | BPOG project | ---- | 2,270 | 3 | 1,849 | ---- | 14,348 | 10 | 1 | 5 | ---- |
| | | Pool total | ---- | 2,716 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| Beatton River West | Bluesky | BPOG Unit 1 | ---- | 1,236 | 4 | 3,426 | ---- | 1,722 | 12 | ---- | 6 | ---- |
| Beaverdam | Halfway | Tenn Beaverdam d-38-L/94-A-16 | 1653 | Suspended. | | | | | | | | |
| Blueberry | Debolt | Mesa et al Blueberry b-18-K/94-A-12 | 2420 | 145 | --- | ----- | ---- | ---- | --- | --- | --- | --- |
| | | Decalta Blueberry d-57-D/94-A-13 | 1333 | 53 | --- | ----- | ---- | ---- | --- | --- | --- | --- |
| | | Pacific project | ---- | 4,600 | 8 | 5,112 | ---- | 837 | 17 | ---- | ---- | 1 |
| | | Pool total | ---- | 4,798 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| Boundary Lake | Dunlevy | Pacific Boundary 8-15-85-14 | 270 | 79 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| | Cecil | Imp et al Boundary 5-26-84-14 | 2977 | 58 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| | | Texaco et al Boundary A8-30-85-13 | 2931 | 86 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| | | Pool total | ---- | 144 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| | Boundary Lake | Imp Pac Boundary 8-32-84-13 | 991 | Suspended. | | | | | | | | |
| | | Texaco et al Boundary 6-32-85-13 | 2930 | 155 | --- | ----- | ---- | ---- | --- | --- | --- | --- |
| | | Texaco NFA Boundary 6-29-86-13 | 1720 | Suspended. | | | | | | | | |
| | | Texaco NFA Boundary 16-30-86-13 | 1482 | 20 | --- | ---- | ---- | ---- | --- | --- | --- | --- |
| | | Dome project 1 | ---- | 4,919 | 9 | 3,352 | 12,614 | ---- | 25 | --- | 7 | --- |
| | | Dome project 2 | ---- | 1,484 | 9 | 650 | 4,335 | ---- | 6 | --- | 2 | --- |
| | | Imperial Unit 1 | ---- | 38,657 | 9 | 26,743 | 67,851 | ---- | 154 | --- | 37 | --- |
| | | Texaco Unit 2 | ---- | 22,723 | 9 | 14,103 | 53,042 | ---- | 120 | --- | 22 | --- |
| | | Pool total | ---- | 67,958 | --- | ---- | ---- | ---- | --- | --- | --- | --- |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Halfway | Texaco NFA Boundary 8-30-85-13 | 1097 | 83 | — | — | — | — | — | — | — | — |
| | | Pacific Boundary Lake 11-14-85-14 | 667 | 101 | — | — | — | — | — | — | — | — |
| | | Sun Boundary Lake 6-23-85-14 | 646 | 83 | — | — | — | — | — | — | — | — |
| | | Amerada Boundary A6-24-85-14 | 1454 | 99 | — | — | — | — | — | — | — | — |
| | | AmMin Boundary A16-24-85-14 | 3219 | 48 | — | — | — | — | — | — | — | — |
| | | Texaco NFA Boundary 16-25-85-14 | 1144 | Suspended. | | | | | | | | |
| | | Pool total | — | 414 | — | — | — | — | — | — | — | — |
| Buick Creek | Dunlevy | Texaco NFA Buick c-32-A/94-A-14 | 1500 | 144 | — | — | — | — | — | — | — | — |
| Bulrush | Halfway | Union Project | — | 389 | 11 | 1,173 | — | 3,826 | 4 | — | — | 2 |
| Bulrush East | Halfway | Dome Provo Co-op Bulrush d-5-K/94-A-16 | 1843 | Suspended. | | | | | | | | |
| Cecil Lake | North Pine | Scurry CAEL Cecil 4-24-84-18 | 3140 | 136 | — | — | — | — | — | — | — | — |
| | | Scurry ML CAEL Cecil 10-24-84-18 | 3045 | 174 | — | — | — | — | — | — | — | — |
| | | Pool total | — | 310 | — | — | — | — | — | — | — | — |
| Charlie Lake | Gething | Imp Pac Charlie 13-5-84-18 | 269 | Suspended. | | | | | | | | |
| Crush | Halfway | Union Unit 1 | — | 1,383 | 13 | 1,474 | 2,463 | — | 8 | 1 | 1 | — |
| Currant | Halfway | Union HB Currant d-28-C/94-A-16 | 1768 | Suspended. | | | | | | | | |
| | | Pacific Unit 1 | — | 627 | 14 | 696 | 2,380 | — | 4 | — | 3 | — |
| Eagle | Belloy | Scurry CanPlac Eagle 6-22-84-18 | 3364 | 54 | — | — | — | — | — | — | — | — |
| | | Scurry CanPlac Eagle 6-27-84-18 | 3239 | 242 | — | — | — | — | — | — | — | — |
| | | Raines Eagle 8-29-84-18 | 2543 | 39 | — | — | — | — | — | — | — | — |
| | | Raines Eagle 11-29-84-18 | 2502 | 285 | — | — | — | — | — | — | — | — |
| | | Scurry CanPlac Eagle 6-34-84-18 | 3370 | 286 | — | — | — | — | — | — | — | — |
| Elm | Halfway | Bracell et al Elm b-62-C/94-H-7 | 2856 | Suspended. | | | | | | | | |
| Flatrock | Boundary Lake | Ballinderry Flatrock 10-19-84-16 | 2852 | 153 | — | — | — | — | — | — | — | — |
| Fort St. John | Pingel | Pacific Unit 1 | — | 334 | 15 | 1,260 | — | — | 4 | — | — | — |
| | Belloy | Imp Pac Fort St. John 9-19-83-18 | 171 | Suspended. | | | | | | | | |
| Halfway | Blueberry | West Nat et al Halfway 14-11-87-25 | 1986 | Suspended. | | | | | | | | |
| Inga | Baldonnel | Hunt Sands Pac Imp Inga 7-16-86-23 | 933 | Suspended. | | | | | | | | |
| | Inga | Canadian Superior Unit 1 | — | 7,246 | 16 | 11,057 | 23,081 | — | 26 | 1 | 14 | — |
| | | Amoco Unit 2 | — | 7,489 | 16 | 12,703 | 4,517 | — | 34 | — | 11 | — |
| | | Texaco Unit 4 | — | 418 | 16 | 1,510 | 43 | — | 3 | — | 1 | — |
| | | Pacific Unit 5 | — | 630 | 16 | 2,913 | 77 | — | 6 | — | 4 | — |
| | | Pool total | — | 15,783 | — | — | — | — | — | — | — | — |
| Milligan Creek | Halfway | Union Unit 1 | — | 10,000 | 22 | 3,377 | 50,530 | 3,418 | 19 | — | 14 | 1 |
| | | Union Unit 2 | — | 780 | 22 | 810 | — | — | 6 | 1 | — | — |
| | | Pool total | — | 10,780 | — | — | — | — | — | — | — | — |
| Moberly Lake | Pingel | JBA Moberly 10-15-82-22 | 2019 | 61 | — | — | — | — | — | — | — | — |
| | | JBA Moberly 4-23-82-22 | 2463 | 38 | — | — | — | — | — | — | — | — |
| | | Pool total | — | 99 | — | — | — | — | — | — | — | — |

## TABLE 16—PROJECT AND INDIVIDUAL WELL MPR DATA AT DECEMBER 31, 1973—*Continued*

| Field | Pool | Well or Project | Well Authorization No. | MPR STB/D | Project Data | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Reference Map | Area (Acres) | Cumulative Injection | | Number of Wells | | | |
| | | | | | | | MBW | MMSCF | Producers | | Injectors | |
| | | | | | | | | | Oil | Gas | Water | Gas |
| Nettle | Gething | Union KCL ROC Nettle d-67-A/94-H-7 | 1321 | Suspended. | | | | | | | | |
| | | Union KCL ROC Nettle d-68-A/94-H-7 | 1879 | 74 | — | — | — | — | — | — | — | — |
| | | Union KCL ARCO Nettle d-69-A/94-H-7 | 2018 | Suspended. | | | | | | | | |
| Nig Creek | Baldonnel | Texaco NFA Nig d-87-A/94-H-4 | 2152 | 165 | — | — | — | — | — | — | — | — |
| Osprey | Halfway | Pacific Halfway project | — | 130 | 24 | 619 | — | — | 3 | — | — | — |
| Peejay | Halfway | Pacific SR CanDel Peejay d-71-H/94-A-15 | 1851 | 59 | — | — | — | — | — | — | — | — |
| | | Decalta Ranger Peejay d-51-D/94-A-16 | 2023 | 25 | — | — | — | — | — | — | — | — |
| | | Pacific Unit 1 | — | 4,430 | 26 | 3,810 | 19,472 | — | 24 | — | 14 | — |
| | | Union Unit 2 | — | 8,229 | 26 | 6,884 | 32,268 | — | 38 | — | 13 | — |
| | | Pacific Unit 3 | — | 6,865 | 26 | 5,405 | 23,382 | — | 28 | — | 15 | — |
| | | Pacific Peejay North project | — | 42 | 26 | 917 | — | — | 1 | 2 | — | — |
| | | Pacific ARCO project | — | 2,717 | 26 | 1,317 | 6,312 | — | 8 | — | 3 | — |
| | | Pool total | — | 22,367 | — | — | — | — | — | — | — | — |
| Peejay West | Halfway | Pacific SR CanDel W Peejay d-44-G/94-A-15 | 1008 | Suspended. | | | | | | | | |
| | | Pacific SR West Cdn W Peejay d-54-G/94-A-15 | 956 | Suspended. | | | | | | | | |
| Rigel | Dunlevy | Monsanto IOE Fina Rigel 6-19-87-16 | 1692 | 65 | — | — | — | — | — | — | — | — |
| | | Monsanto IOE Fina Rigel 11-19-87-16 | 1616 | 47 | — | — | — | — | — | — | — | — |
| | | Monsanto Rigel 6-23-87-17 | 1942 | 100 | — | — | — | — | — | — | — | — |
| | | Monsanto Rigel 6-31-87-17 | 1714 | 46 | — | — | — | — | — | — | — | — |
| | Dunlevy | IOE et al Rigel b-44-J/94-A-10 | 2565 | 34 | — | — | — | — | — | — | — | — |
| | | CIGOL et al Rigel b-84-K/94-A-10 | 3109 | 98 | — | — | — | — | — | — | — | — |
| | | Pool total | — | 390 | — | — | — | — | — | — | — | — |
| Stoddart | Cecil | Apache Dunbar Stoddart 11-23-85-19 | 2548 | 69 | — | — | — | — | — | — | — | — |
| | Belloy | Uno-Tex et al Stoddart 6-31-85-19 | 2218 | 32 | — | — | — | — | — | — | — | — |
| | | Uno-Tex et al Stoddart 10-31-85-19 | 1519 | 45 | — | — | — | — | — | — | — | — |
| | | Apache et al Stoddart 6-36-85-20 | 2757 | 61 | — | — | — | — | — | — | — | — |
| | | Pool total | — | 138 | — | — | — | — | — | — | — | — |
| Wargen | Gething | Pacific Westcoast Wargen d-48-C/94-H-6 | 3044 | Suspended. | | | | | | | | |
| Weasel | Halfway | Pacific SR CanDel Weasel d-82-J/94-A-15 | 2055 | 206 | — | — | — | — | — | — | — | — |
| | | Pacific Sinclair Weasel d-30-A/94-H-2 | 1631 | Suspended. | | | | | | | | |
| | | Dome Provo Weasel d-2-B/94-H-2 | 1734 | 56 | — | — | — | — | — | — | — | — |
| | | Tenneco Unit 1 | — | 2,551 | 30 | 1,847 | 10,893 | 1,866 | 9 | — | 7 | 1 |
| | | Pacific Unit 2 | — | 1,143 | 30 | 1,081 | 3,388 | — | 7 | — | 4 | — |
| | | Pool total | — | 3,956 | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weasel West | Halfway | Tenn et al W Weasel d-71-C/94-H-2 | 2834 | 56 | — | — | — | — | — | — | — | — |
| | | Tenn et al W Weasel d-72-C/94-H-2 | 3078 | 142 | — | — | — | — | — | — | — | — |
| | | Tenn Monsanto W Weasel d-82-C/94-H-2 | 3144 | 60 | — | — | — | — | — | — | — | — |
| | | Tenn et al W Weasel d-83-C/94-H-2 | 3115 | 25 | — | — | — | — | — | — | — | — |
| | | Pool total | — | 283 | — | — | — | — | — | — | — | — |
| Wildmint | Halfway | Pacific SR CanDel Wildmint d-84-I/94-A-15 | 1566 | Suspended. | | | | | | | | |
| | | Tenn Wildmint d-93-I/94-A-15 | 1947 | Suspended. | | | | | | | | |
| | | Texcan Wildmint d-94-I/94-A-15 | 1289 | 167 | — | — | — | — | — | — | — | — |
| | | Tenn Wildmint d-95-I/94-A-15 | 1191 | 47 | — | — | — | — | — | — | — | — |
| | | Tenn Wildmint d-5-A/94-H-2 | 1121 | Suspended. | | | | | | | | |
| | | Tenn Wildmint d-6-A/94-H-2 | 1184 | Suspended. | | | | | | | | |
| | | Tenn Wildmint d-7-A/94-H-2 | 1750 | Suspended. | | | | | | | | |
| | | CIGOL Wildmint d-13-A/94-H-2 | 1567 | Suspended. | | | | | | | | |
| | | Union HB Wildmint d-15-A/94-H-2 | 984 | Suspended. | | | | | | | | |
| | | Husky Colo Wildmint d-16-A/94-H-2 | 1304 | Suspended. | | | | | | | | |
| | | Husky Colo Wildmint b-23-A/94-H-2 | 1206 | Suspended. | | | | | | | | |
| | | Union HB Wildmint d-26-A/94-H-2 | 963 | Suspended. | | | | | | | | |
| | | Union Project | — | 3,315 | 32 | 1,869 | 24,397 | 16,116 | 11 | — | 7 | 2 |
| | | Pool total | — | 3,529 | — | — | — | — | — | — | — | — |
| Willow | Gething | Union HB Willow d-20-H/94-H-2 | 449 | 122 | — | — | — | — | — | — | — | — |
| Wolf | Halfway | Pacific Sinclair Wolf d-82-B/94-A-15 | 1916 | 118 | — | — | — | — | — | — | — | — |
| | | Baysel Sinclair Wolf b-92-B/94-A-15 | 1972 | 37 | — | — | — | — | — | — | — | — |
| | | Baysel Sinclair Wolf d-93-B/94-A-15 | 1815 | 129 | — | — | — | — | — | — | — | — |
| | | Baysel ARCO Wolf b-3-G/94-A-15 | 3379 | 105 | — | — | — | — | — | — | — | — |
| | | Pool total | — | 389 | — | — | — | — | — | — | — | — |
| Other areas | Gething | Union HB Gulf Canuck d-39-G/94-H-1 | 2616 | Suspended. | | | | | | | | |
| | Coplin | GAO Cdn Res Pintail 2-12-85-25 | 3157 | 42 | — | — | — | — | — | — | — | — |
| | Halfway | Texaco et al N Boundary 11-30-87-14 | 3098 | 147 | — | — | — | — | — | — | — | — |
| | | Murphy N Boundary 8-31-87-14 | 3242 | 41 | — | — | — | — | — | — | — | — |
| | | Pacific SR CanDel Ptarmigan d-90-I/94-A-15 | 1531 | Suspended. | | | | | | | | |
| | | Union et al Spruce d-62-E/94-A-16 | 2323 | Suspended. | | | | | | | | |
| | | Pool total | — | 188 | — | — | — | — | — | — | — | — |
| | Belloy | Walnoco Fort St. John 11-23-84-19 | 3122 | 340 | — | — | — | — | — | — | — | — |

## TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Airport— | | | | | | | |
| Cadomin | Pacific Airport 8-32-83-17 (3) | 27 | 5-71 | 1,387 | 0.753 | 825 | Zone abandoned. |
| Baldonnel | Pacific Airport 9-32-83-17 (97) | 287 | 5-71 | 1,573 | 0.500 | 2,498 | Zone abandoned. |
| Halfway | Pacific Airport 12-34-83-17 (10) | 35 | 5-71 | 1,960 | 1.000 | 1,667 | Zone abandoned. |
| Balsam— | | | | | | | |
| Bluesky | Union HB Balsam b-56-H/94-H-2 | 1889 | 2-72 | 1,023 | —— | —— | —— |
| Beaverdam— | | | | | | | |
| Halfway | Tenn Sun Beaverdam d-37-L/94-A-16 | 1746 | —— | —— | —— | —— | —— |
| | Tenn Beaverdam d-39-L/94-A-16 | 1802 | —— | —— | —— | —— | 2,000 |
| Beaver River— | | | | | | | |
| Nahanni | Amoco Beaver b-19-K/94-N-16 | 2563 | 12-72 | 5,294 | 0.526 | 85,012 | —— |
| | Pan Am Beaver d-27-K/94-N-16 | 2313 | 10-72 | 5,425 | 0.500 | 63,367 | —— |
| | Pan Am Beaver c-45-K/94-N-16 | 2116 | 10-72 | 5,302 | 0.500 | 46,778 | —— |
| | Amoco Beaver d-A64-K/94-N-16 | 2547 | 9-72 | 5,123 | 0.500 | 125,890 | —— |
| | Pan Am Beaver River d-73-K/94-N-16 | 682 | 10-72 | 5,283 | 0.528 | 132,107 | —— |
| Nahanni total | —— | —— | —— | —— | —— | —— | GEP. |
| Beavertail— | | | | | | | |
| Gething | Pacific Sinclair Beavertail d-71-C/94-A-15 | 1893 | 6-72 | 1,041 | 0.744 | 10,251 | 2,563 |
| | Pacific Sinclair Beavertail d-73-C/94-A-15 | 1915 | 6-72 | 1,041 | 0.647 | 23,406 | 6,195 |
| | Pacific ARCo Beavertail c-92-C/94-A-15 | 2610 | —— | —— | —— | —— | —— |
| Gething total | —— | —— | —— | —— | —— | —— | 8,758 |
| Halfway | Pacific Sinclair Beavertail d-71-C/94-A-15 | 1893 | —— | —— | —— | —— | —— |
| Beg— | | | | | | | |
| Baldonnel project | Pacific Imperial Beg c-24-B/94-G-1 | 1359 | 8-70 | 1,567 | 0.500 | 1,458 | Disposal. |
| | Pacific Imperial Beg d-35-B/94-G-1 | 1154 | 6-72 | 1,107 | 0.500 | 1,997 | —— |
| | Pacific Imperial Beg d-46-B/94-G-1 | 806 | 6-72 | 1,186 | 0.500 | 1,926 | —— |
| | Pacific Imperial Beg d-57-B/94-G-1 | 1095 | 6-72 | 1,316 | 0.860 | 1,816 | Suspended. |
| | Pacific et al Beg a-21-F/94-G-1 | 711 | 7-70 | 1,611 | 0.500 | 650 | Suspended. |
| | Pacific et al Beg b-42-F/94-G-1 | 748 | 12-66 | 1,524 | 0.925 | 1,535 | Abandoned. |
| | Pacific et al Beg d-64-F/94-G-1 | 733 | 6-72 | 1,162 | 1.000 | 3,992 | —— |
| | Pacific et al Beg b-84-F/94-G-1 | 741 | 6-72 | 1,318 | 1.000 | 3,608 | —— |
| | Pacific et al Beg b-95-F/94-G-1 | 747 | 6-72 | 1,062 | 1.000 | 2,855 | —— |
| | Pacific et al Beg d-10-G/94-G-1 | 541 | 6-72 | 897 | 1.000 | 1,596 | —— |
| | Pacific et al Beg b-6-K/94-G-1 | 740 | 6-72 | 1,236 | 1.000 | 1,759 | —— |
| | Pacific et al Beg b-17-K/94-G-1 | 539 | 6-72 | 1,193 | 0.661 | 3,615 | —— |
| | Pacific et al Beg a-28-K/94-G-1 | 749 | 6-72 | 1,251 | 0.500 | 3,034 | Suspended. |
| | Pacific et al Beg b-59-K/94-G-1 | 786 | —— | —— | —— | —— | —— |
| | Pacific et al Beg b-82-L/94-G-1 | 1132 | 7-72 | 1,255 | 0.577 | 2,273 | —— |
| | Pacific Pan Am Dome Beg a-4-D/94-G-8 | 766 | 7-72 | 848 | 0.625 | 14,322 | —— |
| | Pacific Pan Am Dome Beg d-15-D/94-G-8 | 855 | 6-63 | 1,332 | 0.600 | 3,600 | Disposal. |
| Baldonnel project total | —— | —— | —— | —— | —— | —— | GEP. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Halfway project | Richfield Sohio Beg d-13-B/94-G-1 | 1268 | 6-73 | 742 | 0.500 | 4,196 | |
| | Pacific Imperial Beg c-24-B/94-G-1 | 1359 | 6-72 | 960 | 0.500 | 3,280 | |
| | Pacific Imperial Beg d-35-B/94-G-1 | 1154 | 6-72 | 810 | 0.725 | 4,524 | |
| | Pacific Imperial Beg d-46-B/94-G-1 | 806 | 6-72 | 821 | 0.725 | 5,425 | |
| | Pacific Imperial Beg d-57-B/94-G-1 | 1095 | 11-72 | 915 | 0.775 | 10,192 | |
| | Richfield Sohio Beg d-77-B/94-G-1 | 1233 | 6-73 | 1,215 | 0.537 | 1,318 | Suspended. |
| | Pacific et al Beg b-88-B/94-G-1 | 1350 | 6-72 | 1,043 | 0.610 | 4,068 | |
| | Pacific et al Beg b-A99-B/94-G-1 | 739 | 6-72 | 950 | 0.664 | 3,241 | |
| | Pacific et al Beg a-21-F/94-G-1 | 711 | 6-72 | 1,397 | 0.500 | 4,609 | |
| | Pacific et al Beg b-42-F/94-G-1 | 748 | 8-61 | 1,536 | 0.842 | 2,100 | Disposal. |
| | Pacific et al Beg d-64-F/94-G-1 | 733 | 6-72 | 820 | 1.000 | 3,250 | |
| | Pacific et al Beg b-84-F/94-G-1 | 741 | 6-72 | 1,026 | 0.508 | 1,799 | |
| | Pacific et al Beg b-95-F/94-G-1 | 747 | 6-72 | 1,102 | 0.500 | 2,449 | |
| | Pacific et al Beg d-10-G/94-G-1 | 541 | 6-72 | 943 | 0.531 | 4,754 | |
| | Pacific et al Beg b-6-K/94-G-1 | 740 | 6-72 | 909 | 0.500 | 4,504 | |
| | Pacific et al Beg b-A17-K/94-G-1 | 2387 | 6-72 | 1,286 | 0.642 | 3,104 | |
| | Pacific et al Beg b-59-K/94-G-1 | 786 | ---- | ---- | ---- | ---- | |
| Halfway project total | | ---- | ---- | ---- | ---- | ---- | GEP. |
| Field total | | ---- | ---- | ---- | ---- | ---- | GEP. |
| Beg West— | | | | | | | |
| Baldonnel project | Pacific et al W Beg c-84-C/94-G-1 | 622 | 6-72 | 1,477 | 0.550 | 2,246 | Suspended. |
| | Pacific et al W Beg c-58-F/94-G-1 | 772 | 6-72 | 1,570 | ---- | ---- | Suspended. |
| | Pacific et al W Beg a-79-F/94-G-1 | 620 | 6-72 | 1,496 | 0.726 | 2,792 | Suspended. |
| Baldonnel total | | ---- | ---- | ---- | ---- | ---- | GEP. |
| Bernadet— | | | | | | | |
| Gething | West Nat et al Bernadet 8-1-88-25 | 1106 | 8-72 | 291 | 0.754 | 265 | Suspended. |
| Blueberry— | | | | | | | |
| Dunlevy | West Nat et al Blueberry 16-24-88-25 | 279 | 8-72 | 1,164 | 1.000 | 1,572 | 2,000 |
| | West Nat et al Blueberry a-29-K/94-A-12 | 330 | 8-72 | 1,333 | 0.675 | 526 | Suspended. |
| | West Nat et al Blueberry d-A50-K/94-A-12 | 357 | 8-73 | 1,270 | 1.000 | 821 | Suspended. |
| | West Nat et al Blueberry d-38-K/94-A-12 | 2146 | ---- | ---- | ---- | ---- | ---- |
| | West Nat et al Blueberry c-32-D/94-A-13 | 70 | ---- | ---- | ---- | ---- | 2,000[1] |
| | West Nat et al Blueberry d-A87-D/94-A-13 | 94 | 7-71 | 1,215 | 0.577 | 1,745 | 2,000[1] |
| | West Nat et al Blueberry d-97-D/94-A-13 | 581 | 8-72 | 800 | 0.571 | 2,218 | 2,000 |
| Dunlevy total | | ---- | ---- | ---- | ---- | ---- | 8,000 |
| Baldonnel | West Nat et al Blueberry d-A50-K/94-A-12 | 357 | 8-72 | 1,489 | 1.000 | 246 | Suspended. |
| | West Nat et al Blueberry c-65-D/94-A-13 | 71 | 8-73 | 1,641 | 0.577 | 934 | Suspended. |
| | West Nat et al Blueberry d-87-D/94-A-13 | 64 | 9-72 | 1,442 | 0.577 | 903 | Suspended. |
| | West Nat et al Blueberry d-97-D/94-A-13 | 581 | 9-60 | 1,653 | 1.000 | 5,600 | Suspended. |
| Blueberry | West Nat et al Blueberry a-61-L/94-A-12 | 525 | 10-60 | 2,089 | ---- | ---- | ---- |
| | West Nat et al Blueberry b-13-D/94-A-13 | 601 | ---- | ---- | ---- | ---- | ---- |
| Halfway | West Nat et al Blueberry b-22-D/94-A-13 | 1946 | 5-72 | 2,037 | 0.516 | 1,015 | 2,000 |
| Field total | | ---- | ---- | ---- | ---- | ---- | 10,000 |

[1] Lease and camp fuel.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Blueberry East— | | | | | | | |
| Baldonnel | West Nat et al E Blueberry b-38-C/94-A-13 | 103 | 8-73 | 1,778 | 0.820 | 1,897 | Suspended. |
| Debolt | West Nat et al E Blueberry b-36-C/94-A-13 | 331 | 8-59 | 1,380 | 1.000 | 838 | Suspended. |
| Blueberry West— | | | | | | | |
| Dunlevy | West Nat et al W Blueberry 2-20-88-25 | 278 | 8-73 | 1,228 | 1.000 | 925 | Suspended. |
| | West Nat et al W Blueberry d-82-I/94-B-9 | 165 | 9-72 | 1,189 | 1.000 | 1,438 | Suspended. |
| Dunlevy total | | | | | | | |
| Baldonnel | G Basins et al W Blueberry a-7-L/94-A-12 | 2435 | 9-72 | 1,682 | 0.731 | 8,092 | 2,136 |
| | G Basins et al W Blueberry d-19-L/94-A-12 | 241 | 8-73 | 1,683 | 0.543 | 1,425 | Disposal. |
| | G Basins et al W Blueberry d-39-L/94-A-12 | 2551 | 9-72 | 1,676 | 0.798 | 1,869 | 2,000 |
| Baldonnel total | | | | | | | 4,136 |
| Boundary Lake— | | | | | | | |
| Bluesky | Pacific Boundary 8-15-85-14 | 270 | 7-72 | 964 | 0.687 | 720 | Suspended.[2] |
| | Texaco NFA Boundary 8-23-86-14 | 1125 | | | | | |
| Gething | Pacific Boundary Lake A16-4-85-14 | 655 | 7-71 | 788 | 0.839 | 3,215 | 2,000 |
| | Pacific Boundary 12-10-85-14 | 352 | 7-72 | 676 | 0.839 | 5,438 | 2,368 |
| Gething total | | | | | | | 4,368 |
| Dunlevy | Amerada Boundary 8-5-85-14 | 799 | 10-61 | 1,468 | 0.822 | 11,200 | Suspended. |
| Baldonnel | Texaco NFA Boundary 6-30-85-13 | 1137 | 8-73 | 608 | 0.605 | 1,853 | 2,000 |
| | Pacific Boundary Lake 11-14-85-14 | 667 | 9-71 | 876 | 0.674 | 1,027 | 2,000 |
| | Pacific Boundary 8-15-85-14 | 270 | 7-72 | 1,392 | 0.725 | 3,592 | Suspended.[2] |
| | Sun Boundary Lake 8-23-85-14 | 652 | 9-71 | 851 | 0.767 | 7,153 | 2,454 |
| | Amerada Boundary A6-24-85-14 | 1454 | | | | | |
| | Texaco NFA Boundary Lake 6-25-85-14 | 687 | 8-73 | 740 | 0.850 | 3,009 | 2,000 |
| Baldonnel total | | | | | | | 8,454 |
| Basal Boundary | Pacific et al Boundary 14-4-85-14 | 1964 | 7-72 | 1,017 | 0.550 | 1,788 | 2,000[2] |
| Halfway | Texaco NFA Boundary 16-31-86-13 | 836 | | | | | |
| | Huber et al Boundary 6-4-87-13 | 1501 | 11-64 | 1,569 | 0.900 | 360 | Abandoned. |
| Field total | | | | | | | 14,822 |
| Boundary Lake North— | | | | | | | |
| Halfway | Texaco NFA N Boundary 7-3-87-14 | 1395 | | | | | |
| | Texaco NFA N Boundary 6-8-87-14 | 1529 | 8-73 | 1,001 | 1.000 | 14,893 | 5,640 |
| | Texaco NFA N Boundary 10-9-87-14 | 1451 | 8-73 | 1,010 | 0.804 | 15,052 | 5,252 |
| | Texaco NFA N Boundary 7-15-87-14 | 1881 | 1-73 | 1,501 | 0.850 | 1,971 | 2,000 |
| Halfway total | | | | | | | 12,892 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bubbles— | | | | | | | |
| Baldonnel | Dome Basco Bubbles b-19-A/94-G-8 | 464 | 10-72 | 852 | 0.518 | 2,529 | 2,000 |
| | Dome Provo Bubbles c-20-A/94-G-8 | 526 | 6-68 | 1,017 | 0.500 | 690 | Suspended. |
| | Dome Basco Bubbles b-50-A/94-G-8 | 506 | —— | —— | —— | —— | —— |
| | Dome Bubbles d-42-B/94-G-8 | 791 | 8-70 | 1,400 | —— | —— | Disposal. |
| | McCoy Dome Bubbles b-A62-B/94-G-8 | 674 | 10-72 | 1,001 | 0.591 | 3,211 | 2,000 |
| Baldonnel project | Pacific Sunray Imp Bubbles b-22-I/94-G-1 | 467 | 10-71 | 1,445 | —— | —— | Abandoned. |
| | Pacific Imperial Bubbles b-33-I/94-G-1 | 451 | 10-72 | 730 | 0.754 | 3,017 | 2,000 |
| | Pacific Imperial Bubbles b-44-I/94-G-1 | 466 | 10-72 | 647 | 0.884 | 6,251 | 3,251 |
| | Pacific Sunray Imp Bubbles d-55-I/94-G-1 | 479 | 11-69 | 1,336 | —— | —— | Disposal. |
| | Pacific Imperial Bubbles b-66-I/94-G-1 | 480 | 10-71 | 754 | 0.686 | 3,637 | 2,000 |
| | Pacific Imperial Bubbles d-77-I/94-G-1 | 478 | 10-71 | 933 | 0.500 | 3,069 | Suspended. |
| | Pacific Imperial Bubbles d-88-I/94-G-1 | 462 | 11-72 | 753 | 0.925 | 11,697 | 4,654 |
| | Pacific Dome et al Bubbles d-99-I/94-G-1 | 615 | 10-71 | 711 | 0.500 | 1,352 | 2,000[3] |
| Baldonnel project total | | —— | —— | —— | —— | —— | 13,905 |
| Baldonnel total | | —— | —— | —— | —— | —— | 17,905 |
| Bubbles North— | | | | | | | |
| Halfway | Pac Imp N Bubbles d-95-B/94-G-8 | 750 | 8-61 | 1,470 | 0.589 | 2,500 | Suspended. |
| | Pacific Imperial N Bubbles d-6-G/94-G-8 | 1055 | —— | —— | —— | —— | —— |
| | Pacific CIGOL N Bubbles c-36-G/94-G-8 | 3153 | 8-72 | 1,294 | 1.000 | 456 | 2,000 |
| Buick Creek— | | | | | | | |
| Bluesky— | | | | | | | |
| Project Pool A | Texaco NFA Buick c-98-L/94-A-10 | 1088 | 9-68 | 855 | —— | —— | —— |
| | HB et al Buick d-1/7-D/94-A-15 | 1286 | 9-73 | 791 | 0.576 | 1,739 | 2,000 |
| Project Pool B | Texaco NFA Buick c-80-D/94-A-15 | 1087 | 7-66 | 1,045 | 0.500 | 750 | Suspended. |
| Project Pool C | Anadarko Cdn-Sup Buick c-32-I/94-A-11 | 2863 | 3-71 | 1,107 | 0.924 | 4,948 | 2,000 |
| Project Pool D | HOL APC Buick a-83-B/94-A-14 | 3177 | —— | —— | —— | —— | —— |
| | HOL APC Buick d-93-B/94-A-14 | 3212 | —— | —— | —— | —— | —— |
| | HOL APC Buick a-63-B/94-A-14 | 3289 | —— | —— | —— | —— | —— |
| Dunlevy— | | | | | | | |
| Project Pool A | Anadarko Cdn-Sup Buick a-29-L/94-A-10 | 3165 | 10-72 | 1,142 | 0.820 | 23,642 | 5,911 |
| | Anadarko Cdn-Sup Buick b-22-I/94-A-11 | 2794 | 2-71 | 1,160 | 0.793 | 2,955 | 2,000 |
| | Skye Buick c-36-I/94-A-11 | 3169 | 12-73 | 949 | 0.618 | 6,337 | 2,000 |
| | Woods Buick a-65-I/94-A-11 | 2785 | 8-71 | 978 | 0.660 | 7,546 | 2,000 |
| | Pacific Buick a-85-I/94-A-11 | 1323 | 8-72 | 725 | 0.963 | 5,866 | 2,000 |
| | Texaco et al Buick c-94-I/94-A-11 | 2693 | 6-73 | 633 | 0.867 | 39,979 | 17,709 |
| | Texaco NFA Buick d-96-I/94-A-11 | 787 | 6-73 | 624 | 0.700 | 9,138 | 3,985 |
| | Texaco NFA Buick Creek d-98-I(1)/94-A-11 | 45 | 6-73 | 1,073 | 0.980 | 5,523 | 2,000 |
| | Texaco NFA Buick Creek c-10-A(2)/94-A-14 | 65 | 6-73 | 952 | 0.506 | 191 | 2,000 |
| | Whitehall Buick c-34-A/94-A-14 | 1336 | 8-69 | 714 | 0.712 | 1,519 | 2,000 |
| | Texaco NFA Buick b-A46-A/94-A-14 | 1508 | 6-73 | 912 | 0.630 | 797 | Suspended. |
| Project Pool A total | | —— | —— | —— | —— | —— | 41,605 |

[2] Exempted from reporting "Maximum Day Production."

[3] Leaseline well restricted to 2 MMSCF/D.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Buick Creek—*Continued* | | | | | | | |
| Dunlevy— | | | | | | | |
| Project Pool B | Texaco NFA Buick c-98-L/94-A-10 | 1088 | 6-73 | 747 | 0.566 | 678 | 2,000 |
| | Texaco NFA Buick a-31-A/94-A-14 | 295 | 6-73 | 729 | 0.661 | 14,241 | 5,113 |
| | Whitehall Buick b-62-A/94-A-14 | 1303 | 8-69 | 907 | 1.000 | 3,725 | 2,000 |
| | Texaco NFA Buick d-93-A/94-A-14 | 1346 | 6-73 | 1,180 | 0.694 | ——— | Observation. |
| | Texaco NFA Buick c-18-D/94-A-15 | 1185 | 6-73 | 728 | 0.748 | 3,296 | 2,000 |
| | HB Ashland Buick d-37-D | 3255 | 2-73 | 893 | 0.518 | 2,147 | 2,000 |
| | Texaco NFA Buick c-80-D/94-A-15 | 1087 | 6-73 | 620 | 0.682 | 3,048 | 2,000 |
| Project Pool B total | | ——— | ——— | ——— | ——— | ——— | 15,113 |
| Project Pool C | Anadarko Cdn Sup Buick b-44-J/94-A-11 | 3273 | ——— | ——— | ——— | ——— | ——— |
| | Texaco NFA Buick Creek c-79-J(6)/94-A-11 | 110 | 6-73 | 491 | 0.700 | 1,300 | 2,000 |
| | Texaco NFA Buick Creek d-83-J(4)/94-A-11 | 96 | 6-73 | 408 | 0.898 | 8,690 | 4,649 |
| | Texaco NFA Buick d-93-J/94-A-11 | 728 | 6-73 | 417 | 0.938 | 7,894 | 3,849 |
| | Pacific Buick Creek b-4-B/94-A-14 | 457 | 7-73 | 533 | 0.931 | 1,295 | 2,000 |
| | Texaco NFA Buick b-10-B/94-A-14 | 1179 | 6-73 | 510 | 0.862 | 496 | 2,000 |
| | Pacific Buick Creek c-14-B/94-A-14 | 469 | 7-73 | 576 | 0.869 | 1,326 | 2,000 |
| | Sun Buick c-16-B/94-A-14 | 744 | 6-73 | 600 | 0.767 | 1,388 | 2,000 |
| | Sun Buick d-19-B/94-A-14 | 756 | 6-73 | 518 | 1.000 | 1,139 | 2,000 |
| | Texaco NFA Buick c-40-B/94-A-14 | 1213 | 6-73 | 567 | 0.940 | 717 | Suspended. |
| | HOL APC Buick a-83-B/94-A-14 | 3177 | 11-73 | 751 | 0.848 | 2,672 | 2,000 |
| | Sun Buick d-11-C/94-A-14 | 818 | 6-73 | 516 | 0.900 | 4,695 | 2,555 |
| | Sun et al Buick c-32-C/94-A-14 | 1360 | 6-73 | 558 | 0.996 | 7,151 | 3,539 |
| Project Pool C total | | ——— | ——— | ——— | ——— | ——— | 28,592 |
| Project Pool D | HOL APC Buick a-63-B/94-A-14 | 3289 | ——— | ——— | ——— | ——— | ——— |
| | HOL APC Buick d-93-B/94-A-14 | 3212 | ——— | ——— | ——— | ——— | ——— |
| Cecil | Texaco NFA Buick Creek d-83-J(4)/94-A-11 | 96 | 6-66 | 490 | 0.583 | 1,500 | Suspended. |
| Field total | | ——— | ——— | ——— | ——— | ——— | 89,310 |
| Buick Creek North— | | | | | | | |
| Gething | Pacific West Prod N Buick c-22-F/94-A-14 | 1753 | 7-73[4] | 488[4] | 0.636[4] | 5,376[4] | 2,617[4] |
| | Pacific West Prod N Buick b-44-F/94-A-14 | 1799 | ——— | ——— | ——— | ——— | ——— |
| | Dome CanDel N Buick b-66-F/94-A-14 | 3348 | ——— | ——— | ——— | ——— | ——— |
| | Coseka N Buick d-55-F/94-A-14 | 3373 | ——— | ——— | ——— | ——— | ——— |
| Dunlevy | Pacific West Prod N Buick a-81-C/94-A-14 | 2069 | 7-72 | 751 | 0.603 | 4,820 | 2,000 |
| | Texaco NFA N Buick d-91-C/94-A-14 | 2174 | 9-72 | 731 | 0.736 | 9,499 | 4,417 |
| | Pacific West Prod N Buick b-2-F/94-A-14 | 2026 | 7-73 | 662 | 0.700 | 1,727 | 2,000 |
| | Pacific West Prod N Buick c-22-F/94-A-14 | 1753 | 7-73 | (4) | (4) | (4) | Suspended.[4] |
| | Pacific West Prod N Buick b-44-F/94-A-14 | 1799 | ——— | ——— | ——— | ——— | ——— |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Coseka N Buick d-55-F/94-A-14 | 3373 | 8-73 | 1,288 | 1.000 | 1,120 | 2,000 |
| | Dome CanDel N Buick b-66-F/94-A-14 | 3348 | ——— | ——— | ——— | ——— | ——— |
| | Pacific West Prod N Buick b-86-F/94-A-14 | 1830 | 7-72 | 1,274 | 0.500 | 1,354 | Suspended. |
| Dunlevy total | | ——— | ——— | ——— | ——— | ——— | 10,417 |
| Field total | | ——— | ——— | ——— | ——— | ——— | 13,034 |
| Buick Creek West— | | | | | | | |
| Dunlevy— | | | | | | | |
| Project Pool A | Pacific West Buick Creek d-95-K(4)/94-A-11 | 99 | 7-72 | 393 | 0.790 | 4,338 | 2,000 |
| | Pacific West Buick Creek c-5-C(11)/94-A-14 | 264 | 7-72 | 396 | 0.906 | 3,030 | Suspended. |
| | Pacific West Buick Creek c-14-C(3)/94-A-14 | 95 | 8-72 | 619 | 0.975 | 6,514 | Suspended. |
| | Pacific West Buick Creek d-17-C(17)/94-A-14 | 384 | 10-72 | 408 | 0.837 | 21,204 | 9,772 |
| Project Pool A total | | ——— | ——— | ——— | ——— | ——— | 11,772 |
| Project Pool B | Pacific West Buick Creek b-78-C(2)/94-A-14 | 89 | 7-73 | 757 | 0.712 | 3,461 | 2,000 |
| | Pacific West Buick Creek c-80-C(10)/94-A-14 | 261 | 7-72 | 543 | ——— | ——— | ——— |
| | Pacific West Buick Creek d-89-C(12)/94-A-14 | 268 | 7-72 | 665 | 1.000 | 1,351 | 2,000 |
| | Pacific West Buick Creek b-91-D(9)/94-A-14 | 255 | 7-72 | 550 | 1.000 | 1,781 | 2,000 |
| | Pacific West Buick Creek c-2-E(6)/94-A-14 | 239 | 7-72 | 537 | 0.686 | 4,364 | 2,000 |
| Project Pool B total | | ——— | ——— | ——— | ——— | ——— | 8,000 |
| Dunlevy total | | ——— | ——— | ——— | ——— | ——— | 19,772 |
| Baldonnel | Pacific West Buick Creek d-58-C(8)/94-A-14 | 249 | 7-72 | 1,349 | ——— | ——— | Suspended. |
| | Pacific West Buick Creek a-78-C/94-A-14 | 644 | 7-72 | 590 | 0.699 | 1,483 | 2,000 |
| Halfway | Pacific West Buick Creek b-23-E(1)/94-A-14 | 86 | 7-62 | 699 | 0.712 | 2,450 | Suspended. |
| Field total | | ——— | ——— | ——— | ——— | ——— | 21,772 |
| Cabin— | | | | | | | |
| Slave Point | West Nat Cabin b-40-A/94-P-5 | 1245 | 3-63 | 2,607 | 0.761 | 28,900 | Suspended. |
| | Pacific Cabin d-57-B/94-P-5 | 2425 | ——— | ——— | ——— | ——— | ——— |
| | General American Cabin a-61-F/94-P-5 | 2665 | ——— | ——— | ——— | ——— | ——— |
| | West Nat Cabin a-19-G/94-P-5 | 1406 | 2-64 | 2,645 | 0.554 | 31,200 | Suspended. |
| | Pacific Cabin a-49-G/94-P-5 | 2058 | ——— | ——— | ——— | ——— | ——— |
| Cache Creek— | | | | | | | |
| Coplin | Texcan Cache 10-20-88-22 | 2567 | 12-69 | 2,239 | 1.000 | 2,900 | 2,000 |
| | Texcan Cache 6-22-88-22 | 3367 | ——— | ——— | ——— | ——— | ——— |
| | Texcan Cache 6-28-88-22 | 2423 | 1-69 | 2,293 | ——— | ——— | ——— |
| Halfway | Texcan Cache 6-22-88-22 | 3367 | ——— | ——— | ——— | ——— | ——— |
| | Texcan Cache 6-28-88-22 | 2423 | 8-70 | 1,916 | 1.000 | 934 | Suspended. |
| Clarke Lake— | | | | | | | |
| Slave Point | Pacific et al Clarke a-65-G/94-J-10 | 1528 | 8-68 | 2,823 | 0.570 | 10,400 | Disposal. |
| | Hamilton Cdn-Sup Clarke d-72-G/94-J-10 | 2176 | 3-72 | 2,670 | 0.786 | 75,243 | 20,055 |
| | Gulf Shell Clarke c-76-H/93-J-10 | 2459 | 3-69 | 2,877 | 0.500 | 8,400 | Suspended. |
| | Pacific et al Clarke c-100-H/94-J-10 | 2506 | 2-70 | 2,762 | ——— | ——— | 2,000 |

[4] Comingled production. Gething and Dunlevy not segregated.

## TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Clarke Lake—*Continued* | | | | | | | |
| Slave Point project | West Nat IOE Clarke d-29-K/94-J-9 | 1274 | 8-72 | 2,627 | 0.500 | 133,187 | Suspended. |
| | Pacific IOE Clarke c-50-K/94-J-9 | 1913 | 8-72 | 2,598 | 0.781 | 13,740 | Suspended. |
| | Pacific Imp Clarke c-56-L/94-J-9 | 1833 | 7-73 | 2,406 | 0.552 | 54,956 | ——— |
| | Pacific Imp Clarke b-69-L/94-J-9 | 2240 | ——— | ——— | ——— | ——— | Disposal. |
| | Pacific Imp Clarke b-72-L/94-J-9 | 2540 | 7-73 | 2,355 | 0.637 | 90,841 | ——— |
| | Pacific Imp Clarke d-74-L/94-J-9 | 3163 | ——— | ——— | ——— | ——— | ——— |
| | Pacific Imp Clarke a-77-L/94-J-9 | 3104 | 9-73 | 2,352 | 0.646 | 13,839 | ——— |
| | West Nat Imp Clarke Lake d-88-L/94-J-9 | 344 | 7-73 | 2,334 | 0.620 | 104,314 | ——— |
| | West Nat Imp Clarke Lake d-91-L/94-J-9 | 585 | 7-73 | 2,301 | 0.854 | 13,776 | ——— |
| | Pacific Imp Clarke c-92-L/94-J-9 | 3011 | 8-72 | 2,418 | ——— | ——— | ——— |
| | West Nat Imp Clarke Lake c-94-L/94-J-9 | 397 | 7-73 | 2,296 | 1.000 | 46,579 | ——— |
| | Pacific Imp Clarke b-97-L/94-J-9 | 3361 | ——— | ——— | ——— | ——— | ——— |
| | Pacific et al Clarke a-52-F/94-J-10 | 3228 | ——— | ——— | ——— | ——— | ——— |
| | Pacific et al Clarke c-54-F/94-J-10 | 1932 | 8-72 | 2,732 | 0.575 | 11,635 | ——— |
| | Pacific Apache Clarke a-61-F/94-J-10 | 1578 | 7-73 | 2,656 | 0.695 | 35,619 | ——— |
| | Pacific Apache Clarke b-76-G/94-J-10 | 1071 | 7-73 | 2,651 | 0.674 | 10,217 | ——— |
| | Pacific et al Clarke d-69-H/94-J-10 | 1866 | 3-70 | 2,802 | 0.500 | 39,051 | ——— |
| | Pacific et al Clarke b-18-I/94-J-10 | 2316 | 7-73 | 2,596 | 0.567 | 21,772 | ——— |
| | Pacific et al Clarke c-20-I/94-J-10 | 2107 | 7-73 | 2,563 | 0.535 | 39,076 | ——— |
| | Pacific et al Clarke b-38-I/94-J-10 | 1933 | 7-73 | 2,505 | ——— | ——— | ——— |
| | Pacific et al Clarke c-69-I/94-J-10 | 2249 | 7-73 | 2,426 | 0.587 | 49,761 | ——— |
| | West Nat et al Clarke b-70-I/94-J-10 | 688 | 7-73 | 2,443 | 0.655 | 39,822 | ——— |
| | Pacific et al Clarke b-78-I/94-J-10 | 3378 | ——— | ——— | ——— | ——— | ——— |
| | West Nat et al Clarke c-78-I/94-J-10 | 505 | 7-73 | 2,403 | 1.000 | 118,655 | ——— |
| | Pacific Imp Clarke c-85-I/94-J-10 | 2310 | ——— | ——— | ——— | ——— | Suspended. |
| | Pacific Imperial Clarke c-92-I/94-J-10 | 1554 | 7-73 | 2,327 | 0.500 | 88,800 | ——— |
| | Pacific Imp Clarke a-94-I/94-J-10 | 3073 | 9-73 | 2,303 | ——— | ——— | ——— |
| | Pacific et al Clarke b-22-J/94-J-10 | 1796 | 4-70 | 2,759 | ——— | ——— | ——— |
| | Pacific et al Clarke b-26-J/94-J-10 | 2776 | ——— | ——— | ——— | ——— | ——— |
| | Pacific et al Clarke c-43-J/94-J-10 | 2239 | 7-73 | 2,500 | 0.649 | 33,722 | ——— |
| | Pacific et al Clarke b-46-J/94-J-10 | 2162 | 7-73 | 2,555 | 0.550 | 15,823 | ——— |
| | West Nat et al Clarke c-47-J/94-J-10 | 211 | 8-72 | 2,652 | ——— | ——— | ——— |
| | West Nat et al Clarke a-52-J/94-J-10 | 856 | 7-73 | 2,472 | 0.733 | 21,925 | ——— |
| | Pacific et al Clarke a-55-J/94-J-10 | 1966 | 7-73 | 2,520 | 0.715 | 87,555 | ——— |
| | Pacific Imp Clarke b-6-D/94-J-16 | 2820 | 7-73 | 2,286 | 0.500 | 28,596 | ——— |
| | West Nat Imp Clarke Lake c-8-D/94-J-16 | 503 | 7-73 | 2,329 | 1.000 | 116,037 | ——— |
| | Pacific Imp Clarke a-10-D/94-J-16 | 3264 | 9-73 | 2,269 | 0.685 | 377,223 | ——— |
| | Pacific Imp Clarke b-10-D/94-J-16 | 2509 | 7-73 | 2,317 | 0.591 | 73,557 | ——— |
| Slave Point project total | | ——— | ——— | ——— | ——— | ——— | 400,000 |
| Slave Point total | | ——— | ——— | ——— | ——— | ——— | 422,055 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cypress— | | | | | | | |
| Baldonnel | HB Cypress a-65-C/94-B-15 | 1339 | 8-63 | 1,960 | 0.669 | 11,200 | Suspended. |
| | HB Cypress d-87-C/94-B-15 | 1326 | 3-71 | 1,960 | 0.625 | 25,112 | Suspended. |
| | HB Cypress a-28-F/94-B-15 | 737 | 3-71 | 1,948 | 0.676 | 50,586 | Suspended. |
| Dahl— | | | | | | | |
| Bluesky | Sierra Dahl b-62-G/94-H-7 | 2628 | ——— | ——— | ——— | ——— | ——— |
| | Star Dahl d-93-G/94-H-7 | 2622 | 1-72 | 951 | 0.737 | 5,242 | 2,000 |
| | Pacific et al Dahl d-11-J/94-H-7 | 2445 | ——— | ——— | ——— | ——— | Suspended. |
| | Tenn Cdn Sup Dahl d-53-J/94-H-7 | 1849 | 1-72 | 946 | 0.790 | 3,747 | 2,000 |
| | Texaco Dahl a-67-J/94-H-7 | 2457 | 2-69 | 949 | 0.664 | 1,210 | Suspended. |
| | Pacific CIGOL Dahl d-91-J/94-H-7 | 2466 | ——— | ——— | ——— | ——— | Suspended. |
| | IOE Scurry Dahl d-51-B/94-H-10 | 2642 | ——— | ——— | ——— | ——— | ——— |
| Field total | | ——— | ——— | ——— | ——— | ——— | 4,000 |
| Dawson Creek— | | | | | | | |
| Dunvegan | Horizon Dawson B3-22-79-15 | 2216 | ——— | ——— | ——— | ——— | ——— |
| Cadotte | Pacific Sc Dawson Ck 3-22-79-15 (2) | 302 | 6-67 | 540 | 0.900 | 805 | Suspended. |
| Elm— | | | | | | | |
| Halfway | Bracell et al Elm d-83-C/94-H-7 | 2712 | 3-72 | 1,156 | 0.902 | 4,934 | 2,000 |
| Farrell Creek— | | | | | | | |
| Charlie Lake | CanDel et al Farrell a-30-L/94-A-5 | 2165 | 5-73 | 1,989 | 0.685 | 1,864 | 2,000 |
| | CanDel et al Farrell a-41-I/94-B-8 | 2089 | 5-73 | 1,997 | 0.870 | 2,388 | 2,000 |
| Charlie Lake total | | ——— | ——— | ——— | ——— | ——— | 4,000 |
| Halfway | Ft St John Petroleums Farrell a-9-L/94-A-5 | 176 | 11-61 | 2,341 | 0.839 | 5,600 | Suspended. |
| | CanDel et al Farrell a-30-L/94-A-5 | 2165 | ——— | ——— | ——— | ——— | ——— |
| | CanDel et al Farrell a-41-I/94-B-8 | 2089 | 5-73 | 1,597 | 0.783 | 2,319 | 2,000 |
| Field total | | ——— | ——— | ——— | ——— | ——— | 6,000 |
| Fireweed— | | | | | | | |
| Bluesky | Skye et al Fireweed b-22-H/94-A-13 | 3346 | ——— | ——— | ——— | ——— | ——— |
| | Skye et al Fireweed a-43-H/94-A-13 | 3071 | 3-72 | 1,329 | 0.710 | 3,407 | 2,000 |
| Dunlevy | SOC et al Fireweed b-42-A/94-A-13 | 3203 | 8-73 | 1,334 | 0.729 | 13,678 | 3,420 |
| | SOC et al Fireweed d-75-A/94-A-13 | 2993 | 3-72 | 1,304 | 0.559 | 4,538 | 2,000 |
| | Union Fireweed d-53-G/94-A-13 | 497 | ——— | ——— | ——— | ——— | ——— |
| | SOC et al Fireweed b-4-H/94-A-13 | 3333 | 10-73 | 1,388 | 1.000 | 2,794 | 2,000 |
| | SOC et al Fireweed a-7-H/94-A-13 | 3152 | 10-73 | 1,339 | 0.759 | 3,108 | 2,000 |
| | Skye et al Fireweed a-43-H/94-A-13 | 3071 | 3-72 | 1,321 | ——— | ——— | ——— |
| | CDR Union Fireweed d-55-H/94-A-13 | 1201 | ——— | ——— | ——— | ——— | ——— |
| Dunlevy total | | ——— | ——— | ——— | ——— | ——— | 9,420 |
| Baldonnel | CDR Fireweed d-31-G/94-A-13 | 1384 | ——— | ——— | ——— | ——— | ——— |
| | Skye et al Fireweed a-61-G/94-A-13 | 3087 | ——— | ——— | ——— | ——— | ——— |
| Debolt | West Nat et al Fireweed a-57-A/94-A-13 | 507 | 9-60 | 2,472 | 0.625 | 2,050 | Suspended. |
| | SOC et al Jeans d-75-A/94-A-13 | 2993 | 1-72 | 2,243 | 1.000 | 3,668 | 2,000 |
| | West Nat et al Fireweed c-A1-H/94-A-13 | 455 | ——— | ——— | ——— | ——— | ——— |
| Field total | | ——— | ——— | ——— | ——— | ——— | 13,420 |

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Flatrock— | | | | | | | |
| Siphon | CEGO et al Flatrock 10-27-84-16 | 1954 | 6-67 | 1,659 | 0.837 | 2,630 | Suspended. |
| Boundary Lake | Wainoco Flatrock 6-18-84-16 | 3304 | — | — | — | — | — |
| Halfway | Champlin Flatrock 10-9-84-16 | 2516 | 5-73 | 1,238 | 0.945 | 11,139 | 4,132 |
| | Champlin et al Flatrock 11-17-84-16 | 2827 | 6-73 | 1,737 | 0.721 | 9,719 | 2,506 |
| | Wainoco et al Flatrock 6-18-84-16 | 3304 | 5-73 | 1,909 | — | — | 2,000 |
| | Ballinderry Flatrock 10-33-84-16 | 2760 | 10-73 | 1,606 | 0.659 | 8,086 | 2,451 |
| | Wainoco et al Flatrock 6-13-84-17 | 3221 | 5-73 | 1,902 | — | — | 2,000 |
| Halfway total | | — | — | — | — | — | 13,089 |
| Fort St. John— | | | | | | | |
| Dunlevy | Pacific Ft St John A3-29-83-18 (31) | 75 | 6-72 | 1,321 | 1.000 | 28,438 | Suspended. |
| | Pacific Ft St John A9-19-83-18 (58) | 190 | — | — | — | — | — |
| Baldonnel | Pacific Ft St John 16-8-83-18 (83) | 233 | 5-67 | 676 | 0.820 | 2,557 | 2,000 |
| | Pacific Ft St John 9-14-83-18 (71) | 204 | — | — | — | — | — |
| | Pacific Ft St John 13-14-83-18 (54) | 194 | 6-72 | 717 | 0.993 | 1,427 | Suspended. |
| | Pacific Ft St John 14-15-83-18 (7) | 32 | 6-73 | 1,021 | 0.700 | 3,256 | Suspended. |
| | Pacific Ft St John A6-16-83-18 (73) | 212 | 6-72 | 517 | 0.733 | 1,436 | 2,000 |
| | Pacific Ft St John 6-17-83-18 (72) | 210 | 5-72 | 563 | 0.851 | 3,818 | 2,000 |
| | Pacific Ft St John 8-20-83-18 (43) | 170 | 6-72 | 458 | 0.850 | 2,339 | 2,000 |
| | Pacific Ft St John B14-21-83-18 (62) | 193 | 6-72 | 447 | 0.625 | 2,162 | 2,000 |
| | Pacific Ft St John 14-22-83-18 (32) | 76 | 6-72 | 494 | 0.782 | 2,849 | 2,000 |
| | Pacific Ft St John 13-23-83-18 (34) | 82 | 6-72 | 523 | 0.726 | 2,781 | 2,000 |
| | Pacific Ft St John C3-29-83-18 (56) | 186 | 6-72 | 537 | 0.565 | 2,202 | 2,000 |
| | Pacific Ft St John 4-32-83-18 (26) | 67 | 6-72 | 930 | 1.000 | 531 | Suspended. |
| Baldonnel total | | — | — | — | — | — | 16,000 |
| Pingel | Pacific Ft St John B3-29-83-18 (52) | 179 | — | — | — | — | — |
| Halfway | Pacific Ft St John 1-20-83-18 (30) | 74 | 6-72 | 365 | 0.839 | 1,175 | 2,000 |
| | Pacific Ft St John 2-21-83-18 (46) | 172 | 6-72 | 366 | 0.818 | 1,305 | 2,000 |
| | Pacific Ft St John A14-21-83-18 (51) | 178 | 6-72 | 366 | 0.916 | 1,525 | 2,000 |
| | Pacific Ft St John A14-22-83-18 (61) | 192 | 6-73 | 504 | 1.000 | 67 | Suspended. |
| | Pacific Ft St John B3-29-83-18 (52) | 179 | 6-72 | 406 | 0.856 | 1,593 | 2,000 |
| | Pacific Ft St John 10-30-83-18 (53) | 181 | 6-72 | 930 | 0.868 | 2,077 | Disposal. |
| | Home W Ft St John 10-27-83-19 | 2391 | 5-69 | 1,956 | 0.643 | 3,124 | Suspended. |
| | Pacific et al Ft St John 11-34-83-19 | 2138 | 6-72 | 1,668 | 0.833 | 3,842 | 2,000 |
| Halfway total | | — | — | — | — | — | 10,000 |
| Belloy | Pacific Ft St John 14-21-83-18 (4) | 29 | 6-72 | 505 | 0.624 | 1,044 | 2,000 |
| | Pacific Ft St John 3-29-83-18 (23) | 58 | 6-73 | 323 | 0.542 | 1,767 | 2,000 |
| | Pacific Ft St John 3-30-83-18 (6) | 31 | — | — | — | — | Disposal. |
| Belloy total | | — | — | — | — | — | 4,000 |
| Field total | | — | — | — | — | — | 30,000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fort St. John Southeast— | | | | | | | |
| Dunlevy | Pac Ft St John SE 10-31-82-17 (80) | 220 | 6-73 | 1,303 | 0.854 | 1,511 | Suspended. |
| Baldonnel | Pac Ft St John SE 13-2-83-17 (74) | 213 | 6-73 | 734 | 0.766 | 2,964 | 2,000 |
| | Pac Ft St John SE A4-10-83-17 (55) | 184 | 6-72 | 939 | 0.500 | 1,986 | 2,000 |
| Baldonnel total | | | | | | | 4,000 |
| Siphon | Pacific Ft St John SE 7-3-83-17 (49) | 174 | 6-73 | 1,674 | | | |
| Pingel | Pacific Ft St John SE 8-5-83-17 (20) | 52 | 7-71 | | | | |
| Halfway | Pac Ft St John SE 10-33-82-17 (22) | 60 | 6-73 | 1,494 | 1.000 | 5,311 | Suspended. |
| | Pacific Ft St John SE 7-3-83-17 (49) | 174 | 11-69 | 818 | 1.000 | 1,253 | Abandoned. |
| | Pac Ft St John SE 16-3-83-17 (66) | 197 | 6-73 | 438 | 0.795 | 4,931 | 3,164 |
| | Pac Ft St John SE A10-4-83-17 (60) | 191 | 6-72 | 729 | 0.649 | 1,845 | 2,000 |
| | Pac Ft St John SE 7-5-83-17 (69) | 202 | 6-73 | 1,706 | 1.000 | 1,343 | Suspended. |
| | Pac Ft St John SE A10-10-83-17 (98) | 320 | 6-73 | 662 | 0.845 | 1,779 | Suspended. |
| Halfway total | | | | | | | 5,164 |
| Belloy | Pac Ft St John SE 11-32-82-17 (68) | 201 | 5-73 | 492 | 0.745 | 5,513 | 4,850 |
| | Pac Ft St John SE 10-4-83-17 (47) | 173 | 5-73 | 719 | 0.810 | 5,366 | 3,390 |
| | Pacific Ft St John SE 8-5-83-17 (20) | 52 | 5-67 | 1,558 | 1.000 | 1,536 | Abandoned. |
| | Pacific Ft St John SE 4-9-83-17 (44) | 166 | 6-73 | 942 | 1.000 | 4,990 | Suspended. |
| | Pac Ft St John SE 4-10-83-17 (12) | 42 | 6-72 | 1,747 | 0.500 | 5,995 | Suspended. |
| | Pac Ft St John SE 10-10-83-17 (79) | 219 | 6-73 | 788 | 0.726 | 1,367 | Suspended. |
| Belloy total | | | | | | | 8,240 |
| Field total | | | | | | | 17,404 |
| Grizzly— | | | | | | | |
| Dunlevy | Gray Oil PRP NW Grizzly c-25-A/93-I-15 | 1396 | 3-64 | 2,682 | 0.565 | 7,428 | Suspended. |
| | Monkman Pass PRP Grizzly c-36-A/93-I-15 | 2973 | 8-72 | 2,598 | 0.522 | 4,411 | 2,000 |
| Grizzly North— | | | | | | | |
| Dunlevy | Quasar et al Grizzly b-62-G/93-I-15 | 3180 | 12-72 | 2,010 | 0.500 | 12,336 | 3,084 |
| Gundy Creek— | | | | | | | |
| Baldonnel | West Nat Gundy Creek b-69-A/94-B-16 | 253 | 4-59 | 1,618 | 1.000 | 5,000 | Suspended. |
| | West Nat East Gundy Creek a-76-A/94-B-16 | 291 | | | | | Suspended. |
| | West Nat Gundy Creek c-80-A/94-B-16 | 83 | | | | | Suspended. |
| | West Nat Gundy Creek d-2-G/94-B-16 | 367 | 8-62 | 1,707 | 0.636 | 2,250 | Suspended. |
| Blueberry | West Nat Gundy Creek b-69-A/94-B-16 | 253 | 4-59 | 1,845 | 1.000 | 8,300 | Suspended. |
| Helmet— | | | | | | | |
| Slave Point | Atkinson Sunlite Helmet b-2-K/94-P-7 | 2617 | | | | | |
| | FPC Chevron et al Helmet b-11-K/94-P-7 | 2517 | 1-70 | 2,346 | 0.500 | 191,823 | 47,956 |
| Highway— | | | | | | | |
| Dunlevy | West Nat et al Highway b-3-I/94-B-16 | 168 | 8-72 | 1,212 | 0.869 | 842 | Suspended. |
| Baldonnel | Pacific Highway b-25-I(1)/94-B-16 | 112 | 8-58 | 1,653 | 1.000 | 6,600 | Suspended. |
| | Pacific Highway a-47-I(2)/94-B-16 | 180 | 11-57 | 1,680 | 0.754 | 3,600 | Suspended. |
| | Pacific Highway a-69-I(3)/94-B-16 | 274 | 11-57 | 1,691 | 0.812 | 3,150 | Suspended. |
| | Pacific Highway a-90-I(4)/94-B-16 | 229 | 11-64 | 1,388 | 0.535 | 920 | Suspended. |
| Debolt | Pacific Highway a-90-I(4)/94-B-16 | 229 | 7-66 | 880 | 0.553 | 6,885 | Suspended. |

[2] Exempted from reporting "Maximum Day Production."

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Inga— | | | | | | | |
| Baldonnel | Pacific Inga 6-29-86-23 | 2327 | 6-72 | 1,362 | 0.864 | 5,618 | Suspended. |
| | Pacific Inga 6-32-86-23 | 2401 | 6-72 | 1,236 | 0.687 | 2,294 | Suspended. |
| | Pacific Inga 6-4-87-23 | 2412 | 6-72 | 864 | 0.875 | 4,660 | Suspended. |
| Baldonnel total | | ——— | ——— | ——— | ——— | ——— | ——— |
| Inga (nonunit) | SOC Cardo Inga b-46-B/94-A-13 | 3156 | 9-72 | 2,135 | 0.734 | 3,647 | Suspended. |
| Inga Unit 3 | West Nat et al Inga d-42-J/94-A-12 | 2000 | 4-73 | 2,169 | ——— | ——— | Observation. |
| | Cdn-Sup Whitehall Inga b-44-J/94-A-12 | 2461 | 4-73 | 2,191 | ——— | ——— | Observation. |
| | Francana Cabot Inga b-82-J/94-A-12 | 2241 | 4-73 | 2,088 | 0.679 | 39,770 | ——— |
| | West Nat et al Inga b-10-A/94-A-13 | 470 | 4-73 | 2,073 | 0.824 | 2,325 | ——— |
| | Francana et al Inga a-5-B/94-A-13 | 2320 | 4-73 | 2,120 | 0.851 | 457 | ——— |
| | West Nat et al Inga a-22-B/94-A-13 | 412 | 11-70 | 2,264 | 1.000 | 3,220 | ——— |
| Unit total | | ——— | ——— | ——— | ——— | ——— | 10,000[5] |
| Field total | | ——— | ——— | ——— | ——— | ——— | 10,000 |
| Inga North— | | | | | | | |
| Inga | Francana Cabot N Inga d-51-K/94-A-12 | 2533 | ——— | ——— | ——— | ——— | ——— |
| | Francana Cabot N Inga a-81-K/94-A-12 | 2552 | 10-70 | 2,344 | 0.755 | 10,146 | 2,536 |
| | Wincan et al N Inga b-20-B/94-A-13 | 2684 | ——— | ——— | ——— | ——— | ——— |
| Jedney— | | | | | | | |
| Gething | Pacific Imperial Jedney a-95-C/94-G-8 | 1366 | 10-63 | 1,142 | 0.531 | 13,600 | Suspended. |
| Baldonnel project | Pacific Imperial Jedney c-78-H/94-G-1 | 1129 | 6-72 | 1,449 | 0.726 | 1,401 | ——— |
| | Pacific Imperial Jedney b-99-H/94-G-1 | 1054 | 6-72 | 967 | 0.535 | 3,070 | ——— |
| | Pacific Imperial Jedney c-100-H/94-G-1 | 1082 | 6-72 | 1,058 | 0.500 | 2,342 | ——— |
| | Pacific Sunray Imp Jedney b-44-J/94-G-1 | 492 | 7-72 | 1,504 | ——— | ——— | ——— |
| | Pacific Imperial Jedney b-66-J/94-G-1 | 475 | 11-72 | 963 | 0.839 | 5,307 | ——— |
| | Pacific et al Jedney b-68-J/94-G-1 | 498 | 6-66 | 1,358 | 0.685 | ——— | Disposal. |
| | Pacific Imperial Jedney d-77-J/94-G-1 | 484 | 6-72 | 905 | 0.532 | 1,829 | ——— |
| | Pacific et al Jedney b-88-J/94-G-1 | 427 | 10-72 | 796 | 0.818 | 6,244 | ——— |
| | Pacific Imp Jedney d-99-J/94-G-1 | 382 | 6-72 | 854 | 0.531 | 1,725 | ——— |
| | Pacific Imperial Jedney b-10-B/94-G-8 | 473 | 11-72 | 829 | 0.766 | 7,558 | ——— |
| | Pacific Imperial Jedney b-30-B/94-G-8 | 460 | 6-72 | 927 | 0.588 | 3,569 | ——— |
| | Pacific Imperial Jedney d-31-C/94-G-8 | 1178 | 7-72 | 1,140 | 0.931 | 2,269 | ——— |
| | Pacific Imperial Jedney d-44-C/94-G-8 | 1375 | 7-72 | 1,223 | 0.685 | 3,963 | Suspended. |
| | Pacific Imperial Jedney d-53-C/94-G-8 | 820 | 11-72 | 1,285 | 0.880 | 1,839 | ——— |
| | Pacific Imperial Jedney b-73-C/94-G-8 | 868 | 7-72 | 1,306 | 0.500 | 2,568 | ——— |
| | Pacific et al Jedney c-86-C/94-G-8 | 778 | 7-72 | 1,069 | 0.500 | 1,881 | ——— |
| | Pacific et al Jedney d-97-C/94-G-8 | 651 | 11-72 | 1,051 | 0.595 | 6,130 | ——— |
| | Pacific Pan Am Dome Jedney c-8-F/94-G-8 | 1152 | 7-72 | 1,267 | 0.594 | 1,197 | ——— |
| | Pacific Pan Am Dome Jedney b-28-F/94-G-8 | 944 | 7-72 | 1,263 | 0.500 | 2,029 | ——— |
| | Skelly Jedney a-39-F/94-G-8 | 1334 | 10-73 | 1,104 | 1.000 | 3,563 | ——— |
| Baldonnel project total | | ——— | ——— | ——— | ——— | ——— | GEP. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Halfway project | Pacific Imperial Jedney c-57-H/94-G-1 | 1183 | 6-72 | 1,317 | 0.500 | 2,017 | |
| | Pacific Imperial Jedney d-68-H/94-G-1 | 1256 | 6-72 | 970 | 0.500 | 2,921 | |
| | Pacific Imperial Jedney c-78-H/94-G-1 | 1129 | 6-72 | 901 | 0.853 | 3,322 | |
| | Pacific Imperial Jedney b-99-H/94-G-1 | 1054 | 6-72 | 819 | 0.726 | 6,037 | |
| | Pacific Imperial Jedney c-100-H/94-G-1 | 1082 | 6-72 | 933 | 0.921 | 8,374 | |
| | Pacific Imperial Jedney a-65-J/94-G-1 | 461 | 6-72 | 985 | 0.543 | 3,649 | |
| | Pacific Imperial Jedney b-66-J/94-G-1 | 475 | 11-72 | 884 | 0.649 | 6,875 | |
| | Pacific Imperial Jedney d-77-J/94-G-1 | 484 | 11-72 | 863 | 0.869 | 4,997 | |
| | Pacific Imp Jedney d-99-J/94-G-1 | 382 | 11-72 | 921 | 0.740 | 3,064 | |
| | Pacific Imp Jedney d-19-B/94-G-8 | 2171 | ——— | ——— | ——— | ——— | |
| | Pacific Imperial Jedney d-31-C/94-G-8 | 1178 | 7-72 | 863 | 0.500 | 4,111 | |
| | Pacific Imperial Jedney d-42-C/94-G-8 | 453 | 7-72 | 844 | 0.684 | 2,675 | |
| | Pacific Imperial Jedney d-44-C/94-G-8 | 1375 | ——— | ——— | ——— | ——— | |
| | Pacific Imperial Jedney d-53-C/94-G-8 | 820 | 11-72 | 716 | 0.587 | 2,275 | |
| | Pacific Imperial Jedney b-73-C/94-G-8 | 868 | 7-72 | 794 | 0.588 | 3,271 | |
| | Pacific Imperial Jedney b-84-C/94-G-8 | 691 | 7-72 | 774 | 0.500 | 2,806 | |
| | Pacific et al Jedney c-86-C/94-G-8 | 778 | 7-72 | 863 | 0.649 | 2,718 | |
| | Pacific Imperial Jedney a-95-C/94-G-8 | 1366 | 8-70 | 1,444 | 0.500 | ——— | Disposal. |
| | Pacific et al Jedney d-97-C/94-G-8 | 651 | 7-72 | 826 | 0.742 | 3,588 | |
| | Pacific Pan Am Dome Jedney c-8-F/94-G-8 | 1152 | 12-69 | 1,536 | 0.677 | 1,576 | |
| | Pacific et al Jedney a-17-F/94-G-8 | 779 | 7-72 | 1,151 | 0.837 | 5,633 | Suspended. |
| | Pacific Pan Am Dome Jedney b-28-F/94-G-8 | 944 | 7-72 | 800 | 0.554 | 2,807 | |
| | Skelly Jedney a-39-F/94-G-8 | 1334 | 9-72 | 1,102 | 0.926 | 2,724 | |
| | Pacific et al Jedney b-50-F/94-G-8 | 1907 | ——— | ——— | ——— | ——— | |
| Halfway project total | | ——— | ——— | ——— | ——— | ——— | GEP. |
| Field total | | ——— | ——— | ——— | ——— | ——— | GEP. |
| Jedney West— | | | | | | | |
| Baldonnel | Pacific et al W Jedney b-84-K/94-G-1 | 1081 | 6-72 | 1,605 | 0.500 | 1,187 | Abandoned. |
| Halfway | Pacific et al W Jedney b-84-K/94-G-1 | 1081 | 6-72 | 1,308 | 0.500 | 1,302 | Abandoned. |
| | Pacific et al W Jedney b-6-C/94-G-8 | 1276 | 7-72 | 1,219 | 0.500 | 850 | Suspended. |
| Julienne Creek— | | | | | | | |
| Baldonnel | ARCo Pac Julienne b-39-D/94-G-1 | 658 | 6-73 | 1,261 | ——— | ——— | |
| | Sinclair Julienne Ck a-50-D(B13-2)/94-G-1 | 304 | 6-73 | 1,726 | 0.912 | 2,719 | |
| Baldonnel total | | ——— | ——— | ——— | ——— | ——— | GEP. |
| Halfway | ARCo Pac Julienne b-39-D/94-G-1 | 658 | 6-73 | 1,953 | 0.674 | 1,943 | |
| | Sinclair Julienne Ck a-50-D(B13-2)/94-G-1 | 304 | 6-73 | 1,281 | 0.988 | 2,266 | |
| Halfway total | | ——— | ——— | ——— | ——— | ——— | GEP. |
| Field total | | ——— | ——— | ——— | ——— | ——— | GEP. |
| Kobes-Townsend— | | | | | | | |
| Dunlevy | Pacific Kobes b-82-I/94-B-8 | 496 | 8-72 | 1,000 | 1.000 | 717 | 2,000 |
| | Pacific Kobes a-3-A(4)/94-B-9 | 372 | 8-72 | 1,045 | 0.704 | 2,101 | Suspended. |
| | Pacific Kobes b-24-A/94-B-9 | 489 | 8-72 | 900 | 1.000 | 604 | 2,000 |
| Dunlevy total | | ——— | ——— | ——— | ——— | ——— | 4,000 |

[5] Concurrent production scheme—annual allowable, 3,650 MMSCF.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Kobes-Townsend—*Continued* | | | | | | | |
| Charlie Lake | Pacific Kobes c-73-I(2)/94-B-8 | 299 | 10-72 | 1,451 | 0.500 | 685 | 2,000 |
| | Pacific Kobes d-94-I(1)/94-B-8 | 141 | 8-72 | 1,152 | 0.824 | 2,935 | 2,000 |
| | Pacific Kobes b-35-A(A-1)/94-B-9 | 177 | 8-72 | 1,205 | 0.564 | 1,477 | 2,000 |
| | Pacific Kobes d-57-A/94-B-9 | 2588 | 7-70 | 2,333 | ——— | ——— | Suspended. |
| | Pacific Kobes a-99-A(B-1)/94-B-9 | 314 | 8-72 | 1,455 | 0.500 | 636 | Suspended. |
| | Pacific Townsend d-21-G(2)/94-B-9 | 251 | 8-71 | 1,213 | 0.864 | 1,296 | Suspended. |
| Charlie Lake total | | ——— | ——— | ——— | ——— | ——— | 6,000 |
| Halfway project | Pacific Kobes d-94-I(1)/94-B-8 | 141 | 10-72 | 1,691 | 0.627 | 7,464 | GEP. |
| | Pacific Kobes b-35-A(A-1)/94-B-9 | 177 | 8-72 | 1,610 | 0.588 | 4,952 | GEP. |
| Halfway project total | | ——— | ——— | ——— | ——— | ——— | GEP. |
| Debolt | Pacific Kobes a-99-A(B-1)/94-B-9 | 314 | 10-72 | 1,399 | 0.869 | 4,091 | 2,000 |
| | Pacific Townsend a-20-H(A-1)/94-B-9 | 164 | 8-71 | 2,093 | 0.700 | 892 | Suspended. |
| Field total | | ——— | ——— | ——— | ——— | ——— | 12,000 |
| Kotcho Lake— | | | | | | | |
| Slave Point | West Nat Kotcho b-54-K/94-I-14 | 879 | 2-71 | 2,523 | ——— | ——— | ——— |
| | Pacific Kotcho c-78-K/94-I-14 | 3101 | 3-73 | 2,508 | 0.663 | 9,391 | 2,348 |
| | Pacific Kotcho b-86-K/94-I-14 | 2097 | 2-71 | 2,478 | 0.623 | 96,353 | Suspended. |
| | West Nat Kotcho d-12-C/94-P-3 | 1147 | 3-73 | 2,486 | 0.605 | 56,752 | Suspended. |
| | Pacific Kotcho b-44-C/94-P-3 | 562 | 3-73 | 2,513 | 0.565 | 102,553 | Suspended. |
| | Pacific Kotcho d-70-C/94-P-3 | 2609 | 3-73 | 2,520 | 0.589 | 16,509 | 4,190 |
| | Pacific Kotcho d-100-C/94-P-3 | 2823 | 3-73 | 2,507 | 0.500 | 10,716 | 2,718 |
| | Pacific Kotcho c-31-E/94-P-3 | 2877 | 3-73 | 2,516 | 0.551 | 33,560 | 8,487 |
| | Pacific Kotcho a-67-E/94-P-3 | 3082 | ——— | ——— | ——— | ——— | ——— |
| | Pacific Kotcho b-30-F/94-P-3 | 677 | 3-73 | 2,508 | 0.500 | 41,531 | 10,533 |
| Slave Point project | Pacific Kotcho a-56-K/94-I-14 | 3301 | ——— | ——— | ——— | ——— | ——— |
| | West Nat Kotcho Lake c-67-K/94-I-14 | 404 | 3-73 | 2,521 | 0.853 | 802,603 | GEP. |
| Slave Point total | | ——— | ——— | ——— | ——— | ——— | 28,276 plus GEP. |
| Kotcho Lake East— | | | | | | | |
| Slave Point | Cdn Res Quintana Pac Kotcho d-71-G/94-L-14 | 3308 | 3-73 | 2,544 | 0.644 | 46,359 | 11,590 |
| | West Nat Kotcho Lake d-39-J/94-I-14 | 532. | ——— | ——— | ——— | ——— | ——— |
| | Cdn Res Quintana Kotcho b-43-J/94-I-14 | 3107 | 12-73 | 2,532 | 0.500 | 78,988 | 19,747 |
| Slave Point total | | ——— | ——— | ——— | ——— | ——— | 31,337 |
| LaGarde— | | | | | | | |
| Dunlevy | Texaco NFA LaGarde 7-21-87-15 | 145 | 8-73 | 1,115 | 0.859 | 3,416 | Suspended. |
| Boundary Lake | Texaco NFA LaGarde 10-29-87-15 | 1194 | 8-73 | 1,076 | 0.964 | 10,655 | Suspended. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Laprise Creek— | | | | | | | |
| Baldonnel | Pacific et al Laprise c-12-I/94-G-8 | 2984 | 12-71 | 1,358 | 0.996 | 3,302 | 2,000 |
| | Pacific et al Laprise d-33-I/94-G-8 | 2994 | 1-72 | 1,500 | 0.781 | 3,770 | 2,000 |
| | Pembina Laprise d-55-I/94-G-8 | 3167 | 11-72 | 1,520 | 0.799 | 4,154 | Suspended. |
| | Pacific CIGOL Laprise c-20-L/94-H-5 | 2945 | 10-71 | 1,369 | 0.927 | 6,854 | 2,000 |
| Baldonnel project | Dome Basco Laprise Creek a-81-A/94-G-8 | 490 | 10-72 | 1,094 | 0.500 | 3,407 | ——— |
| | Dome Provo Laprise Creek d-91-A/94-G-8 | 653 | 10-72 | 1,062 | 0.500 | 1,485 | ——— |
| | Dome Provo Laprise Creek b-2-H/94-G-8 | 483 | 8-73 | 1,022 | 0.720 | 7,061 | ——— |
| | Dome Provo Laprise d-4-H/94-G-8 | 1852 | 10-72 | 952 | 0.500 | 3,033 | ——— |
| | Dome Basco Laprise Creek d-13-H/94-G-8 | 474 | 8-73 | 1,093 | 0.500 | 4,583 | ——— |
| | Dome Provo Laprise Creek a-25-H/94-G-8 | 654 | 10-72 | 1,023 | 0.500 | 1,444 | ——— |
| | Dome Provo Laprise Creek a-33-H/94-G-8 | 666 | 8-71 | 1,037 | 0.615 | 4,183 | ——— |
| | Dome Basco Laprise Ck a-35-H/94-G-8 | 327 | 8-73 | 1,138 | 0.544 | 6,368 | ——— |
| | Dome Provo Laprise a-46-H/94-G-8 | 665 | 10-72 | 1,119 | 0.645 | 2,680 | ——— |
| | Dome Provo Laprise a-52-H/94-G-8 | 1445 | 10-72 | 1,018 | 0.500 | 2,825 | ——— |
| | Dome Provo Laprise a-81-H/94-G-8 | 837 | 8-73 | 1,121 | 0.500 | 4,074 | ——— |
| | Dome Provo Laprise d-91-H/94-G-8 | 809 | 8-73 | 1,088 | 0.579 | 6,093 | ——— |
| | Dome Provo Laprise c-92-H/94-G-8 | 1056 | 10-72 | 976 | 0.578 | 2,223 | ——— |
| | Dome Laprise d-37-C/94-H-5 | 1392 | 6-68 | 1,376 | 0.668 | 390 | Suspended. |
| | Pacific et al Laprise a-69-C/94-H-5 | 3038 | 1-72 | 1,291 | 0.744 | 14,339 | ——— |
| | Tenn Monsanto Laprise d-79-C/94-H-5 | 1371 | 10-72 | 1,127 | 0.684 | 4,294 | ——— |
| | Pacific Imp Laprise b-90-C/94-H-5 | 1970 | 11-72 | 1,074 | 0.740 | 3,470 | ——— |
| | Pacific Imp Laprise b-100-C/94-H-5 | 1999 | 11-72 | 1,084 | 0.783 | 17,202 | ——— |
| | Amerada Laprise d-33-D/94-H-5 | 1282 | ——— | ——— | ——— | ——— | ——— |
| | Amerada Laprise d-55-D/94-H-5 | 1468 | 8-71 | 1,246 | 0.667 | 3,265 | ——— |
| | Amerada Laprise d-77-D/94-H-5 | 1378 | 7-73 | 1,257 | 0.521 | 3,946 | ——— |
| | Pacific IOE Laprise a-85-D/94-H-5 | 1948 | 12-72 | 1,223 | 0.500 | 4,821 | Suspended. |
| | Pacific et al Laprise b-88-D/94-H-5 | 3042 | 2-72 | 1,294 | 0.825 | 10,667 | ——— |
| | Amerada Laprise d-95-D/94-H-5 | 1477 | 8-71 | 1,432 | 0.500 | 1,171 | ——— |
| | Pacific et al Laprise c-98-D/94-H-5 | 3192 | ——— | ——— | ——— | ——— | ——— |
| | Pacific IOE Laprise d-3-E/94-H-5 | 1979 | 11-72 | 1,320 | ——— | ——— | ——— |
| | Amerada Laprise a-7-E/94-H-5 | 1337 | 8-71 | 1,385 | 0.500 | 5,709 | ——— |
| | Pacific IOE Laprise d-11-E/94-H-5 | 1364 | ——— | ——— | ——— | ——— | ——— |
| | Pacific Imperial Laprise a-22-E/94-H-5 | 715 | 7-71 | 1,144 | 0.554 | 3,490 | ——— |
| | Pacific Imperial Laprise c-24-E/94-H-5 | 1511 | 12-72 | 1,048 | 0.594 | 1,746 | ——— |
| | Pacific IOE Laprise a-29-E/94-H-5 | 1938 | 11-72 | 1,447 | ——— | ——— | ——— |
| | Dome Provo Laprise b-30-E/94-H-5 | 1837 | 8-73 | 1,053 | 0.649 | 4,153 | ——— |
| | Pacific Imperial Laprise a-33-E/94-H-5 | 690 | 11-72 | 937 | 0.810 | 9,119 | ——— |
| | Dome Provo Laprise c-40-E/94-H-5 | 1251 | 8-73 | 1,028 | 0.770 | 8,720 | ——— |
| | Pacific Imperial Laprise b-44-E/94-H-5 | 659 | 11-72 | 910 | 0.775 | 11,733 | ——— |
| | Pacific Imperial Laprise a-46-E/94-H-5 | 678 | 8-71 | 1,104 | 0.509 | 5,825 | Suspended. |
| | Pacific Imperial Laprise a-49-E/94-H-5 | 1488 | 11-72 | 1,050 | 0.726 | 8,156 | ——— |
| | Pacific Imperial Laprise d-55-E/94-H-5 | 670 | 11-72 | 1,025 | 0.713 | 6,812 | ——— |
| | Pacific Imperial Laprise c-56-E/94-H-5 | 650 | 7-71 | 1,102 | 0.577 | 5,159 | ——— |
| | Pacific Imperial Laprise d-68-E/94-H-5 | 516 | 7-71 | 1,148 | 0.661 | 6,222 | ——— |
| | Dome Provo Laprise c-70-E/94-H-5 | 1225 | 8-73 | 1,102 | 0.510 | 5,656 | ——— |
| | Pacific Imperial Laprise c-78-E/94-H-5 | 551 | 1-73 | 1,093 | 0.700 | 5,649 | ——— |
| | Pacific Imperial Laprise a-99-E/94-H-5 | 1341 | 11-72 | 1,129 | 0.767 | 13,036 | ——— |
| Baldonnel total | | ——— | ——— | ——— | ——— | ——— | GEP plus 6,000 |

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Laprise Creek West— | | | | | | | |
| Baldonnel | Dome CDP C&E W Laprise c-71-G/94-G-8 | 1015 | ---- | ---- | ---- | ---- | Suspended. |
| | Dome CDP C&E W Laprise c-82-G/94-G-8 | 873 | 6-67 | 970 | 0.618 | 2,695 | Suspended. |
| Louise— | | | | | | | |
| Slave Point | Pacific Louise c-40-L/94-P-3 | 2472 | ---- | ---- | ---- | ---- | ---- |
| | Placid Louise c-80-L/94-P-3 | 1570 | 3-65 | 2,315 | ---- | ---- | ---- |
| Milligan Creek— | | | | | | | |
| Gething | Union HB Milligan d-62-G/94-H-2 | 1001 | 12-70 | 1,022 | ---- | ---- | 2,000[6] |
| | Ipex et al Milligan d-76-G/94-H-2 | 2659 | ---- | ---- | ---- | ---- | ---- |
| | Ashland Homestead Milligan d-85-G/94-H-2 | 2644 | 4-70 | 1,024 | 0.880 | 3,535 | Suspended. |
| Montney— | | | | | | | |
| Gething | Pac Sunray Montney 16-32-86-19 (3) | 119 | 9-58 | 1,123 | 1.000 | 814 | Suspended. |
| Cecil | Pac Sunray Montney 14-36-86-19 (2) | 104 | 7-58 | 1,116 | 1.000 | 2,200 | Suspended. |
| Halfway | Pac White Rose Sec Montney 6-5-87-18 | 801 | 7-72 | 1,409 | 0.529 | 1,754 | Suspended. |
| | Pac Sunray Montney 14-31-86-19 (5) | 289 | 7-61 | 1,185 | 0.932 | 2,250 | Suspended. |
| Nig Creek— | | | | | | | |
| Baldonnel | Whitehall ARCo Nig a-87-J/94-A-13 | 2244 | ---- | ---- | ---- | ---- | ---- |
| | Huber Cdn-Sup Total Nig d-73-A/94-H-4 | 3389 | 12-73 | 1,434 | ---- | ---- | ---- |
| | West Nat Nig a-3-B/94-H-4 | 1373 | 7-72 | 1,349 | 0.520 | 1,461 | Suspended. |
| | Pacific Nig b-4-B/94-H-4 | 1728 | 7-72 | 1,026 | 0.637 | 2,455 | 2,000 |
| | Whitehall Nig b-6-B/94-H-4 | 1613 | 7-69 | 1,369 | 0.841 | 7,647 | 2,087 |
| | Monsanto Nig d-13-B/94-H-4 | 1004 | 2-72 | 1,130 | 0.500 | 1,811 | 2,000 |
| | Monsanto Nig a-21-B/94-H-4 | 1475 | 2-72 | 944 | 0.677 | 2,728 | 2,000 |
| | Texaco NFA Nig d-33-B/94-H-4 | 2157 | 3-72 | 1,500 | 0.662 | 720 | Suspended. |
| | Dome Provo Nig d-35-B/94-H-4 | 1139 | 12-72 | 1,143 | 0.595 | 4,384 | 2,000 |
| Baldonnel project | Texaco NFA Nig a-69-A/94-H-4 | 819 | 7-73 | 1,256 | 0.500 | 1,012 | 2,000 |
| | Texaco Gulf Nig d-76-A/94-H-4 | 2761 | 7-73 | 1,355 | 0.665 | 2,559 | ---- |
| | Texaco NFA Nig d-15-B/94-H-4 | 1180 | 7-73 | 1,080 | 0.621 | 6,493 | 2,365 |
| | Texaco NFA Nig c-36-B/94-H-4 | 729 | 7-73 | 1,055 | 0.572 | 4,457 | 2,000 |
| | Texaco et al Nig b-68-B/94-H-4 | 2784 | 7-73 | 1,099 | 0.665 | 3,419 | 2,000 |
| | Texaco NFA Nig Creek b-70-B(9)/94-H-4 | 383 | 8-73 | 1,262 | 0.500 | 2,655 | Suspended. |
| | Texaco NFA Nig d-71-B/94-H-4 | 790 | 8-72 | 1,169 | 1.000 | 1,947 | Suspended. |
| | Texaco NFA Nig d-75-B/94-H-4 | 1681 | 7-73 | 906 | 0.587 | 4,985 | ---- |
| | Texaco NFA Nig a-77-B/94-H-4 | 1762 | 7-73 | 888 | 0.663 | 5,585 | ---- |
| | Texaco NFA Nig Creek a-79-B(1)/94-H-4 | 61 | 7-73 | 1,000 | 0.591 | 5,004 | ---- |
| | Texaco NFA Nig c-90-B/94-H-4 | 1161 | 7-73 | 1,069 | 0.594 | 2,807 | ---- |
| | Texaco NFA Nig Creek a-31-F(7)/94-H-4 | 294 | ---- | ---- | ---- | ---- | Disposal. |
| | Texaco NFA Nig Creek a-1-G/94-H-4 | 456 | 7-73 | 842 | 0.898 | 5,755 | ---- |
| | Texaco NFA Nig Creek b-2-G/94-H-4 | 447 | 7-73 | 899 | 0.564 | 8,913 | ---- |
| | Texaco NFA Nig a-6-G/94-H-4 | 1740 | 7-73 | 860 | 0.571 | 6,537 | ---- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Texaco NFA Nig a-8-G/94-H-4 | 967 | 7-73 | 912 | 0.806 | 22,895 | |
| | Texaco NFA Nig Creek a-12-G(6)/94-H-4 | 131 | 7-73 | 834 | 1.000 | 5,040 | |
| | Texaco NFA Nig c-14-G/94-H-4 | 2178 | 3-72 | 1,311 | 0.670 | 375 | Suspended. |
| | Texaco NFA Nig b-44-G/94-H-4 | 852 | 8-73 | 1,398 | 0.530 | 341 | Abandoned. |
| | Texaco NFA Nig c-6-H/94-H-4 | 1654 | 7-73 | 1,049 | 0.764 | 3,909 | |
| | Texaco NFA Nig c-14-H/94-H-4 | 1707 | 8-73 | 1,166 | 0.631 | 3,490 | Suspended. |
| | Texaco NFA Nig c-33-H/94-H-4 | 1742 | 7-73 | 1,043 | 0.654 | 3,449 | |
| | Texaco NFA Nig b-41-H/94-H-4 | 1976 | 8-73 | 1,234 | 1.000 | 363 | Suspended. |
| Baldonnel project | | | | | | | 80,300 |
| Baldonnel total | | | | | | | 90,387 |
| Nig Creek West— | | | | | | | |
| Baldonnel | Pacific W Nig c-19-C/94-H-4 | 92 | | | | | |
| | Tenn Monsanto W Nig d-39-C/94-H-4 | 1448 | 7-70 | 1,651 | 0.796 | 7,634 | Suspended. |
| North Pine— | | | | | | | |
| North Pine | Pacific et al N Pine 6-24-85-18 | 1994 | 8-72 | 1,285 | 0.583 | 7,493 | 2,377 |
| | Pacific et al N Pine 6-27-85-18 | 1958 | 8-72 | 1,735 | 0.625 | 24,095 | Suspended. |
| Oak— | | | | | | | |
| Cecil | Woods Wainoco Oak 7-2-87-18 | 3216 | 1-73 | 1,676 | 0.803 | 10,093 | 2,523 |
| Halfway | Woods Wainoco Oak 11-24-86-18 | 3269 | | | | | |
| | Woods Wainoco Oak 10-27-86-18 | 3201 | 11-72 | 1,842 | 0.947 | 6,465 | 2,000 |
| | Woods Wainoco Oak 6-35-86-18 | 3171 | 12-72 | 1,849 | 0.982 | 8,721 | 2,180 |
| | Woods Wainoco Oak 7-2-87-18 | 3216 | 12-72 | 1,788 | 0.947 | 1,080 | Abandoned. |
| | Woods Wainoco Ashland Oak 6-18-86-17 | 3363 | | | | | |
| Halfway total | | | | | | | 4,180 |
| Field total | | | | | | | 6,703 |
| Parkland— | | | | | | | |
| Belloy | IOE Pac Parkland 10-26-81-16 | 1355 | 9-64 | 2,945 | 0.500 | 3,650 | Suspended. |
| | Pacific Alcon Parkland 7-27-81-16 | 2250 | 8-68 | 2,976 | 0.835 | 7,900 | Suspended. |
| Wabamun project | Pacific Imp Parkland 10-28-81-15 | 1153 | 11-72 | 2,847 | 0.650 | 4,055 | |
| | Pacific Imp Parkland 6-29-81-15 | 153 | 12-72 | 2,630 | 0.679 | 20,468 | |
| Wabamun total | | | | | | | 20,000 |
| Petitot River— | | | | | | | |
| Slave Point | West Nat Petitot b-90-K/94-P-12 | 722 | | | | | |
| | West Nat Petitot River b-1-D/94-P-13 | 533 | 2-60 | 2,783 | 0.824 | 225,000 | Suspended. |
| | West Nat Petitot River d-24-D/94-P-13 | 403 | | | | | |
| Red Creek— | | | | | | | |
| North Pine | Pacific Red Creek 5-27-85-21 (36) | 93 | 5-65 | 1,267 | 1.000 | 3,308 | Suspended. |
| Halfway | Pacific Red Creek 5-27-85-21 (36) | 93 | 7-65 | 1,437 | 1.000 | 2,434 | Suspended. |
| Redeye— | | | | | | | |
| Halfway | Quasar Amoco Redeye d-69-D/94-H-10 | 3274 | | | | | |
| | Pan Am Redeye d-89-D/94-H-10 | 2442 | 1-69 | 939 | 0.966 | 27,385 | 6,846 |

[6] Lease fuel.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Rigel— | | | | | | | |
| Bluesky | Imp et al Rigel 10-35-88-18 | 2593 | (7) | (7) | (7) | (7) | (7) |
| | ARCo Rigel d-33-I/94-A-10 | 1763 | 11-70 | 981 | ——— | ——— | ——— |
| | IOE et al Rigel d-39-J/94-A-10 | 2686 | 10-70 | 1,118 | 0.509 | 55 | Suspended. |
| Dunlevy | IOE Fina Rigel 7-35-87-18 | 2707 | 7-73 | 804 | 0.500 | 8,843 | Suspended. |
| | Coseka Pem Rigel 10-6-88-18 | 3374 | 9-73 | 1,200 | 1.000 | 598 | 2,000 |
| | IOE et al Rigel d-39-J/94-A-10 | 2686 | 7-73 | 886 | 0.826 | 6,776 | Suspended. |
| | Cabot et al Rigel a-87-K/94-A-10 | 2573 | ——— | ——— | ——— | ——— | ——— |
| Dunlevy project | Denision Rigel 6-31-87-16 | 1372 | 7-73 | 1,014 | 0.765 | 4,732 | Suspended. |
| | Monsanto Rigel 14-23-87-17 | 1973 | ——— | ——— | ——— | ——— | ——— |
| | IOE Fina Rigel 16-24-87-17 | 1739 | 6-69 | 1,040 | ——— | ——— | ——— |
| | Monsanto IOE Fina Rigel 11-26-87-17 | 1486 | 4-72 | 958 | 1.000 | 2,270 | Suspended. |
| | Wintershall Rigel 10-34-87-17 | 1365 | 7-73 | 832 | 0.560 | 3,050 | ——— |
| | Pacific Rigel 6-35-87-17 | 1293 | 7-72 | 890 | 1.000 | 3,341 | Suspended. |
| | Monsanto Rigel 6-36-87-17 | 1354 | 8-73 | 845 | 0.565 | 8,575 | ——— |
| | Whitehall Rigel 11-18-88-16 | 1234 | ——— | ——— | ——— | ——— | ——— |
| | IOE Fina Rigel 7-30-88-16 | 2258 | ——— | ——— | ——— | ——— | ——— |
| | Imp Fina Rigel 8-1-88-17 | 1312 | 12-71 | 927 | ——— | ——— | ——— |
| | Imp Fina Rigel 6-3-88-17 | 1187 | 7-73 | 695 | 0.553 | 6,103 | ——— |
| | Imp Fina Rigel 6-8-88-17 | 1208 | 7-73 | 1,050 | 0.675 | 2,544 | Suspended. |
| | Imp Fina Rigel 6-10-88-17 | 1090 | 7-73 | 736 | 0.582 | 7,211 | ——— |
| | Whitehall Rigel 6-14-88-17 | 1149 | ——— | ——— | ——— | ——— | ——— |
| | Whitehall Rigel 6-15-88-17 | 1148 | 6-71 | 843 | 0.720 | 25,224 | ——— |
| | Imp Fina Rigel 6-16-88-17 | 1168 | 7-73 | 1,250 | ——— | ——— | ——— |
| | Imp et al Rigel 7-19-88-17 | 1107 | 7-73 | 756 | 0.814 | 13,529 | ——— |
| | IOE Fina Rigel 10-25-88-17 | 2127 | 12-71 | 963 | 0.500 | 3,337 | Suspended. |
| | Imp Fina Rigel 4-27-88-17 | 130 | 7-73 | 725 | 0.634 | 4,377 | ——— |
| | Imp Fina Rigel 6-28-88-17 | 1385 | 7-73 | 1,293 | ——— | ——— | ——— |
| | Imp et al Rigel 6-30-88-17 | 1032 | 7-73 | 765 | 0.716 | 12,240 | ——— |
| | IOE Fina Rigel 7-1-88-18 | 2974 | 8-73 | 829 | 0.833 | 1,734 | ——— |
| | IOE Fina Rigel 11-2-88-18 | 2597 | 7-73 | 781 | 0.837 | 14,064 | ——— |
| | Imp Fina Rigel 11-3-88-18 | 1593 | 12-71 | 945 | ——— | ——— | ——— |
| | Woods Rigel 10-8-88-18 | 2795 | 8-73 | 820 | 0.626 | 4,218 | ——— |
| | IOE Fina Rigel 11-11-88-18 | 1494 | 7-73 | 782 | 0.671 | 12,852 | ——— |
| | Imp et al Rigel 7-13-88-18 | 1978 | 7-73 | 757 | 0.669 | 9,558 | ——— |
| | Imp Fina Rigel 10-14-88-18 | 1465 | 7-73 | 790 | 0.663 | 5,021 | ——— |
| | Pacific Rigel 11-15-88-18 | 2572 | 7-72 | 913 | 0.837 | 1,975 | ——— |
| | Sierra Rigel 10-17-88-18 | 2725 | 9-71 | 992 | 0.700 | 1,198 | ——— |
| | Tenn Rigel 6-18-88-18 | 2987 | ——— | ——— | ——— | ——— | Suspended. |
| | Richfield et al Rigel 10-19-88-18 | 1381 | ——— | ——— | ——— | ——— | ——— |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Imp et al Rigel 6-21-88-18 | 1118 | 7-73 | 799 | 0.952 | 4,738 | ——— |
| | Imp et al Rigel 7-23-88-18 | 1163 | 7-73 | 794 | 0.693 | 1,430 | ——— |
| | Sun Rigel 10-24-88-18 | 1324 | 9-70 | 1,000 | 0.675 | 6,267 | ——— |
| | Imp et al Rigel 6-27-88-18 | 828 | 7-73 | 732 | 0.699 | 4,122 | ——— |
| | Texaco NFA Rigel 10-29-88-18 | 1222 | 3-72 | 1,048 | 0.620 | 4,249 | Suspended. |
| | Texaco NFA Rigel 9-31-88-18 (10) | 195 | 6-73 | 835 | 0.685 | 8,262 | ——— |
| | Imp et al Rigel 10-35-88-18 | 2593 | 7-73 | 859[7] | 0.658[7] | 3,923[7] | ——— |
| | Pembina Rigel 10-24-88-19 | 3160 | ——— | ——— | ——— | ——— | ——— |
| | ARCo Rigel a-27-I/94-A-10 | 1620 | 7-73 | 829[7] | 0.777[7] | 9,009[7] | ——— |
| | ARCo Rigel d-33-I/94-A-10 | 1763 | 7-73 | 993 | ——— | ——— | ——— |
| | IOE Fina Rigel d-57-I/94-A-10 | 1537 | 7-73 | 853 | 0.676 | 3,036 | ——— |
| | Imp IOE Fina Rigel a-21-J/94-A-10 | 2054 | 7-73 | 660 | 0.760 | 10,451 | ——— |
| | IOE et al Rigel c-56-J/94-A-10 | 2537 | 7-73 | 845 | 0.594 | 9,013 | ——— |
| | IOE Fina Rigel c-60-J/94-A-10 | 2400 | 7-73 | 834 | 0.622 | 9,080 | ——— |
| | IOE Fina Rigel a-89-J/94-A-10 | 2354 | 7-73 | 969 | 0.788 | 1,349 | Suspended. |
| | Imp et al Rigel b-22-K/94-A-10 | 1003 | ——— | ——— | ——— | ——— | ——— |
| | Texaco NFA Rigel a-28-K/94-A-10 | 1370 | 6-73 | 821 | 0.660 | 1,258 | ——— |
| | IOE Fina Rigel d-71-K/94-A-10 | 2726 | 7-73 | 837 | 0.734 | 10,394 | ——— |
| Dunlevy total | | ——— | ——— | ——— | ——— | ——— | GEP plus 2,000 |
| Rigel East— | | | | | | | |
| Dunlevy | Texaco NFA E Rigel 10-12-88-16 | 1192 | 2-63 | 1,335 | 0.660 | 3,270 | Suspended. |
| | Tenn E Rigel 6-23-88-16 | 1275 | 12-71 | 1,330 | ——— | ——— | ——— |
| Halfway | Texaco NFA E Rigel 13-26-88-16 (4) | 160 | 1-69 | 1,532 | 0.800 | 3,500 | 2,000 |
| Sierra— | | | | | | | |
| Pine Point | Socony Mobil Sierra c-78-C/94-I-14 | 1602 | 2-68 | 3,450 | 0.662 | 610,000 | Abandoned. |
| | Mobil Sierra c-A78-C/94-I-14 | 2596 | 5-72 | 3,342 | 0.896 | 374,938 | 96,466 |
| | Socony Mobil Sierra c-91-D/94-I-14 | 1659 | 5-72 | 3,330 | 0.500 | 69,182 | 17,635 |
| Pine Point total | | ——— | ——— | ——— | ——— | ——— | 114,101 |
| Siphon— | | | | | | | |
| Dunlevy | Pacific Westcoast Siphon 11-28-86-16 | 3133 | 5-73 | 1,340 | 0.656 | 24,469 | 6,366 |
| | Pacific Westcoast Siphon A7-33-86-16 | 3118 | 5-73 | 1,333 | 0.843 | 20,682 | 5,454 |
| | Pacific West Prod Siphon 7-34-86-16 | 2581 | 5-73 | 1,296 | 0.578 | 15,440 | 4,062 |
| | Kissinger Vaughey Siphon 6-2-87-16 | 2952 | 5-73 | 1,203 | 0.713 | 3,996 | 2,000 |
| | Kissinger Vaughey Siphon 7-3-87-16 | 3077 | 4-73 | 1,331 | 0.695 | 42,668 | 11,230 |
| Dunlevy total | | ——— | ——— | ——— | ——— | ——— | 29,112 |
| Baldonnel | Pacific et al Siphon 11-27-86-16 | 444 | 10-69 | 1,430 | ——— | ——— | Suspended. |
| | Dome Siphon 10-12-87-16 | 2446 | 1-70 | 1,381 | 0.966 | 1,550 | Suspended. |
| Siphon | Texex Siphon 10-22-86-16 | 3196 | ——— | ——— | ——— | ——— | ——— |
| | Pacific et al Siphon 11-27-86-16 | 444 | 7-72 | 1,423 | 0.907 | 5,200 | 2,000 |
| | Pacific West Prod Siphon 7-34-86-16 | 2581 | 5-73 | 1,365 | 0.926 | 5,437 | 2,000 |
| | Kissinger Vaughey Siphon 6-11-87-16 | 3100 | 3-72 | 1,533 | 0.827 | 3,116 | Suspended. |
| | Dome Siphon 10-12-87-16 | 2446 | ——— | ——— | ——— | ——— | ——— |
| Siphon total | | ——— | ——— | ——— | ——— | ——— | 4,000 |

[7] Bluesky and Dunlevy without segregation.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Siphon—*Continued* | | | | | | | |
| Halfway | Pacific et al Siphon 11-27-86-16 | 444 | 7-72 | 1,039 | 0.720 | 3,533 | 2,000 |
| | Pacific Westcoast Siphon 11-28-86-16 | 3133 | 5-73 | 1,569 | 0.879 | 42,180 | 11,380 |
| | Woods Anadarko Siphon 7-31-86-16 | 3055 | ——— | ——— | ——— | ——— | ——— |
| | Kissinger Vaughey Siphon 7-33-86-16 | 2972 | 5-73 | 1,293 | 0.977 | 9,302 | 2,995 |
| | Kissinger Vaughey Siphon 6-2-87-16 | 2952 | 5-73 | 1,359 | 0.988 | 1,509 | 2,000 |
| Halfway total | | ——— | ——— | ——— | ——— | ——— | 18,275 |
| Field total | | ——— | ——— | ——— | ——— | ——— | 51,487 |
| Stoddart— | | | | | | | |
| Belloy | Pacific et al Stoddart 6-29-85-18 | 2262 | 8-72 | 2,192 | 0.892 | 1,243 | 2,000 |
| | Mesa et al Stoddart 6-31-85-18 | 2539 | 6-73 | 1,371 | 0.747 | 2,996 | 2,000 |
| | Apache Dunbar Stoddart 11-23-85-19 | 2548 | 10-69 | 2,384 | 0.920 | 3,140 | Abandoned. |
| | Apache Dunbar Stoddart 6-26-85-19 | 2409 | 12-70 | 2,119 | 0.751 | 14,689 | 4,021 |
| | Jeff Lake Mesa Stoddart 11-34-85-19 | 1959 | ——— | ——— | ——— | ——— | ——— |
| | Pacific et al Stoddart 10-35-85-19 | 2182 | 10-72 | 1,614 | 0.718 | 16,153 | 5,331 |
| | Pacific Stoddart 11-2-86-19 | 2155 | 10-72 | 1,550 | 0.621 | 20,395 | 6,672 |
| | Dome Provo Stoddart 11-8-86-19 | 1902 | 9-72 | 1,080 | 0.649 | 4,128 | 2,000 |
| | Pacific Stoddart 6-10-86-19 | 2078 | 8-72 | 1,470 | 0.880 | 1,220 | 2,000 |
| | Jeff Lake Altair Stoddart 6-11-86-19 | 1841 | 8-72 | 1,597 | 0.754 | 23,376 | 7,839 |
| | Pacific et al Stoddart 11-16-86-19 | 1473 | 8-72 | 1,468 | 0.630 | 2,590 | 2,000 |
| | Whitehall Stoddart 6-17-86-19 | 1770 | 6-69 | 1,395 | 1.000 | 3,341 | 2,000 |
| | Pacific et al Stoddart 11-18-86-19 | 2562 | 10-72 | 1,167 | 0.729 | 12,197 | 5,622 |
| | Pacific Stoddart 6-19-86-19 | 2575 | 6-73 | 1,159 | 0.654 | 9,388 | 3,934 |
| | Pacific et al Stoddart 10-1-86-20 | 438 | ——— | ——— | ——— | ——— | Suspended. |
| | Pacific Stoddart 2-13-86-20 (90) | 262 | 10-72 | 1,129 | 0.756 | 19,795 | 8,472 |
| | Pacific Stoddart 4-24-86-20 (85) | 244 | 6-73 | 1,093 | 0.927 | 17,020 | 8,268 |
| Belloy total | | ——— | ——— | ——— | ——— | ——— | 62,159 |
| Stoddart West— | | | | | | | |
| Halfway | Pacific W Stoddart 6-22-86-20 | 2999 | 1-72 | 1,928 | 0.597 | 9,972 | Abandoned. |
| Belloy | Woods W Stoddart 11-7-86-20 | 2814 | 9-71 | 2,639 | 0.784 | 19,344 | 4,836 |
| | Pacific W Stoddart 11-10-86-20 | 1190 | 8-72 | 1,382 | 0.625 | 6,514 | Suspended. |
| | Woods W Stoddart 10-18-86-20 | 2786 | 2-71 | 2,438 | 0.779 | 5,631 | Suspended. |
| | Woods W Stoddart 11-19-86-20 | 2737 | 8-71 | 2,324 | 0.784 | 2,079 | 2,000 |
| | Pacific et al W Stoddart 11-30-86-20 | 2199 | 10-72 | 2,050 | 0.692 | 12,042 | 2,879 |
| | Pacific et al W Stoddart 7-5-87-20 | 2338 | 10-72 | 2,032 | 1.000 | 5,827 | 2,000 |
| | Pacific Apache W Stoddart 10-8-87-20 | 3009 | ——— | ——— | ——— | ——— | ——— |
| | Trend et al W Stoddart 6-16-87-20 | 2780 | 3-71 | 2,132 | 0.869 | 2,633 | 2,000 |
| Belloy total | | ——— | ——— | ——— | ——— | ——— | 13,715 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sunrise— | | | | | | | |
| Paddy | Horizon Sunrise 11-6-79-16 | 2560 | —— | —— | —— | —— | —— |
| | Pacific Horizon 10-7-79-16 (3) | 15 | 5-71 | 734 | —— | —— | —— |
| Upper Cadotte | Great Northern Sunrise A11-6-79-16 | 2878 | 3-71 | 632 | 0.724 | 707 | Abandoned. |
| Cadotte | Pacific Sunrise 11-31-78-16 (6A) | 19 | —— | —— | —— | —— | —— |
| | Horizon Sunrise 11-4-79-16 | 2569 | 8-70 | 770 | —— | —— | —— |
| | Horizon Sunrise 11-5-79-16 | 2559 | 8-70 | 683 | —— | —— | —— |
| | Great Northern Sunrise A11-6-79-16 | 2878 | 2-71 | 721 | 0.625 | 2,398 | Suspended. |
| | GNPM Sunrise 6-7-79-16 | 2983 | 12-71 | 708 | 0.930 | 1,730 | 2,000 |
| | Horizon Sunrise 10-8-79-16 | 2538 | 12-69 | 714 | —— | —— | —— |
| | Pacific Sunrise 10-9-79-16 (4) | 17 | —— | —— | —— | —— | —— |
| | Horizon Sunrise 11-9-79-16 | 2564 | 8-70 | 730 | —— | —— | —— |
| | GNPM Arlington Sunrise 11-2-79-17 | 3360 | —— | —— | —— | —— | —— |
| | GNPM Sunrise 7-12-79-17 | 2772 | —— | —— | —— | —— | —— |
| Tsea— | | | | | | | |
| Slave Point | Texaco NFA Tsea b-68-K/94-P-5 | 704 | 3-62 | 2,646 | 0.628 | 76,650 | Suspended. |
| | Texaco NFA Tsea b-99-K/94-P-5 | 1426 | 3-64 | 2,734 | 0.523 | 12,600 | Suspended. |
| Two Rivers— | | | | | | | |
| Baldonnel | Champlin et al Two Rivers 6-9-83-16 | 2139 | 6-72 | 1,705 | —— | —— | Suspended. |
| Siphon | Champlin Two Rivers 10-5-83-16 | 2064 | 5-71 | 1,533 | 0.924 | 6,635 | 2,000 |
| Halfway | Champlin et al Two Rivers 6-9-83-16 | 2139 | 6-72 | 1,821 | 0.878 | 38,422 | 11,377 |
| Field total | | —— | —— | —— | —— | —— | 13,377 |
| Weasel— | | | | | | | |
| Baldonnel | Sinclair Pacific Weasel d-93-J/94-A-15 | 1790 | 12-65 | 1,113 | 0.675 | 6,050 | 2,000 |
| Halfway | Tenn Ashland Weasel d-27-B/94-H-2 | 1703 | 10-65 | 1,248 | 0.754 | 1,070 | Suspended. |
| Wilder— | | | | | | | |
| Halfway project | Wainoco Woods Wilder 10-19-83-19 | 2793 | 8-73 | 1,884 | 0.730 | 29,463 | —— |
| | Wainoco Woods Wilder 7-30-83-19 | 2773 | 10-72 | 1,786 | 0.866 | 17,266 | —— |
| Halfway project | PRL—— | —— | —— | —— | —— | —— | 12,500 |
| Belloy | Amerada Rae Wilder 11-17-83-19 | 697 | —— | —— | —— | —— | —— |
| | Wainoco Woods Wilder 11-20-83-19 | 2708 | 8-70 | 2,602 | 1.000 | 1,132 | Suspended. |
| Wildmint— | | | | | | | |
| Bluesky | Union HB Wildmint d-25-A/94-H-2 | 919 | 11-72 | 1,041 | —— | —— | —— |
| Willow— | | | | | | | |
| Halfway | Union HB Willow d-11-G/94-H-2 | 1292 | 3-73 | 704 | 0.741 | 3,026 | Suspended. |
| | Union HB Willow b-10-H/94-H-2 | 830 | 9-73 | 637 | 0.510 | 15,077 | 6,947 |
| Yoyo— | | | | | | | |
| Slave Point | West Nat et al Yoyo a-74-H/94-I-13 | 887 | 3-62 | 2,686 | 0.791 | 185,000 | —— |
| Pine Point | West Nat et al Yoyo a-74-H/94-I-13 | 887 | 3-73 | 2,579 | 0.536 | 13,954 | 3,489 |
| | BVX Mesa Redwater Yoyo b-86-H/94-I-13 | 2907 | 3-73 | 2,612 | 0.588 | 23,152 | 5,788 |
| | Pacific Placid Yoyo d-95-H/94-I-13 | 1634 | —— | —— | —— | —— | Disposal. |
| | Pacific Yoyo d-12-I/94-I-13 | 2602 | 3-71 | 2,754 | 0.581 | 249,608 | 62,402 |
| | Placid Frontier Yoyo b-24-I/94-I-13 | 1895 | 3-67 | 2,883 | 0.845 | 132,000 | Suspended. |
| | West Nat et al Yoyo b-29-I/94-I-13 | 1230 | 1-64 | 2,921 | 0.577 | 3,500 | Suspended. |
| | Uno-Tex Hamilton Yoyo c-34-I/94-I-13 | 2229 | 2-68 | 2,838 | 0.640 | 92,000 | Suspended. |

## TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Yoyo—*Continued* | West Nat Yoyo b-98-E/94-I-14 | 1405 | 3-73 | 2,571 | 0.533 | 101,710 | 27,428 |
| | Pacific Yoyo a-2-L/94-I-14 | 2271 | 3-71 | 2,795 | 0.684 | 89,523 | 23,175 |
| | Pacific Yoyo d-7-L/94-I-14 | 2035 | 3-73 | 2,583 | 0.600 | 104,763 | 28,173 |
| | Placid Frontier Yoyo b-10-L/94-I-14 | 1569 | 3-65 | 3,021 | 0.643 | 63,000 | Suspended. |
| | Frontier Yoyo c-18-L/94-I-14 | 1431 | 3-73 | 2,571 | 0.596 | 222,212 | 60,211 |
| | West Nat et al Yoyo b-24-L/94-I-14 | 1313 | 1-73 | 2,598 | 0.524 | 78,787 | 20,965 |
| | Tenn Altair Yoyo a-47-L/94-I-14 | 1831 | 7-72 | 2,661 | 0.693 | 209,828 | 56,047 |
| | Uno-Tex Hamilton Yoyo a-49-L/94-I-14 | 2068 | 3-71 | 2,761 | 1.000 | 288,903 | 72,226 |
| Pine Point total | | | | | | | 359,904 |
| Other areas— | | | | | | | |
| Cadotte | Westcoast Pouce Coupe 8-18-80-13 (6) | | 7-60 | 595 | | | |
| | Westcoast Pouce Coupe 6-30-80-13 (1) | | | | | | |
| Notikewin | Westcoast Kiskatinaw 8-30-80-14 (5) | | | | | | |
| Bluesky | Pacific Westcoast Pouce 7-30-80-13 | 2995 | | | | | |
| | Texaco NFA Junction b-9-F(12)/94-A-15 | 300 | 8-73 | 983 | 0.539 | 9,462 | 2,506 |
| | Pacific et al Caribou d-27-H/94-A-16 | 3117 | | | | | |
| | Imp Fina Altares a-83-A/94-B-8 | 410 | 3-71 | 1,238 | | | Suspended. |
| | Union HB Gulf Ladyfern d-77-H/94-H-1 | 2615 | 3-70 | 1,047 | 0.729 | 6,016 | 2,000 |
| | Dome Antelope a-63-L/94-H-1 | 3142 | | | | | |
| | Triad BP Pickell Creek c-88-I/94-H-3 | 695 | | | | | |
| | Triad BP Birley d-17-A/94-H-6 | 987 | | | | | |
| | GPD et al Gleam d-90-J/94-H-6 | 3108 | | | | | |
| | Texaco NFA Silver c-52-K/94-H-6 | 571 | | | | | |
| | Pan Am Dome Silver d-81-L/94-H-6 | 2406 | | | | | |
| | Dome Nettle b-44-A/94-H-7 | 3126 | | | | | |
| | Texaco NFA Judy c-53-D/94-P-6 | 717 | | | | | |
| Bluesky total | | | | | | | 4,506 |
| Gething | Texcan N Nancy d-46-I/94-A-15 | 1905 | | | | | |
| | Union HB Beaverdam d-64-L/94-A-16 | 1825 | | | | | |
| | Union ROC Firebird d-89-D/94-H-2 | 707 | 3-71 | 1,091 | 0.811 | 6,713 | Suspended. |
| Dunlevy | Texaco NFA E Osborn a-45-J/94-A-9 | 1257 | | | | | |
| | Anadarko Cdn-Sup Buick d-39-L/94-A-10 | 3366 | | | | | |
| | Fina Bearberry d-95-L/94-A-11 | 3240 | | | | | |
| | SOC et al Inga d-55-B/94-A-13 | 3376 | 10-73 | 1,340 | 0.841 | 2,071 | 2,000 |
| | SOC et al W Jeans c-78-B/94-A-13 | 3227 | | | | | Suspended. |
| | HB BA Union Lime c-80-C/94-H-1 | 122 | | | | | |
| Baldonnel | Pacific Westcoast Pouce 7-30-80-13 | 2995 | | | | | |
| | Westcoast Pingel 13-11-81-17 (8) | 4 | | | | | |
| | Pacific Ft St John 12-7-84-18 (19) | 62 | 8-70 | 1,503 | 0.770 | 1,977 | Suspended. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Pacific Ft St John 1-15-84-19 (5) | 30 | 9-52 | 1,594 | — | — | — |
| | Wainoco Ft St John 11-23-84-19 | 3122 | — | — | — | — | — |
| | Wainoco Ft St John 6-24-84-19 | 3060 | 7-72 | 1,587 | — | — | Abandoned. |
| | Sinclair Bear Ck 11-18-84-20 (B2-3) | 243 | — | — | — | — | — |
| | White Rose Sec Montney 10-29-86-18 | 1130 | 9-62 | 1,520 | 0.669 | 1,640 | Suspended. |
| | Tenn LaGarde 6-35-87-15 | 1200 | 11-63 | 1,665 | 0.754 | 1,250 | Suspended. |
| Baldonnel | Texaco NFA E Osborn 6-33-88-14 | 1319 | 1-69 | 1,309 | 0.746 | 1,168 | 2,000 |
| | TGS Falls c-32-F/93-O-9 | 2230 | — | — | — | — | — |
| | Hunt Sands Sun Falls c-18-G/93-O-9 | 1028 | — | — | — | — | — |
| | Triad BP Sukunka a-43-B/93-P-5 | 1517 | 9-65 | 4,601 | 0.637 | 120,000 | Suspended. |
| | Whitehall Numac Nig a-49-J/94-A-13 | 2012 | 1-67 | 1,578 | 1.000 | 1,100 | Abandoned. |
| | Altair Sarcee C&E Zeke c-34-L/94-A-14 | 1332 | — | — | — | — | — |
| | Pacific et al Coyote d-51-C/94-A-16 | 3125 | 4-72 | 1,225 | 0.763 | 10,291 | 2,573 |
| | Texaco NFA Cameron River b-49-L(1)/94-B-9 | 120 | — | — | — | — | — |
| | HB Cypress a-92-K/94-B-10 | 2365 | 3-71 | 1,960 | 0.630 | 53,208 | Suspended. |
| | FPC Richfield Daiber c-56-D/94-B-16 | 432 | 9-71 | 2,008 | 0.573 | 1,166 | 2,000 |
| | FPC Richfield Daiber c-76-D(1)/94-B-16 | 386 | 9-71 | 2,011 | 0.726 | 11,289 | Suspended. |
| | Woods Amerada N Julienne d-33-H/94-G-2 | 2574 | 2-70 | 1,961 | 1.000 | 540 | 2,000 |
| | Sinclair et al N Julienne c-54-H/94-G-2 | 757 | 8-71 | 1,944 | — | — | — |
| | Uno-Tex et al Lily d-67-K/94-G-2 | 3088 | — | — | — | — | — |
| | Pan Am Dome Sikanni b-43-B/94-G-7 | 1335 | 9-63 | 1,726 | 0.832 | 5,500 | Suspended. |
| | Union ARCo Firebird d-43-D/94-H-2 | 2060 | — | — | — | — | — |
| | Pacific Sunray Imp Sojer a-61-L/94-H-4 | 472 | — | — | — | — | — |
| | Champlin Bass Martin c-91-B/94-H-5 | 2245 | — | — | — | — | — |
| | Ashland CK Tb Wargen d-19-B/94-H-6 | 2119 | — | — | — | — | — |
| Baldonnel total | | | | | | | 8,573 |
| Charlie Lake | Richfield-Prespatou Crk d-59-A(1)/94-H-3 | 240 | — | — | — | — | — |
| Siphon | Union HB Alder c-39-I/94-H-2 | 721 | 3-70 | 907 | — | — | — |
| Coplin | TPPL et al W Inga 6-11-87-24 | 3070 | — | — | — | — | — |
| | TPPL et al W Inga 10-17-87-24 | 3121 | 9-72 | 2,109 | — | — | — |
| | Union Silverberry 6-16-88-20 | 3076 | 1-73 | 1,857 | 0.961 | 143,848 | 35,962 |
| | Texaco NFA Redeye d-69-I/94-H-6 | 1549 | — | — | — | — | — |
| Inga | Westcoast et al Goose 6-5-85-21 | 2989 | 11-72 | 1,857 | 0.814 | 6,551 | Suspended. |
| Pingel | Pacific et al Pingel 13-17-81-17 (1) | 36 | — | — | — | — | Suspended. |
| | Pacific Pingel Creek 5-26-81-18 (2) | 66 | — | — | — | — | — |
| "A" Marker | Dome Drake b-48-F/94-H-1 | 3141 | — | — | — | — | — |
| Halfway | HB et al Moberly 16-20-79-25 | 3174 | — | — | — | — | — |
| | Wainoco Ft St John 11-12-84-19 | 3010 | 1-72 | 1,953 | 0.891 | 4,996 | 2,000 |
| | Wainoco Ft St John 6-24-84-19 | 3060 | — | — | — | — | — |
| | Pacific Wilder 13-1-84-20 (14) | 47 | 12-53 | 2,035 | 0.780 | 5,500 | Suspended. |
| | Cankee CIGOL Melanie d-68-K/94-A-9 | 1859 | — | — | — | — | — |
| | Sinclair Pacific Mink d-88-A/94-A-15 | 1564 | — | — | — | — | — |
| | Dome et al W Peejay d-31-G/94-A-15 | 1927 | — | — | — | — | — |
| | GraMic Scurry et al N Nancy d-30-I/94-A-15 | 2713 | — | — | — | — | — |
| | Pacific SR CanDel Beaverdam d-71-I/94-A-15 | 2101 | 4-67 | 1,323 | 0.794 | 4,400 | Suspended. |
| | Pacific SR CanDel W Dede b-45-K/94-A-15 | 1271 | 3-63 | 1,411 | 0.700 | 5,600 | Suspended. |
| | Union HB Spruce d-74-B/94-A-16 | 2664 | — | — | — | — | — |
| | ARCo et al E Bulrush d-93-F/94-A-16 | 2603 | — | — | — | — | — |

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1973—*Continued*

| Field/Pool/Project | Well Name | Well Authorization No. | Date | Pws (Psia) | "n" | AOFP (MSCF/D) | PRL (MSCF/D) |
|---|---|---|---|---|---|---|---|
| Other areas—*Continued* | | | | | | | |
| Halfway—*Continued* | Sinclair et al Graham c-53-D(B5-1)/94-B-9 | 238 | ---- | ---- | ---- | ---- | ---- |
| | Texaco NFA Cameron River d-43-H/94-B-10 | 433 | 2-60 | 3,861 | ---- | ---- | ---- |
| | Pacific S Julienne b-70-K/94-B-16 | 2779 | ---- | ---- | ---- | ---- | Suspended. |
| | Texaco Tepee d-99-G/94-G-8 | 1432 | ---- | ---- | ---- | ---- | ---- |
| | Pacific Tepee d-31-K/94-G-8 | 3342 | ---- | ---- | ---- | ---- | ---- |
| | Mesa et al Prophet c-97-D/94-G-15 | 2160 | ---- | ---- | ---- | ---- | ---- |
| | Fina Tommy Lakes a-29-A/94-G-16 | 566 | 3-60 | 768 | 0.554 | 2,850 | Suspended. |
| | Ashland Cankee Tb Snowberry b-57-D/94-H-1 | 1892 | ---- | ---- | ---- | ---- | ---- |
| | Bracell et al Harrier d-18-B/94-H-2 | 2789 | 12-70 | 1,278 | ---- | ---- | ---- |
| | Richfield et al Big Arrow c-71-F(1)/94-H-2 | 159 | ---- | ---- | ---- | ---- | ---- |
| | CIGOL S Milligan d-24-G/94-H-2 | 3135 | ---- | ---- | ---- | ---- | ---- |
| | Placid Banner Sandy d-28-G/94-H-2 | 2496 | ---- | ---- | ---- | ---- | ---- |
| | Union et al W Milligan c-50-G/94-H-2 | 1266 | 3-63 | 1,256 | 0.717 | 14,000 | Suspended. |
| | CIGOL Ashland Beatton d-99-G/94-H-2 | 3112 | ---- | ---- | ---- | ---- | ---- |
| | Union HB Bluebell d-22-H/94-H-2 | 2296 | ---- | ---- | ---- | ---- | ---- |
| | KCL et al Woodrush d-83-H/94-H-2 | 2115 | ---- | ---- | ---- | ---- | ---- |
| | Triad BP Pickell b-84-I/94-H-3 | 908 | ---- | ---- | ---- | ---- | ---- |
| | Triad BP Birley a-5-A/94-H-6 | 724 | ---- | ---- | ---- | ---- | ---- |
| | Lobitos Black d-57-F/94-H-6 | 1315 | ---- | ---- | ---- | ---- | ---- |
| | Dome Nettle b-44-A/94-H-7 | 3126 | ---- | ---- | ---- | ---- | ---- |
| | HB Union Bogbean b-6-B/94-H-8 | 3297 | ---- | ---- | ---- | ---- | ---- |
| | Quasar Amoco Redeye d-69-D/94-H-10 | 3274 | ---- | ---- | ---- | ---- | ---- |
| Permo-Carboniferous | Texaco NFA East Osborn a-33-J(7)/94-A-9 | 322 | 1-69 | 1,937 | 0.624 | 8,070 | 2,018 |
| | CSP Town c-69-J/94-B-16 | 315 | 8-61 | 1,992 | ---- | ---- | ---- |
| | Mesa et al Moose Lick b-8-K/94-G-2 | 2185 | 1-68 | 2,784 | 0.625 | 15,300 | Suspended. |
| | BA HB W Pocketknife d-33-I/94-G-6 | 1393 | 8-64 | 2,054 | 0.789 | 121,083 | Suspended. |
| Belloy | FPC Kilkerran 12-31-78-14 | 154 | 8-66 | 3,473 | 1.000 | 1,450 | Suspended. |
| | Pacific Two Rivers 2-27-82-16 (37) | 135 | ---- | ---- | ---- | ---- | ---- |
| | Wainoco Francana Pluto 10-27-85-17 | 2992 | ---- | ---- | ---- | ---- | ---- |
| | Pacific Red Creek 6-7-85-20 (39) | 102 | ---- | ---- | ---- | ---- | ---- |
| | Apache Woods W Stoddard 10-14-87-21 | 2777 | 9-71 | 2,291 | 0,721 | 996 | 2,000 |
| Mississippian | Pacific et al Jackfish c-97-H/94-J-7 | 3097 | ---- | ---- | ---- | ---- | ---- |
| | Aquit et al Tattoo a-78-L/94-0-10 | 3291 | ---- | ---- | ---- | ---- | ---- |
| | Aquit AmMin et al Windflower d-87-A/94-0-11 | 3330 | 3-73 | 534 | 1.000 | 32,727 | 8,182 |
| Upper Kiskatinaw | Sinclair et al Doe 6-16-81-14(B6-1) | 230 | 7-72 | 3,016 | 0.500 | 2,706 | 2,000 |
| | Home et al Attachie 7-20-84-22 | 2961 | 3-73 | 2,872 | 1.000 | 11,550 | 2,888 |
| Upper Kiskatinaw total | | ---- | ---- | ---- | ---- | ---- | 4,888 |
| Debolt | SOC et al Graham b-21-D/94-B-9 | 3158 | ---- | ---- | ---- | ---- | ---- |
| | Sinclair et al Lily d-12-K(XB 18-1)/94-G-2 | 385 | 8-71 | 2,917 | ---- | ---- | Suspended. |
| | ARCo Pacific FPC Grassy a-A75-D/94-G-7 | 2687 | 6-70 | 2,132 | 1.000 | 181,349 | 45,349 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | HB Pacific Pocketknife c-37-L/94-G-7 | 468 | 7-60 | 1,727 | 0.642 | 26,600 | Suspended. |
| | Mesa et al Prophet c-97-D/94-G-15 | 2160 | — | — | — | — | — |
| | West Nat Bougie Creek a-49-I/94-G-15 | 138 | — | — | — | — | — |
| | Wainoco Pennzoil Kyklo c-79-I/94-I-11 | 3050 | — | — | — | — | — |
| | Texaco NFA Walrus b-86-L/94-I-16 | 947 | — | — | — | — | — |
| | Pacific S Ft Nelson b-96-B(1)/94-J-10 | 348 | 5-58 | 1,051 | 0.599 | 2,350 | Suspended. |
| Banff | Dome et al Imp Slave d-10-I/94-H-11 | 2225 | 3-68 | 2,684 | 0.500 | 1,400 | Suspended. |
| | Pacific et al Ekwan a-55-G/94-I-10 | 897 | — | — | — | — | — |
| Jean Marie | Placid Hunt Amoco Niteal a-58-E/94-I-3 | 2611 | — | — | — | — | — |
| Slave Point | HB Imperial Union Paddy a-49-B(1)/94-H-16 | 129 | 8-55 | 3,114 | 1.000 | 8,250 | Suspended. |
| | Atlantic Tees a-16-J/94-I-6 | 1542 | — | — | — | — | — |
| | IOE Junior c-3-C/94-I-11 | 1249 | 3-63 | 2,696 | 0.500 | 4,700 | Suspended. |
| | Imp Junior c-98-C/94-I-11 | 926 | 3-62 | 2,714 | 0.500 | 90,000 | Suspended. |
| | Mobil Sahtaneh c-70-I/94-I-12 | 2436 | 3-69 | 2,746 | 0.781 | 3,610 | Suspended. |
| | Pacific Sextet c-22-K/94-I-12 | 2884 | 3-71 | 2,690 | 0.692 | 4,373 | 2,000 |
| | Atkinson Helmet Gunnel a-97-K/94-I-12 | 2629 | — | — | — | — | — |
| | Pacific Gunnel c-95-L/94-I-12 | 1239 | 2-63 | 2,648 | — | — | — |
| | Cdn Res Quintana Adsett a-36-G/94-J-2 | 3032 | 8-72 | 3,542 | 0.566 | 7,409 | 2,000 |
| | Pacific et al Jackfish a-30-K/94-J-8 | 999 | 1-63 | 1,955 | — | — | — |
| | BA Shell Klua Creek a-50-C(1)/94-J-9 | 157 | — | — | — | — | — |
| | Mesa Pubco S Clarke b-75-F/94-J-9 | 2817 | 5-73 | 2,777 | 0.563 | 59,712 | 14,928 |
| | West Nat Imp Clarke Lake b-78-J/94-J-9 | 700 | 12-68 | 3,331 | — | — | — |
| | Pacific et al Milo c-43-E/94-J-10 | 2260 | — | — | — | — | — |
| | IOE E Clarke b-6-A/94-J-16 | 1576 | 3-67 | 3,146 | 0.685 | (8) | Suspended. |
| | Pan Am A-1 Cam Lake a-31-I/94-O-16 | 594 | — | — | — | — | — |
| | SOBC Helmet b-49-G/94-P-7 | 1279 | — | — | — | — | — |
| | Tenn FPC Tooga d-18-K/94-P-2 | 2066 | — | — | — | — | — |
| | FPC Chevron Peggo b-53-I/94-P-7 | 2453 | 2-70 | 2,322 | 0.724 | 751 | 2,000 |
| | GAOL GERC Helmet c-40-K/94-P-7 | 2839 | 3-71 | 2,349 | — | — | — |
| | Huber Quintana et al Hostli a-74-G/94-P-8 | 2902 | 1-72 | 2,123 | 0.560 | 10,545 | 2,636 |
| | Huber Quintana Amoco Hostli d-81-G/94-P-8 | 3056 | — | — | — | — | — |
| | Pan Am et al Dilly a-30-K/94-P-12 | 877 | 3-62 | 2,766 | 1.000 | 14,700 | Suspended. |
| | CanDel Barnwell HB Hoss b-82-G/94-P-14 | 2234 | — | — | — | — | — |
| Slave Point total | | — | — | — | — | — | 23,564 |
| Sulphur Point | Socony Mobil Swat b-50-F/94-I-5 | 1835 | — | — | — | — | — |
| | Apache CPOG IOE Clarke d-24-I/94-J-9 | 2470 | 2-70 | 2,823 | — | — | — |
| | BP et al Gote d-37-D/94-P-12 | 3063 | 3-72 | 3,232 | — | — | — |
| Pine Point | Socony Mobil S Sierra a-98-K/94-I-11 | 1814 | 2-67 | 3,623 | 1.000 | 188,000 | Suspended. |
| | Penzl Mesa Fontas d-77-H/94-J-8 | 3268 | — | — | — | — | — |
| | Penzl Mesa Fontas a-36-C/94-J-9 | 3235 | — | — | — | — | — |
| | Atapco et al Klua b-19-G/94-J-9 | 3241 | — | — | — | — | — |
| | Pan Am A-1 Komie a-51-A/94-O-8 | 527 | 3-70 | 3,713 | — | — | — |
| | Texaco NFA Missle d-54-A/94-O-9 | 2232 | 3-68 | 3,728 | 0.550 | 3,972 | Suspended. |
| | Pan Am IOE Union Hostli d-48-J/94-P-8 | 2287 | — | — | — | — | — |
| | Chevron N Helmet a-54-B/94-P-10 | 2108 | — | — | — | — | — |
| Other areas total | | — | — | — | — | — | 134,536 |

[8] Not available.

## TABLE 18—HYDROCARBON AND BY-PRODUCTS RESERVES, DECEMBER 31, 1973

| | Crude Oil, MSTB | | Raw Gas, BSCF | | Established | | | |
|---|---|---|---|---|---|---|---|---|
| | Proved | Probable | Proved | Probable | Residue Gas, BSCF | Residue Gas, BSCF (Basis 1,000 Btu/SCF) | Natural Gas Liquids, MSTB | Sulphur MLT |
| Original hydrocarbon in place | 1,214,064 | 91,213 | 15,773.7 | 1,396.0 | (1) | (1) | (1) | (1) |
| | | | Established | | | | | |
| Ultimate recovery, current estimate | 360,727 | 153,171 | 13,776.8 | | 12,046.4 | 12,437.1 | 172,058 | 5,355 |
| Cumulative production to December 31, 1972 | 208,308 | ——— | 3,042.2 | | 2,694.3 | 2,847.2 | 62,362 | 1,171 |
| Reserves estimated at December 31, 1972 | 147,803 | 151,937 | 10,550.4 | | 9,191.3 | 9,441.7 | 111,182 | 4,173 |
| Revisions in 1973 | +2,764 | +17 | +4.7 | | +1.0 | −17.6 | −4,055 | −96 |
| Drilling in 1973 | +1,852 | +1,217 | +179.5 | | +159.8 | +165.8 | +2,569 | +106 |
| Production in 1973 | −21,191 | ——— | −474.7 | | −423.2 | −442.2 | −5,823 | −138 |
| Cumulative production adjustments[2] | −1 | ——— | ——— | | ——— | ——— | ——— | ——— |
| Reserves at December 31, 1973 | 131,227 | 153,171 | 10,259.9 | | 8,928.9 | 9,147.7 | 103,873 | 4,045 |

NOTES:

MSTB=Thousand stock tank barrels, where one barrel contains 34.97 imperial gallons.

BSCF=Billion standard cubic feet at 14.65 psia and 60°F.

MLT=Thousand long tons.

Associated and solution gas reserves are included for pools in which a conservation scheme is in operation or for which firm conservation plans have been proposed.

The production data shown above for residue gas, natural gas liquids, and sulphur are based on theoretical volumes produced with the raw gas and are derived from gas analyses data. The actual volume of gas delivered to transmission-lines in 1973 was 415.5 BSCF, and actually extracted quantities of NGL and sulphur were 2,442,503 barrels and 72,807 long tons respectively. In addition, 126,485 barrels of NGL were removed at the wellhead.

[1] Not available.

[2] Adjustment to cumulative production carried in 1972 reserves report.

## TABLE 19—OILFIELD RESERVOIR FLUID DATA

| Field | Pool/Project | Rock Type and Age | Trapping | Producing Mechanism | Fluid Contacts (G/O, O/W) (Feet SS) | Datum Depth (Feet SS) | Initial Reservoir | | Saturation Pressure at G/O Contact and Reservoir Temperature (Psig) | Combination Formation Volume Factor at Initial Pressure (RB/STB) | Initial Solution Gas-Oil Ratio (SCF/STB) | Initial Oil Viscosity (Cp) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pressure (Psig) | Temp. (°F) | | | | |
| Aitken Creek | Gething | Sandstone/Lower Cretaceous | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 1270 | 1,270 | 1,546 | 140 | 1,546 | 1.307 | 542 | 0.476 |
| Balsam | Halfway | Sandstone/Triassic | Stratigraphic | Gas cap | G/O 1138 | 1,138 | 1,187 | 130 | 1,187 | 1.144[1] | 280[1] | —— |
| Bear Flat | North Pine | Sandstone/Triassic | Stratigraphic | Depletion/ Gas cap | G/O 2285 | 2,338 | 1,971 | 130 | 1,954 | 1.160 | 544 | —— |
| Beatton River | Halfway A—BP. project | Sandstone/Triassic | Structural/ Stratigraphic | Waterflood | G/O 1110, O/W 1158 | 1,134 | 1,172 | 129 | 1,164 | 1.1517 | 277 | 1.149 |
| | Halfway B | Sandstone/Triassic | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 1125, O/W 1134 | 1,125 | 1,162 | 129 | 1,162 | 1.1513 | 277 | 1.149 |
| | Halfway C | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | O/W 1192 | 1,170 | 1,172 | 129 | 1,170 | 1.152 | 277 | 1.149 |
| | Halfway D | Sandstone/Triassic | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 1154, O/W 1160 | 1,157 | (2) | 129 | 1,179 | 1.1517 | 277 | 1.149 |
| | Halfway E | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | O/W 1188 | 1,177 | 1,172 | 129 | 1,170 | 1.152 | 277 | 1.149 |
| Beatton River West | Bluesky | Sandstone/Lower Cretaceous | Structural/ Stratigraphic | Depletion/ Gas cap | —— | —— | 1,024 | 118 | 1,021 | 1.208 | 377 | 0.565 |
| | Unit 1 | Sandstone/Lower Cretaceous | Structural/ Stratigraphic | Depletion/ Gas cap | —— | —— | 1,024 | 118 | 1,021 | —— | 377 | 0.565 |
| Beaverdam | Halfway A | Sandstone/Triassic | Stratigraphic | Depletion/ Gas cap | G/O 1380 | 1,380 | 1,350 | 127 | 1,350 | 1.201 | 361 | —— |
| Blueberry | Debolt A | Carbonate/ Mississippian | Structural/ Stratigraphic | Gas cap/ Partial water | G/O 4034, O/W 4191 | 4,112 | 2,768 | 168 | 2,744 | 1.353 | 641 | 0.652 |
| | Debolt B | Carbonate/ Mississippian | Structural/ Stratigraphic | Gas cap/ Partial water | G/O 4031, O/W 4116 | 4,073 | 2,754 | 168 | 2,741 | 1.353 | 640 | —— |
| Boundary Lake | Dunlevy B | Sandstone/Lower Cretaceous | Structural | Gas cap | G/O 1340, O/W 1345 | 1,340 | 1,454 | 110 | 1,454 | 1.120[1] | 265[1] | —— |
| | Cecil A | Sandstone/Triassic | Stratigraphic | Depletion | None | 1,673 | 1,698 | (2) | 1,698 | 1.216[1] | 455[1] | (2) |
| | Cecil B | Sandstone/Triassic | Stratigraphic | Depletion | None | 1,673 | 1,698 | (2) | 1,698 | 1.216 | 455[1] | (2) |
| | Boundary Lake | Carbonate/Triassic | Structural/ Stratigraphic | —— | (main) G/O 1700 | 1,750 | 1,835 | 118 | 1,818 | 1.278 | 530 | 0.960 |
| | Unit 1 | Carbonate/Triassic | Structural/ Stratigraphic | Waterflood. | | | | | | | | |

[1] Standing's correlation.
[2] Not available.

TABLE 19—OILFIELD RESERVOIR FLUID DATA—*Continued*

| Field | Pool/Project | Rock Type and Age | Trapping | Producing Mechanism | Fluid Contacts (G/O, O/W) (Feet SS) | Datum Depth (Feet SS) | Initial Reservoir | | Saturation Pressue at G/O Contact and Reservoir Temperature (Psig) | Combination Formation Volume Factor at Initial Pressure (RB/STB) | Initial Solution Gas-Oil Ratio (SCF/STB) | Initial Oil Viscosity (Cp) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pressure (Psig) | Temp. (°F) | | | | |
| Boundary Lake—*Continued* | Unit 2 | Carbonate/Triassic | Structural/ Stratigraphic | Waterflood. | | | | | | | | |
| | Dome project 1 | Carbonate/Triassic | Structural/ Stratigraphic | Waterflood. | | | | | | | | |
| | Dome project 2 | Carbonate/Triassic | Structural/ Stratigraphic | Waterflood. | | | | | | | | |
| | Halfway | Sandstone/Triassic | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 2071, O/W 2092 | 2,071 | 1,700 | 125 | 1,700 | 1.225 | 464 | ——— |
| Buick Creek | Dunlevy A | Sandstone/Lower Cretaceous | Stratigraphic | Gas cap/ Depletion | G/O 1260, O/W 1280 | 1,260 | 1,291 | 122 | 1,291 | 1.148[1] | 305[1] | ——— |
| | Dunlevy B | Sandstone/Lower Cretaceous | Stratigraphic | Gas cap/ Depletion | G/O 1223, O/W none | 1,225 | 1,290 | 122 | 1,290 | 1.148[1] | 305[1] | ——— |
| | Dunlevy C | Sandstone/Lower Cretaceous | Stratigraphic | Gas cap/ Depletion | G/O 1251, O/W 1282 | 1,251 | 1,291 | 122 | 1,291 | 1.148[1] | 305[1] | ——— |
| Buick Creek West | Dunlevy A | Sandstone/Lower Cretaceous | Stratigraphic | Gas cap/ Depletion | G/O 1252, O/W 1282 | 1,252 | 1,318 | 123 | 1,318 | 1.150[1] | 300[1] | ——— |
| | Dunlevy B | Sandstone/Lower Cretaceous | Stratigraphic | Gas cap/ Depletion | G/O 1246, O/W 1250 | 1,246 | 1,317 | 123 | 1,317 | 1.150[1] | 300[1] | ——— |
| Bulrush | Halfway | Sandstone/Triassic | Stratigraphic | Depletion/ Gas cap | G/O 1320 | 1,320 | 1,318 | 132 | 1,318 | 1.198 | 353 | 0.950 |
| Bulrush East | Halfway | Sandstone/Triassic | Stratigraphic | Depletion | None | 1,285 | 1,314 | 131 | 1,314[3] | 1.197 | 352 | 0.951 |
| Cecil | North Pine A | Sandstone/Triassic | Stratigraphic | Gas cap | G/O 2167 | 2,167 | 1,921 | 128 | 1,921 | 1.258 | 521 | ——— |
| Charlie Lake | Gething | Sandstone/Lower Cretaceous | Stratigraphic | Depletion | ——— | 1,020 | 1,096 | 116 | (2) | 1.200[3] | (2) | ——— |
| Crush | Halfway Unit 1 | Sandstone/Triassic | Structural/ Stratigraphic | Waterflood | G/O 1366 | 1,402 | 1,356 | 132 | 1,345 | 1.200 | 359 | 1.030 |
| Currant | Halfway Unit 1 | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1555 | 1,555 | 1,399 | 134 | 1,399 | 1.204 | 375 | 0.800 |
| Eagle | Belloy A | Carbonate/Permian | Stratigraphic | Depletion | ——— | 3,800 | 2,422 | 160 | 2,422[3] | 1,289 | 531 | ——— |
| | Belloy B | Carbonate/Permian | Stratigraphic | Depletion | ——— | 3,800 | 2,417 | 160 | 2,417[3] | 1,289 | 530 | ——— |
| Elm | Halfway A | Sandstone/Triassic | Stratigraphic | Depletion/ Gas cap | G/O 1061, O/W 1076 | 1,061 | 1,140 | 128 | 1,140 | 1.205 | 365 | ——— |
| Fireweed | Baldonnel B | Carbonate/Triassic | Stratigraphic | Depletion | ——— | 1,538 | 1,638 | 138 | 1,638 | 1.241[1] | 485 | ——— |
| Flatrock | Boundary Lake | Carbonate/Triassic | Stratigraphic | Depletion | ——— | 2,015 | 1,693 | 133 | 1,320[1] | 1.160[1] | 320[3] | ——— |
| Fort St. John | Pingel | Sandstone/Triassic | Stratigraphic | Gas cap | G/O 2290, O/W 2343 | 2,332 | 1,921 | 125 | 1,905 | 1.156 | 533 | 0.600 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Belloy | Carbonate/Permian | Structural/ Stratigraphic | Depletion | | 4,160 | 2,769 | 155 | ---- | 1.334[3] | ---- | ---- |
| Halfway | Blueberry | Sandstone/Triassic | Stratigraphic | Depletion | | 2,157 | 2,112 | 130 | 2,112[3] | 1.300[1] | 620[1] | ---- |
| Inga | Baldonnel | Carbonate/Triassic | Structural | Depletion | G/O 1796 | 1,796 | 1,788 | 126 | 1,788 | 1.240[1] | 470[1] | ---- |
| | Inga— | | | | | | | | | | | |
| | Unit 1 | Sandstone/Triassic | Structural/ Stratigraphic | Waterflood | G/O 2405, G/O 2432 | 2,519 | 2,333 | 140 | 2,310 | 1.348 | 676 | 0.440 |
| | Unit 2 | Sandstone/Triassic | Structural/ Stratigraphic | Waterflood | G/O 2432 | 2,519 | 2,333 | 140 | 2,310 | 1.348 | 676 | 0.440 |
| | Unit 3 | Sandstone/Triassic | Structural/ Stratigraphic | Concurrent | G/O 2405 | 2,519 | 2,333 | 140 | 2,310 | ([2]) | ([4]) | ([4]) |
| | Unit 4 | Sandstone/Triassic | Structural/ Stratigraphic | | | 2,519 | 2,333 | 140 | 2,310 | 1.348 | 676 | 0.440 |
| | Unit 5 | Sandstone/Triassic | Structural/ Stratigraphic | | | 2,519 | 2,333 | 140 | 2,310 | 1.348 | 676 | 0.440 |
| Milligan Creek | Halfway— | | | | | | | | | | | |
| | Unit 1 | Sandstone/Triassic | Structural/ Stratigraphic | Waterflood | G/O 1127, O/W 1200 | 1,170 | 1,167 | 132 | 1,152 | 1.1594 | 281 | 0.832 |
| | Unit 2 | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1181, O/W 1200 | 1,171 | 1,167 | 132 | 1,167 | 1.1597 | 281 | 0.832 |
| Moberly Lake | Pingel | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | | 2,233 | 2,291 | 130 | 2,291[3] | 1.340[1] | 700[1] | ---- |
| Nettle | Bluesky-Gething | Sandstone/Lower Cretaceous | Stratigraphic | Depletion/ Gas cap | G/O 711, O/W 715 | 711 | 944 | 118 | 944 | 1.112[1] | 230[1] | 0.580 |
| Nig Creek | Baldonnel D | Carbonate/Triassic | Stratigraphic | Depletion | None | 1,399 | 1,535 | 140 | 1,535 | 1.213[1] | 400[1] | ---- |
| North Pine | Siphon | Sandstone/Triassic | Stratigraphic | Depletion | | 1,867 | 1,860 | 130 | 1,750[1] | 1.221[1] | 450[3] | 0.730 |
| Osprey | Halfway | Sandstone/Triassic | Stratigraphic | Depletion | G/O 1525 | 1,525 | 1,418 | 128 | 1,418 | 1.205 | 380 | 1.040 |
| Oak | Halfway | Sandstone/Triassic | ---- | Gas cap | G/O 2353 | 2,353 | 1,836 | 132 | 1,836 | 1.235 | 470 | ---- |
| Parkland | Belloy B | Carbonate/Permian | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 4664, O/W 4668 | 4,664 | 2,930 | 153 | 2,930 | 1.455[1] | 905[1] | ---- |
| Peejay | Halfway— | | | | | | | | | | | |
| | Unit 1 | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1427, G/O 1438, O/W 1504 | 1,465 | 1,359 | 132 | 1,346 | 1.1736 | 333 | 0.850 |
| | Unit 2 | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1435, O/W 1547 | 1,490 | 1,367 | 134 | 1,349 | 1.1924 | 343 | 0.840 |
| | Unit 3 | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1450, O/W 1543 | 1,500 | 1,363 | 133 | 1,347 | 1.184 | 315 | 0.892 |
| | Pacific-ARCo project | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1450, O/W 1543 | 1,500 | 1,363 | 133 | 1,347 | 1.184 | 315 | 0.892 |
| | North project | Sandstone/Triassic | Stratigraphic | Gas cap | G/O 1355 | 1,355 | 1,344 | 130 | 1,344 | 1.200 | 359 | ---- |
| Peejay West | Halfway | Sandstone/Triassic | Stratigraphic | Depletion/ Gas cap | G/O 1608, O/W 1620 | 1,608 | 1,451 | 131 | 1,451 | 1.207 | 390 | 0.850 |

[1] Standing's correlation.
[2] Not available.
[3] Estimated.
[4] Gas cap only.

TABLE 19—OILFIELD RESERVOIR FLUID DATA—*Continued*

| Field | Pool/Project | Rock Type and Age | Trapping | Producing Mechanism | Fluid Contacts (G/O, O/W) (Feet SS) | Datum Depth (Feet SS) | Initial Reservoir | | Saturation Pressure at G/O Contact and Reservoir Temperature (Psig) | Combination Formation Volume Factor at Initial Pressure (RB/STB) | Initial Solution Gas-Oil Ratio (SCF/STB) | Initial Oil Viscosity (Cp) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pressure (Psig) | Temp. (°F) | | | | |
| Rigel | Dunlevy A | Sandstone/Lower Cretaceous | Stratigraphic | Depletion/ Gas cap | G/O 1237 | 1,237 | 1,280 | 118 | 1,280 | 1.148[1] | 320[1] | ——— |
| | Dunlevy B | Sandstone/Lower Cretaceous | Stratigraphic | Depletion/ Gas cap | G/O 1278 | 1,278 | 1,285 | 118 | 1,285 | 1.148[1] | 320[1] | ——— |
| | Dunlevy C | Sandstone/Lower Cretaceous | Stratigraphic | Depletion/ Gas cap | G/O 1263 | 1,263 | 1,283 | 118 | 1,283 | 1.148[1] | 320[1] | ——— |
| | Dunlevy D | Sandstone/Lower Cretaceous | Stratigraphic | | G/O 1303 | 1,303 | 1,288 | 118 | 1,288 | 1.148[1] | 320[1] | ——— |
| | Dunlevy E | Sandstone/Lower Cretaceous | Stratigraphic | | G/O 1220 | 1,231 | 1,291 | 118 | 1,287 | 1.148 | 320 | ——— |
| | Lower Dunlevy | Sandstone/Lower Cretaceous | Stratigraphic | Depletion | | 1,368 | 1,425 | 125 | 1,425[3] | 1.173[1] | 355[1] | ——— |
| Siphon | Baldonnel B | Carbonate/Triassic | Structural/ Stratigraphic | Gas cap | G/O 1459 | 1,459 | 1,430 | 128 | 1,430 | 1.149[1] | 300[1] | ——— |
| Stoddart | Cecil | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | None | 1,875 | 1,802 | 125 | 1,800[1] | 1.180[1] | 370[3] | ——— |
| | Belloy A | Sandstone/Permian | Structural/ Stratigraphic | Gas cap | G/O 3726 | 3,726 | 2,411 | 155 | 2,411 | 1.335[1] | 645[1] | ——— |
| | Belloy C | Sandstone/Permian | Structural/ Stratigraphic | Depletion | O/W 3845 | 3,798 | 2,419 | 155 | 2,419 | 1.337[1] | 650[1] | ——— |
| Two Rivers | Siphon | Sandstone/Triassic | Structural/ Stratigraphic | Gas cap/ Depletion | G/O 2138, O/W 2147 | 2,138 | 1,803 | 126 | 1,803 | 1.248[1] | 510[1] | ——— |
| Wargen | Gething | Sandstone/Lower Cretaceous | Stratigraphic | Gas cap | G/O 1095 | 1,095 | 1,100 | 120 | 1,100 | 1.142[1] | 285[1] | ——— |
| Weasel | Halfway— | | | | | | | | | | | |
| | Unit 1 | Sandstone/Triassic | Stratigraphic | Waterflood | G/O 1375 | 1,377 | 1,300 | 132 | 1,293 | 1.195 | 344 | 0.898 |
| | Unit 2 | Sandstone/Triassic | Stratigraphic | Waterflood | O/W 1410 | 1,377 | 1,300 | 132 | 1,293 | 1.195 | 344 | 0.898 |
| | Halfway AB | Sandstone/Triassic | Stratigraphic | Depletion/ Gas cap | G/O 1312 | 1,312 | 1,246 | 132 | 1,246 | 1.186 | 321 | 0.895 |
| | Halfway H | Sandstone/Triassic | Stratigraphic | Gas cap | G/O 1294 | 1,294 | 1,210 | 132 | 1,210 | 1.171 | 320 | ——— |
| Weasel West | Halfway A | Sandstone/Triassic | Stratigraphic | Depletion | | 1,358 | 1,278 | 132 | 1,278 | 1.192 | 338 | ——— |
| | Halfway B | Sandstone/Triassic | Stratigraphic | Depletion | G/O 1358, O/W 1363 | 1,358 | 1,278 | 132 | 1,278 | 1.192 | 338 | ——— |
| Wildmint | Halfway— Union HB project | Sandstone/Triassic | Structural/ Stratigraphic | Waterflood | G/O 1252 | 1,272 | 1,217 | 132 | 1,210 | 1.148 | 259 | 1.05 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Union B project | Sandstone/Triassic | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 1294 | 1,294 | 1,264 | 132 | 1,264 | 1.190 | 330 | 1.05 |
| | Union C project | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | None | 1,327 | 1,264 | 132 | 1,264 | 1.190 | 330[3] | 1.05 |
| | Union D project | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | None | 1,303 | 1,256 | 132 | 1,208 | 1.170 | 330[3] | 1.05 |
| | Union E project | Sandstone/Triassic | Structural/ Stratigraphic | Depletion | None | 1,272 | 1,217 | 132 | 1,210 | 1.148 | 259 | 1.05 |
| | Union F project | Sandstone/Triassic | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 1344 | 1,344 | 1,294 | 132 | 1,294 | 1.195 | 345 | ---- |
| Willow | Gething | Sandstone/Lower Cretaceous | Stratigraphic | Depletion/ Gas cap | G/O 820 | 820 | 1,019 | 118 | 1,019 | 1.115[1] | 236 | ---- |
| Wolf | Halfway | Sandstone/Triassic | Structural/ Stratigraphic | Depletion/ Gas cap | G/O 1670, O/W 1689 | 1,670 | 1,487 | 143 | 1,487 | 1.210 | 402 | 0.832[3] |

[1] Standing's correlation. [2] Not available. [3] Estimated. [4] Gas cap only.

## TABLE 20—GASFIELD RESERVOIR FLUID DATA

| Field/Area | Pool/Project | Rock Type and Age | Trapping | Fluid Contacts G/W (Ft. SS) | Datum Depth (Ft. SS) | Specific Gravity of Gas | Critical Value | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pressure (psia) | Temperature (°R) |
| Airport | Dunlevy | Sandstone/Lower Cretaceous. | Stratigraphic | —— | 1,521 | 0.581 | 680 | 347 |
| | Baldonnel | Carbonate/Triassic | Stratigraphic | —— | 1,761 | 0.661 | 682 | 373 |
| | Halfway | Sandstone/Triassic | Stratigraphic | —— | 2,667 | 0.693 | 678 | 369 |
| Balsam | Bluesky | Sandstone/Lower Cretaceous. | Stratigraphic | —— | 780 | 0.650 | 677 | 375 |
| | Halfway | Sandstone/Triassic | Stratigraphic | —— | 1,105 | 0.642 | 687 | 370 |
| Beaverdam | Halfway B | Sandstone/Triassic | Stratigraphic | —— | 1,326 | 0.662 | 686 | 378 |
| Beaver River | Nahanni | Carbonate/Devonian | Structural | 11,907 | 10,500 | 0.642 | 698 | 356 |
| Beavertail | Gething | Sandstone/Lower Cretaceous. | Stratigraphic | None | 1,050 | 0.653 | 673 | 374 |
| | Halfway | Sandstone/Triassic | Structural/Stratigraphic | 1,833 | 1,790 | 0.635 | 678 | 379 |
| Beg | Baldonnel A | Carbonate/Triassic | Structural | 1,525 | 1,400 | 0.652 | 674 | 374 |
| | Baldonnel B | Carbonate/Triassic | Structural | 1,525 | 1,400 | 0.652 | 674 | 374 |
| | Baldonnel C | Carbonate/Triassic | Structural | 1,370 | 1,310 | 0.652 | 674 | 374 |
| | Halfway | Sandstone/Triassic | Structural | 2,346 | 2,200 | 0.673 | 669 | 382 |
| Beg West | Baldonnel A | Carbonate/Triassic | Structural | None | 1,400 | 0.653 | 678 | 372 |
| | Baldonnel B | Carbonate/Triassic | Structural | None | 1,400 | 0.653 | 678 | 372 |
| Bernadet | Gething | Sandstone/Lower Cretaceous. | Structural/Stratigraphic | —— | 842 | 0.644 | 670 | 372 |
| Bivouac | Debolt | Carbonate/Mississippian | Structural/Stratigraphic | 138 | 125 | 0.621 | 683 | 364 |
| Blueberry | Dunlevy A | Sandstone/Lower Cretaceous. | Structural | —— | 1,200 | 0.675 | 673 | 384 |
| | Dunlevy B | Sandstone/Lower Cretaceous. | Structural | —— | 1,200 | 0.659 | 675 | 369 |
| | Baldonnel A | Carbonate/Triassic | Structural | —— | 1,560 | 0.673 | 677 | 379 |
| | Baldonnel B | Carbonate/Triassic | Structural | —— | 1,560 | 0.673 | 677 | 379 |
| | Blueberry | Sandstone/Triassic | Structural/Stratigraphic | —— | 2,150 | 0.939 | 664 | 459 |
| | Charlie Lake | Sandstone/Triassic | Stratigraphic | —— | 2,150 | 0.802 | 676 | 416 |
| | Halfway | Sandstone/Triassic | Structural/Stratigraphic | —— | 2,572 | 0.695 | 680 | 387 |
| Blueberry East | Baldonnel | Carbonate/Triassic | Structural | —— | 1,800 | 0.675 | 681 | 380 |
| | Debolt | Carbonate/Mississippian | Structural | —— | 4,025 | 0.615 | 679 | 359 |
| Blueberry West | Dunlevy A | Sandstone/Lower Cretaceous. | Structural | None | 1,084 | 0.659 | 682 | 373 |
| | Dunlevy B | Sandstone/Lower Cretaceous | Structural | None | 1,260 | 0.658 | 678 | 375 |
| | Baldonnel | Carbonate/Triassic | Structural | 1,620 | 1,576 | 0.646 | 674 | 374 |
| Boundary Lake | Bluesky A | Sandstone/Lower Cretaceous. | Structural/Stratigraphic | —— | 1,095 | 0.634 | 669 | 365 |
| | Bluesky B | Sandstone/Lower Cretaceous. | Structural/Stratigraphic | —— | 1,140 | 0.622 | 671 | 365 |
| | Gething A | Sandstone/Lower Cretaceous. | Structural/Stratigraphic | —— | 1,217 | 0.641 | 678 | 369 |
| | Gething B | Sandstone/Lower Cretaceous. | Structural/Stratigraphic | —— | 1,319 | 0.648 | 682 | 370 |
| | Dunlevy A | Sandstone/Lower Cretaceous. | Stratigraphic | 1,345 | 1,339 | 0.629 | 678 | 365 |
| | Baldonnel A | Carbonate/Triassic | Structural | 1,513 | 1,480 | 0.677 | 681 | 390 |
| | Baldonnel B | Carbonate/Triassic | Structural | 1,496 | 1,480 | 0.677 | 681 | 390 |
| | Basal Boundary Lake | Carbonate/Triassic | Structural | —— | 1,757 | 0.683 | 663 | 378 |
| | Halfway B | Sandstone/Triassic | Structural | —— | 1,866 | 0.631 | 670 | 368 |
| | Halfway A | Sandstone/Triassic | Stratigraphic | 1,930 | 1,900 | 0.631 | 670 | 378 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Halfway B | Sandstone/Triassic | Stratigraphic | 1,852 | 1,816 | 0.696 | 680 | 380 |
| Bubbles | Baldonnel | Carbonate/Triassic | Structural | None | 1,350 | 0.663 | 682 | 373 |
| Bubbles North | Halfway | Sandstone/Triassic | Stratigraphic | ---- | 1,800 | 0.663 | 678 | 375 |
| Buick Creek | Bluesky A | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ---- | 1,150 | 0.637 | 670 | 372 |
| | Bluesky B | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ---- | 1,132 | 0.637 | 670 | 372 |
| | Bluesky C | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 1,127 | 0.676 | 673 | 377 |
| | Bluesky D | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 1,119 | 0.664 | 670 | 378 |
| | Dunlevy A | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,287 | 1,260 | 0.659 | 670 | 378 |
| | Dunlevy B | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,260 | 1,225 | 0.649 | 674 | 374 |
| | Dunlevy C | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,260 | 1,225 | 0.659 | 670 | 378 |
| | Dunlevy D | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ---- | 1,305 | 0.668 | 671 | 377 |
| | Lower Dunlevy | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ---- | 1,277 | 0.659 | 670 | 378 |
| | Baldonnel | Carbonate/Triassic | Stratigraphic | ---- | 1,412 | 0.692 | 681 | 383 |
| | Cecil | Sandstone/Triassic | Structural/Stratigraphic | ---- | 1,626 | 0.613 | 671 | 362 |
| Buick Creek North | Gething | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ---- | 1,073 | 0.685 | 672 | 386 |
| | Dunlevy | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,233 | 1,185 | 0.670 | 677 | 380 |
| Buick Creek West | Dunlevy A | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,252 | 1,150 | 0.657 | 678 | 375 |
| | Dunlevy B | Sandstone/Lower Cretaceous | Structural/Stratigraphic | None | 1,150 | 0.657 | 678 | 375 |
| | Baldonnel | Carbonate/Triassic | Structural/Stratigraphic | ---- | 1,375 | 0.698 | 680 | 387 |
| | Halfway | Sandstone/Triassic | Structural | ---- | 2,200 | 0.748 | 679 | 403 |
| | Debolt | Carbonate/Mississippian | Structural/Stratigraphic | ---- | 3,250 | 0.606 | 675 | 361 |
| Cabin | Slave Point A | Carbonate/Devonian | Stratigraphic | 4,808 | 4,800 | 0.651 | 706 | 353 |
| | Slave Point B | Carbonate/Devonian | Stratigraphic | 4,857 | 4,800 | 0.686 | 727 | 371 |
| | Slave Point C | Carbonate/Devonian | Stratigraphic | 4,806 | 4,800 | 0.637 | 704 | 359 |
| Cache Creek | Coplin | Sandstone/Triassic | Stratigraphic | None | 2,134 | 0.631 | 671 | 369 |
| | Halfway | Sandstone/Triassic | Structural/Stratigraphic | 2,607 | 2,560 | 0.805 | 805 | 441 |
| Cecil | Cecil | Sandstone/Triassic | Stratigraphic | ---- | 1,901 | 0.687 | 663 | 379 |
| | North Pine B | Sandstone/Triassic | Stratigraphic | ---- | 2,268 | 0.683 | 667 | 384 |
| | Halfway | Sandstone/Triassic | Stratigraphic | ---- | 2,534 | 0.716 | 662 | 386 |
| Clarke Lake | Jean Marie | Carbonate/Devonian | Stratigraphic | ---- | 3,000 | 0.607 | 670 | 345 |
| | Slave Point | Carbonate/Devonian | Stratigraphic | 5,231 | 5,000 | 0.653 | 705 | 360 |
| Currant | Halfway B | Sandstone/Triassic | Stratigraphic | None | 1,560 | 0.637 | 672 | 370 |
| Cypress | Baldonnel | Carbonate/Triassic | Structural | 1,210 | 1,095 | 0.584 | 672 | 354 |
| Dahl | Bluesky | Sandstone/Lower Cretaceous | Stratigraphic | 729 | 700 | 0.642 | 678 | 372 |
| Dawson Creek | Cadotte | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ---- | 363 | 0.581 | 671 | 347 |
| Eagle | Halfway | Sandstone/Triassic | Stratigraphic | 2,548 | 2,536 | 0.680 | 677 | 382 |
| | Belloy C | Carbonate/Permian | Stratigraphic | ---- | 3,846 | 0.659 | 671 | 376 |
| Elm | Halfway A | Sandstone/Triassic | Stratigraphic | ---- | 1,061 | 0.645 | 674 | 374 |
| | Halfway B | Sandstone/Triassic | Stratigraphic | 1,076 | 1,074 | 0.645 | 674 | 374 |
| Farrell Creek | Charlie Lake | Sandstone/Triassic | Structural | ---- | 2,624 | 0.644 | 675 | 372 |
| | Halfway A | Sandstone/Triassic | Structural | ---- | 3,223 | 0.658 | 678 | 375 |
| | Halfway B | Sandstone/Triassic | Structural | ---- | 3,242 | 0.658 | 678 | 375 |
| Fireweed | Bluesky | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 1,094 | 0.669 | 674 | 382 |
| | Dunlevy A | Sandstone/Lower Cretaceous | Stratigraphic | 1,341 | 1,284 | 0.684 | 680 | 383 |
| | Dunlevy B | Sandstone/Lower Cretaceous | Stratigraphic | 1,305 | 1,252 | 0.684 | 680 | 383 |
| | Dunlevy C | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 1,263 | 0.658 | 678 | 375 |
| | Baldonnel A | Carbonate/Triassic | Stratigraphic | ---- | 1,568 | 0.672 | 689 | 382 |

TABLE 20—GASFIELD RESERVOIR FLUID DATA—*Continued*

| Field/Area | Pool/Project | Rock Type and Age | Trapping | Fluid Contacts G/W (Ft. SS) | Datum Depth (Ft. SS) | Specific Gravity of Gas | Critical Value | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pressure (psia) | Temperature (°R) |
| Fireweed—*Continued* | Debolt A | Carbonate/Mississippian | Stratigraphic | —— | 3,560 | 0.606 | 675 | 361 |
| | Debolt B | Carbonate/Mississippian | Stratigraphic | —— | 3,545 | 0.606 | 675 | 361 |
| | Debolt C | Carbonate/Mississippian | Stratigraphic | —— | 3,737 | 0.606 | 675 | 361 |
| Flatrock | Siphon | Sandstone/Triassic | Stratigraphic | —— | 1,825 | 0.648 | 665 | 366 |
| | Halfway A | Sandstone/Triassic | Stratigraphic | —— | 2,542 | 0.650 | 681 | 375 |
| | Halfway B | Sandstone/Triassic | Stratigraphic | —— | 2,429 | 0.670 | 705 | 383 |
| | Halfway C | Sandstone/Triassic | Stratigraphic | —— | 2,482 | 0.775 | 671 | 403 |
| Fort St. John | Dunlevy | Sandstone/Lower Cretaceous | Structural | 1,045 | 980 | 0.581 | 680 | 347 |
| | Baldonnel | Carbonate/Triassic | Structural | 1,765 | 1,650 | 0.661 | 682 | 373 |
| | Halfway A | Sandstone/Triassic | Structural | 2,700 | 2,660 | 0.680 | 677 | 382 |
| | Halfway B | Sandstone/Triassic | Structural | 2,700 | 2,677 | 0.623 | 700 | 368 |
| | Belloy | Carbonate/Permian | Structural/Stratigraphic | ..... | 4,105 | 0.655 | 670 | 378 |
| | Debolt | Carbonate/Mississippian | Stratigraphic | ..... | 4,739 | 0.671 | 666 | 376 |
| Fort St. John Southeast | Dunlevy | Sandstone/Lower Cretaceous | Structural | ..... | 1,101 | 0.581 | 680 | 347 |
| | Baldonnel | Carbonate/Triassic | Structural | ..... | 1,800 | 0.702 | 668 | 392 |
| | Siphon | Sandstone/Triassic | Structural | ..... | 2,335 | 0.648 | 665 | 366 |
| | Pingel | Sandstone/Triassic | Structural | ..... | 2,335 | 0.648 | 665 | 366 |
| | Halfway | Sandstone/Triassic | Structural | None | 2,836 | 0.693 | 678 | 369 |
| | Belloy | Carbonate/Permian | Structural/Stratigraphic | 4,290 | 4,255 | 0.640 | 674 | 371 |
| Grizzly | Dunlevy | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ..... | 4,150 | 0.620 | 696 | 354 |
| Grizzly North | Dunlevy | Sandstone/Lower Cretaceous | Structural | ..... | 4,792 | 0.593 | 687 | 353 |
| | Baldonnel | Carbonate/Triassic | Structural | ..... | 7,086 | 0.625 | 714 | 365 |
| | Halfway | Sandstone/Triassic | Structural | ..... | 9,250 | 0.612 | 724 | 370 |
| Gundy Creek | Dunlevy | Sandstone/Lower Cretaceous | Stratigraphic | —— | 1,276 | 0.659 | 675 | 369 |
| | Baldonnel A | Carbonate/Triassic | Structural | 1,750 | 1,730 | 0.630 | 674 | 367 |
| | Baldonnel B | Carbonate/Triassic | Structural | 1,778 | 1,730 | 0.630 | 674 | 367 |
| | Blueberry | Sandstone/Triassic | Structural/Stratigraphic | ..... | 2,256 | 0.655 | 670 | 378 |
| Halfway | Baldonnel | Carbonate/Triassic | Structural | 1,400± | 1,351 | 0.639 | 670 | 372 |
| | Coplin | Sandstone/Triassic | Structural | —— | 1,880 | 0.693 | 667 | 385 |
| Helmet | Slave Point | Carbonate/Devonian | Stratigraphic | 4,162 | 4,124 | 0.661 | 719 | 368 |
| Highway | Dunlevy | Sandstone/Lower Cretaceous | Structural | —— | 1,127 | 0.669 | 686 | 375 |
| | Baldonnel | Carbonate/Triassic | Structural | ..... | 1,472 | 0.675 | 677 | 382 |
| | Debolt | Carbonate/Mississippian | Structural | ..... | 3,900 | 0.609 | 671 | 362 |
| Inga | Gething | Sandstone/Lower Cretaceous | Structural/Stratigraphic | ..... | 1,140 | 0.670 | 668 | 379 |
| | Baldonnel B | Carbonate/Triassic | Structural | 1,823 | 1,803 | 0.689 | 693 | 388 |
| | Baldonnel D | Carbonate/Triassic | Stratigraphic | —— | 1,866 | 0.689 | 693 | 388 |
| Inga North | Inga | Sandstone/Triassic | Stratigraphic | 2,545 | 2,299 | 0.825 | 923 | 482 |
| Jedney | Gething | Sandstone/Lower Cretaceous | Structural/Stratigraphic | —— | 1,125 | 0.663 | 678 | 375 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Baldonnel | Carbonate/Triassic | Structural | —— | 1,300 | 0.693 | 699 | 376 |
| | Halfway | Sandstone/Triassic | Structural | 2,054± | 1,905 | 0.673 | 673 | 381 |
| Jedney West | Baldonnel | Carbonate/Triassic | Structural | —— | 1,500 | 0.693 | 499 | 376 |
| | Halfway | Sandstone/Triassic | Structural | —— | 2,100 | 0.673 | 673 | 381 |
| Julienne Creek | Baldonnel | Carbonate/Triassic | Structural/Stratigraphic | None | 1,769 | 0.656 | 678 | 375 |
| | Halfway | Sandstone/Triassic | Structural/Stratigraphic | None | 2,833 | 0.614 | 671 | 362 |
| | Debolt | Carbonate/Mississippian | Structural/Stratigraphic | —— | 4,457 | 0.560 | 673 | 341 |
| | Shunda | Carbonate/Mississippian | Structural/Stratigraphic | —— | 5,575 | 0.560 | 673 | 341 |
| Kobes-Townsend | Dunlevy | Sandstone/Lower Cretaceous | Structural | —— | 714 | 0.651 | 674 | 374 |
| | Charlie Lake A | Sandstone/Triassic | Structural/Stratigraphic | —— | 2,578 | 0.652 | 670 | 376 |
| | Charlie Lake B | Sandstone/Triassic | Structural/Stratigraphic | —— | 2,424 | 0.638 | 673 | 369 |
| | Charlie Lake C | Sandstone/Triassic | Structural/Stratigraphic | —— | 2,348 | 0.629 | 670 | 368 |
| | Halfway | Sandstone/Triassic | Structural/Stratigraphic | —— | 2,820 | 0.638 | 670 | 372 |
| | Belloy | Carbonate/Permian | Structural/Stratigraphic | —— | 4,540 | 0.695 | 668 | 392 |
| | Debolt | Carbonate/Mississippian | Structural/Stratigraphic | —— | 4,600 | 0.647 | 678 | 372 |
| Kotcho Lake | Slave Point A | Carbonate/Devonian | Stratigraphic | 4,675 | 4,580 | 0.670 | 722 | 361 |
| | Slave Point B | Carbonate/Devonian | Stratigraphic | 4,542 | 4,529 | 0.670 | 722 | 361 |
| Kotcho East | Bluesky A | Sandstone/Lower Cretaceous | Stratigraphic | 23 | 11 | 0.629 | 688 | 364 |
| | Bluesky B | Sandstone/Lower Cretaceous | Stratigraphic | 34 | 20 | 0.629 | 688 | 364 |
| | Slave Point A | Carbonate/Devonian | Stratigraphic | None | 4,410 | 0.670 | 722 | 361 |
| | Slave Point B | Carbonate/Devonian | Stratigraphic | —— | 4,523 | 0.675 | 727 | 371 |
| | Slave Point C | Carbonate/Devonian | Stratigraphic | —— | 4,605 | 0.679 | 730 | 372 |
| Lagarde | Dunlevy | Sandstone/Lower Cretaceous | Structural/Stratigraphic | —— | 1,160 | 0.636 | 683 | 370 |
| | Baldonnel | Carbonate/Triassic | Structural/Stratigraphic | —— | 1,361 | 0.628 | 671 | 361 |
| | Boundary Lake | Carbonate/Triassic | Stratigraphic | —— | 1,579 | 0.706 | 667 | 392 |
| Laprise Creek | Baldonnel | Carbonate/Triassic | Structural/Stratigraphic | 1,426 | 1,250 | 0.676 | 681 | 380 |
| Laprise Creek West | Baldonnel | Carbonate/Triassic | Structural/Stratigraphic | —— | 1,375 | 0.694 | 669 | 388 |
| Louise | Slave Point | Carbonate/Devonian | Stratigraphic | 4,931 | 4,821 | 0.657 | 715 | 365 |
| Milligan Creek | Gething A | Sandstone/Lower Cretaceous | Stratigraphic | —— | 800 | 0.669 | 677 | 380 |
| | Gething B | Sandstone/Lower Cretaceous | Stratigraphic | —— | 762 | 0.669 | 677 | 380 |
| Montney | Gething | Sandstone/Lower Cretaceous | Structural/Stratigraphic | —— | 1,065 | 0.670 | 668 | 379 |
| | Cecil | Sandstone/Triassic | Structural/Stratigraphic | —— | 1,784 | 0.664 | 657 | 372 |
| | Halfway A | Sandstone/Triassic | Structural | —— | 2,400 | 0.704 | 685 | 385 |
| | Halfway B | Sandstone/Triassic | Structural | —— | 2,350 | 0.701 | 680 | 387 |
| Nettle | Gething | Sandstone/Lower Cretaceous | Stratigraphic | —— | 701 | 0.641 | 678 | 369 |
| | Siphon | Sandstone/Triassic | Stratigraphic | —— | 773 | 0.663 | 676 | 378 |
| | Halfway | Sandstone/Triassic | Structural | —— | 925 | 0.635 | 681 | 367 |
| Nig Creek | Baldonnel A | Carbonate/Triassic | Structural/Stratigraphic | —— | 1,399 | 0.681 | 693 | 384 |
| | Baldonnel B | Carbonate/Triassic | Structural/Stratigraphic | None | 1,508 | 0.677 | 681 | 380 |
| | Baldonnel C | Carbonate/Triassic | Structural/Stratigraphic | None | 1,399 | 0.671 | 687 | 380 |
| | Halfway | Sandstone/Triassic | Stratigraphic | —— | 1,970 | 0.748 | 679 | 403 |
| | Slave Point | Carbonate/Devonian | Stratigraphic | —— | 8,050 | 0.762 | 749 | 376 |
| Nig Creek West | Baldonnel | Carbonate/Triassic | Stratigraphic | 1,494± | 1,482 | 0.693 | 686 | 381 |
| North Pine | North Pine | Sandstone/Triassic | Structural/Stratigraphic | None | 2,096 | 0.677 | 668 | 386 |
| Oak | Cecil | Sandstone/Triassic | Stratigraphic | 1,807 | 1,805 | 0.676 | 672 | 377 |

## TABLE 20—GASFIELD RESERVOIR FLUID DATA—*Continued*

| Field/Area | Pool/Project | Rock Type and Age | Trapping | Fluid Contacts G/W (Ft. SS) | Datum Depth (Ft. SS) | Specific Gravity of Gas | Critical Value | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pressure (psia) | Temperature (°R) |
| Parkland | Belloy A | Carbonate/Permian | Structural/Stratigraphic | 4,608 | 4,588 | 0.674 | 655 | 360 |
| | Belloy B | Carbonate/Permian | Structural/Stratigraphic | 4,668 | 4,642 | 0.674 | 655 | 360 |
| | Wabamun | Carbonate/Devonian | Structural/Stratigraphic | ---- | 8,500 | 0.623 | 693 | 348 |
| Peejay | Gething | Sandstone/Cretaceous | Structural/Stratigraphic | ---- | 933 | 0.642 | 677 | 371 |
| | Baldonnel | Carbonate/Triassic | Structural/Stratigraphic | ---- | 1,019 | 0.638 | 676 | 371 |
| Peggo | Slave Point A | Carbonate/Devonian | Stratigraphic | 3,982 | 3,965 | 0.642 | 703 | 358 |
| | Slave Point B | Carbonate/Devonian | Stratigraphic | 4,032 | 4,012 | 0.642 | 703 | 358 |
| Petitot River | Slave Point | Carbonate/Devonian | Structural/Stratigraphic | 5,157 | 5,100 | 0.673 | 714 | 357 |
| Red Creek | North Pine | Sandstone/Triassic | Structural/Stratigraphic | ---- | 2,300 | 0.614 | 675 | 361 |
| | Halfway | Sandstone/Triassic | Structural | ---- | 2,686 | 0.779 | 674 | 415 |
| Redeye | Halfway | Sandstone/Triassic | Stratigraphic | 989 | 966 | 0.694 | 672 | 388 |
| Rigel | Bluesky | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,180 | 1,170 | 0.650 | 676 | 375 |
| | Dunlevy | Sandstone/Lower Cretaceous | Structural/Stratigraphic | 1,242 | 1,195 | 0.654 | 674 | 374 |
| Rigel East | Dunlevy | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 1,177 | 0.647 | 674 | 372 |
| | Halfway | Sandstone/Triassic | Stratigraphic | 1,842 | 1,827 | 0.649 | 677 | 373 |
| Shekilie | Slave Point | Carbonate/Devonian | Stratigraphic | 4,110 | 4,055 | 0.649 | 698 | 357 |
| Sierra | Pine Point | Carbonate/Devonian | Stratigraphic | 5,457 | 5,250 | 0.690 | 730 | 373 |
| Siphon | Dunlevy | Sandstone/Lower Cretaceous | Stratigraphic | 1,243 | 1,220 | 0.661 | 679 | 377 |
| | Baldonnel A | Carbonate/Triassic | Structural/Stratigraphic | None | 1,480 | 0.645 | 692 | 371 |
| | Siphon | Sandstone/Triassic | Stratigraphic | 1,632 | 1,615 | 0.704 | 716 | 398 |
| | Halfway | Sandstone/Triassic | Structural/Stratigraphic | 2,171 | 2,120 | 0.666 | 688 | 380 |
| Stoddart | Belloy A | Sandstone/Permian | Stratigraphic | None | 3,726 | 0.695 | 668 | 392 |
| | Belloy B | Sandstone/Permian | Stratigraphic | None | 3,726 | 0.695 | 668 | 392 |
| Stoddart West | Halfway | Sandstone/Triassic | Stratigraphic | ---- | 2,572 | 0.693 | 706 | 389 |
| | Belloy A | Sandstone/Permian | Stratigraphic | None | 3,830 | 0.664 | 677 | 380 |
| | Belloy B | Sandstone/Permian | Stratigraphic | 3,792 | 3,786 | 0.664 | 677 | 380 |
| Sunrise | Cadotte | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 349 | 0.575 | 675 | 350 |
| Thetlaandoa | Mississippian A | Carbonate/Mississippian | Stratigraphic | +253 | +275 | 0.615 | 696 | 355 |
| | Mississippian B | Carbonate/Mississippian | Stratigraphic | ---- | +240 | 0.615 | 696 | 355 |
| Tsea | Slave Point | Carbonate/Devonian | Stratigraphic | 5,021 | 5,000 | 0.657 | 713 | 358 |
| Two Rivers | Baldonnel | Carbonate/Triassic | Structural | ---- | 1,941 | 0.676 | 710 | 385 |
| | Halfway | Sandstone/Triassic | Structural | ---- | 2,839 | 0.668 | 693 | 382 |
| Velma | Gething | Sandstone/Lower Cretaceous | Stratigraphic | None | 654 | 0.641 | 678 | 369 |
| | "A" Marker | Sandstone/Triassic | Stratigraphic | None | 719 | 0.643 | 676 | 370 |
| Weasel | Baldonnel | Carbonate/Triassic | Structural | ---- | 979 | 0.638 | 676 | 371 |
| | Halfway E | Sandstone/Triassic | Stratigraphic | ---- | 1,435 | 0.649 | 678 | 372 |
| | Halfway F | Sandstone/Triassic | Stratigraphic | 1,262 | 1,260 | 0.649 | 678 | 372 |
| | Halfway G | Sandstone/Triassic | Stratigraphic | ---- | 1,389 | 0.649 | 678 | 372 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Weasel West | Bluesky | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 913 | 0.669 | 680 | 381 |
| Wilder | Halfway | Sandstone/Triassic | Structural/Stratigraphic | 2,706 | 2,670 | 0.630 | 704 | 369 |
| | Belloy A | Carbonate/Permian | Stratigraphic | ---- | 4,255 | 0.668 | 671 | 380 |
| | Belloy B | Carbonate/Permian | Stratigraphic | ---- | 4,115 | 0.673 | 672 | 383 |
| Wildmint | Bluesky | Sandstone/Lower Cretaceous | Stratigraphic | ---- | 814 | 0.650 | 677 | 375 |
| Willow | Halfway | Sandstone/Triassic | Structural | 1,238 | 1,225 | 0.635 | 678 | 379 |
| Yoyo | Slave Point | Carbonate/Devonian | Stratigraphic | None | 4,800 | 0.613 | 696 | 351 |
| | Pine Point | Carbonate/Devonian | Structural/Stratigraphic | 5,420 | 5,322 | 0.704 | 729 | 368 |

## TABLE 21—WELLS DRILLED AND DRILLING, 1973

| Well Authorization No. | Well Name | Date Spudded | Date Rig Released | Total Depth (Ft.) | Status at December 31, 1973 |
|---|---|---|---|---|---|
| 3307 | ARCO Bivouac a-87-C | Jan. 19, 1973 | Feb. 1, 1973 | 2,170 | Mississippian gas. |
| 3266 | ARCO Bivouac c-54-C | Dec. 29, 1972 | Jan. 12, 1973 | 2,180 | Abandoned—dry. |
| 3417 | AmMin HBOG Etset c-58-F | Dec. 29, 1973 | ——— | ——— | Drilling. |
| 3416 | AmMin Thetlaandoa d-37-C | Dec. 14, 1973 | Dec. 24, 1973 | 1,890 | Mississippian gas. |
| 3231 | Amoco et al Sundown a-10-A | Dec. 28, 1973 | June 22, 1973 | 15,741 | Abandoned—dry. |
| 3305 | Amoco HB Emile a-56-F | Jan. 19, 1973 | Jan. 31, 1973 | 1,715 | Abandoned—dry. |
| 3280 | Amoco Kotcho b-15-K | Jan. 15, 1973 | Jan. 27, 1973 | 2,750 | Abandoned—dry. |
| 3375 | Amoco et al La Biche a-67-D | Oct. 14, 1973 | ——— | ——— | Drilling. |
| 3350 | Amoco et al Thetlaandoa c-30-K | Feb. 28, 1973 | Mar. 17, 1973 | 3,400 | Mississippian gas. |
| 3322 | Amoco et al Thetlaandoa c-34-L | Jan. 31, 1973 | Feb. 8, 1973 | 2,250 | Mississippian gas. |
| 3413 | Amoco et al Thetlaandoa c-89-G | Dec. 16, 1973 | Dec. 26, 1973 | 2,280 | Mississippian gas. |
| 3414 | Amoco et al Thetlaandoa d-83-G | Dec. 30, 1973 | ——— | ——— | Drilling. |
| 3265 | Anadarko Cdn-Sup Buick 12-34-88-19 | Dec. 27, 1972 | Jan. 6, 1973 | 3,825 | Bluesky gas. |
| 3273 | Anadarko Cdn-Sup Buick b-44-J | Jan. 11, 1973 | Jan. 22, 1973 | 3,780 | Dunlevy gas. |
| 3366 | Anadarko Cdn-Sup Buick d-39-L | June 26, 1973 | July 7, 1973 | 3,770 | Dunlevy gas. |
| 3447 | Anadarko Ashland Osborn d-35-L | Dec. 30, 1973 | ——— | ——— | Drilling. |
| 3328 | Aquit AmMin et al Windflower c-24-H | Feb. 11, 1973 | Mar. 2, 1973 | 3,675 | Abandoned—dry. |
| 3330 | Aquit AmMin et al Windflower d-87-A | Mar. 5, 1973 | Mar. 22, 1973 | 2,700 | Mississippian gas. |
| 3291 | Aquit et al Tattoo a-78-L | Jan. 13, 1973 | Feb. 7, 1973 | 3,750 | Mississippian gas. |
| 3425 | Aquit et al Tattoo b-96-E | Dec. 30, 1973 | ——— | ——— | Drilling. |
| 3306 | Ashland W Siphon 10-2-87-17 | Jan. 22, 1973 | Feb. 4, 1973 | 4,496 | Abandoned—dry. |
| 3241 | Atapco et al Klua b-19-G | Jan. 4, 1973 | Mar. 6, 1973 | 7,724 | Pine Point gas. |
| 3379 | Baysel ARCO Wolf b-3-G | Aug. 24, 1973 | Sept. 3, 1973 | 4,085 | Halfway oil. |
| 3281 | BP et al Esker c-51-D | Jan. 18, 1973 | Feb. 19, 1973 | 7,420 | Abandoned—dry. |
| 3326 | BP et al Etsho a-77-I | Dec. 16, 1973 | ——— | ——— | Drilling. |
| 3282 | BP et al Fortune d-61-A | Jan. 8, 1973 | Mar. 13, 1973 | 9,906 | Abandoned—dry. |
| 3352 | BP Ethyl E Hockey d-100-L | Mar. 8, 1973 | Mar. 20, 1973 | 4,050 | Abandoned—dry. |
| 3341 | Buckeye Pac Union Prophet d-83-D | Mar. 2, 1973 | Apr. 11, 1973 | 7,292 | Abandoned—dry. |
| 3316 | Buttes GAO GEOG Helmet c-12-L | Feb. 20, 1973 | Mar. 10, 1973 | 6,190 | Abandoned—dry. |
| 3314 | Buttes GAO Sextet d-39-J | Mar. 3, 1973 | Mar. 30, 1973 | 6,790 | Abandoned—dry. |
| 3345 | CanDel et al LL & E Trutch b-2-K | Mar. 3, 1973 | June 21, 1973 | 6,912 | Charlie Lake gas. |
| 3262 | Cdn Res Quintana Adsett b-14-G | Dec. 31, 1972 | Feb. 13, 1973 | 8,570 | Abandoned—dry. |
| 3412 | Cdn Res Quintana Hiller c-92-J | Dec. 28, 1973 | ——— | ——— | Drilling. |
| 3302 | Cdn Res Quintana Junior c-63-H | Jan. 22, 1973 | Feb. 27, 1973 | 6,775 | Abandoned—dry. |
| 3107 | Cdn Res Quintana Kotcho b-43-J | Feb. 18, 1972 | Jan. 12, 1973 | 6,552 | Slave Point gas. |
| 3286 | Cdn Res Quintana Pac Kotcho a-1-I | Jan. 9, 1973 | Jan. 18, 1973 | 2,530 | Abandoned—dry. |
| 3358 | Cdn Res Quintana Pac Kotcho b-46-E | Mar. 7, 1973 | Mar. 29, 1973 | 6,381 | Abandoned—dry. |
| 3411 | Cdn Res Quintana Pac Kotcho b-68-H | Dec. 3, 1973 | ——— | ——— | Drilling. |
| 3263 | Cdn Res Quintana Pac Kotcho b-66-I | Dec. 25, 1972 | Jan. 6, 1973 | 2,543 | Abandoned—dry. |
| 3308 | Cdn Res Quintana Pac Kotcho d-71-G | Jan. 23, 1973 | Mar. 2, 1973 | 6,642 | Slave Point gas. |
| 3338 | Cdn-Sup Bear 16-15-84-20 | June 8, 1973 | June 22, 1973 | 5,000 | Abandoned—dry. |

| | | | | | |
|---|---|---|---|---|---|
| 3223 | Cdn-Sup Inga 8-5-88-23 | Dec. 12, 1972 | Jan. 7, 1973 | 5,531 | Abandoned—dry. |
| 3393 | Chevron Birch b-47-I | Oct. 22, 1973 | Dec. 7, 1973 | 6,245 | Finished drilling. |
| 3371 | Chevron Mobil Evie b-94-H | Aug. 24, 1973 | Sept. 5, 1973 | 8,140 | Abandoned—dry. |
| 3418 | CIGOL et al Rigel d-74-K | Dec. 4, 1973 | Dec. 15, 1973 | 3,610 | Abandoned—dry. |
| 3089 | Consol et al Evergreen d-95-I | Jan. 26, 1973 | Feb. 3, 1973 | 3,760 | Abandoned—dry. |
| 3401 | Coseka N Buick d-53-F | Nov. 6, 1973 | Nov. 15, 1973 | 4,045 | Abandoned—dry. |
| 3373 | Coseka N Buick d-55-J | July 29, 1973 | Aug. 8, 1973 | 4,000 | Multiple Gething and Dunlevy gas. |
| 3374 | Coseka Pem Rigel 10-6-88-18 | Aug. 15, 1973 | Sept. 4, 1973 | 4,663 | Multiple Bluesky and Dunlevy gas. |
| 3387 | Cox Union W Buick c-32-E | Oct. 13, 1973 | Nov. 12, 1973 | 6,322 | Debolt gas. |
| 3402 | Decalta et al Beavertail a-65-C | Nov. 14, 1973 | Nov. 23, 1973 | 3,495 | Abandoned—dry. |
| 3343 | DeKalb et al Jackfish d-44-F | Feb. 27, 1973 | Apr. 3, 1973 | 7,690 | Abandoned—dry. |
| 3303 | DeKalb et al Jackfish b-96-E | Jan. 26, 1973 | Mar. 30, 1973 | 7,732 | Abandoned—dry. |
| 3357 | Dome CanDel Buick b-86-D | Mar. 15, 1973 | Mar. 23, 1973 | 3,610 | Abandoned—dry. |
| 3348 | Dome CanDel N Buick b-66-F | Mar. 6, 1973 | Mar. 14, 1973 | 3,978 | Multiple Gething and Dunlevy gas. |
| 3339 | Dome CEGO Pingel 10-24-81-18 | Oct. 16, 1973 | Nov. 8, 1973 | 6,050 | Abandoned—dry. |
| 3215 | Dome et al Ritchie c-62-G | Dec. 21, 1972 | May 6, 1973 | 9,700 | Abandoned—dry. |
| 3340 | Dome Velma b-26-C | Feb. 26, 1973 | Mar. 3, 1973 | 3,400 | Abandoned—dry. |
| 3385 | Fina Bearberry c-98-L | Nov. 5, 1973 | Nov. 22, 1973 | 4,595 | Abandoned—dry. |
| 3386 | Fina Bearberry c-35-D | Oct. 17, 1973 | Nov. 3, 1973 | 4,450 | Abandoned—dry. |
| 3240 | Fina Bearberry d-95-L | Dec. 30, 1972 | Jan. 24, 1973 | 5,400 | Dunlevy gas. |
| 3272 | Frio-El Can-Numac E Clarke c-36-I | Jan. 14, 1973 | Feb. 17, 1973 | 7,700 | Abandoned—dry. |
| 3359 | GAO Cdn Res Pintail 4-12-85-25 | Mar. 13, 1973 | Apr. 4, 1973 | 4,879 | Abandoned—dry. |
| 3360 | GNPM Arlington Sunrise 11-2-79-17 | Mar. 21, 1973 | Mar. 28, 1973 | 3,400 | Cadotte gas. |
| 3299 | GPD NOEL et al Kahntah a-100-F | Jan. 18, 1973 | Jan. 26, 1973 | 1,679 | Abandoned—dry. |
| 3318 | GPD NOEL et al Kahntah c-29-J | Jan. 28, 1973 | Feb. 3, 1973 | 1,800 | Abandoned—dry. |
| 3300 | HB Ashland Buick c-34-D | Jan. 17, 1973 | Jan. 28, 1973 | 3,553 | Abandoned—dry. |
| 3255 | HB Ashland Buick d-37-D | Dec. 31, 1972 | Jan. 14, 1973 | 3,613 | Dunlevy gas. |
| 3174 | HB et al Moberly 16-20-79-25 | Aug. 25, 1972 | Feb. 15, 1973 | 11,003 | Halfway gas. |
| 3336 | HB et al Velma a-69-C | Feb. 27, 1973 | Mar. 10, 1973 | 3,510 | Gething gas. |
| 3256 | HB et al Velma b-8-F | Jan. 10, 1973 | Jan. 18, 1973 | 3,455 | Abandoned—dry. |
| 3260 | HB Otter b-17-E | Jan. 31, 1973 | Feb. 16, 1973 | 3,595 | Abandoned—dry. |
| 3257 | HB Otter d-91-H | Feb. 23, 1973 | Mar. 5, 1973 | 3,600 | Abandoned—dry. |
| 3297 | HB Union Bogbean b-6-B | Feb. 16, 1973 | Feb. 25, 1973 | 3,420 | Halfway gas. |
| 3247 | HB Union Ladyfern b-4-I | Jan. 24, 1973 | Jan. 31, 1973 | 3,480 | Abandoned—dry. |
| 3420 | HB Robertson d-91-E | Dec. 27, 1973 | ——— | ——— | Drilling. |
| 3289 | HOL APC Buick a-63-B | Jan. 26, 1973 | Feb. 5, 1973 | 3,850 | Multiple Bluesky and Dunlevy gas. |
| 3355 | HOL APC Buick d-15-G | Mar. 10, 1973 | Mar. 22, 1973 | 3,900 | Abandoned—dry. |
| 3238 | Home et al Farmington 10-24-80-16 | Dec. 25, 1972 | Jan. 6, 1973 | 2,861 | Abandoned—dry. |
| 3232 | Home et al Minaker a-83-J | Dec. 8, 1972 | May 4, 1973 | 11,537 | Abandoned—dry. |
| 3389 | Huber Cdn-Sup Total Nig d-73-A | Oct. 18, 1973 | Nov. 20, 1973 | 4,344 | Baldonnel gas. |
| 3429 | IOE Pembina E Beg c-12-G | Dec. 16, 1973 | ——— | ——— | Drilling. |
| 3380 | Inexco et al Tornado b-9-J | Oct. 24, 1973 | ——— | ——— | Drilling. |
| 3321 | Ipex et al Currant d-73-K | Feb. 4, 1973 | Feb. 19, 1973 | 4,089 | Halfway gas. |
| 3287 | JB Expl Prespatou c-80-A | Jan. 25, 1973 | Feb. 13, 1973 | 4,340 | Abandoned—dry. |
| 3288 | JB Expl Wargen a-83-G | Feb. 17, 1973 | Mar. 4, 1973 | 4,010 | Abandoned—dry. |
| 3403 | KM et al Mast b-60-A | Nov. 11, 1973 | ——— | ——— | Drilling. |
| 3319 | KM AEG Mast d-80-A | Mar. 11, 1973 | Oct. 1, 1973 | 11,718 | Dunlevy gas. |

TABLE 21—WELLS DRILLED AND DRILLING, 1973—*Continued*

| Well Authorization No. | Well Name | Date Spudded | Date Rig Released | Total Depth (Ft.) | Status at December 31, 1973 |
|---|---|---|---|---|---|
| 3407 | KM AEG Quasar Grizzly a-49-H | Dec. 14, 1973 | | | Drilling. |
| 3390 | LH Aikman b-22-C | Nov. 15, 1973 | | | Drilling. |
| 3384 | Lamar Hunt et al Umbach d-39-J | Sept. 29, 1973 | Oct. 15, 1973 | 4,670 | Abandoned—dry. |
| 3405 | Mesa Oval 6-24-86-15 | Nov. 25, 1973 | Dec. 30, 1973 | 9,920 | Abandoned—dry. |
| 3372 | Monsanto Ft St John SE 6-23-83-17 | July 30, 1973 | Aug. 15, 1973 | 5,320 | Abandoned—dry. |
| 3242 | Murphy N Boundary 8-31-87-14 | Dec. 22, 1972 | Jan. 12, 1973 | 4,509 | Halfway oil. |
| 3431 | Murphy N Boundary 8-1-88-15 | Dec. 12, 1973 | Dec. 31, 1973 | 4,385 | Abandoned—dry. |
| 3335 | Oakwood IOE et al Scatter d-98-F | Feb. 23, 1973 | Aug. 30, 1973 | 12,322 | Abandoned—dry. |
| 3437 | PATP et al Weasel d-39-A | Dec. 17, 1973 | Dec. 27, 1973 | 3,750 | Finished drilling. |
| 2965 | POR Beatton d-8-J | Feb. 21, 1973 | Mar. 2, 1973 | 3,840 | Abandoned—dry. |
| 3423 | Pacific Cabin b-42-B | Dec. 18, 1973 | | | Drilling. |
| 3422 | Pacific Cabin d-79-B | Dec. 15, 1973 | | | Drilling. |
| 3324 | Pacific CIGOL Dahl d-39-A | Feb. 13, 1973 | Feb. 20, 1973 | 3,245 | Abandoned—dry. |
| 3117 | Pacific et al Caribou d-27-H | Jan. 9, 1973 | Jan. 21, 1973 | 3,970 | Gething gas. |
| 3378 | Pacific et al Clarke b-78-I | Sept. 3, 1973 | Oct. 4, 1973 | 6,281 | Slave Point gas. |
| 3228 | Pacific et al Clarke c-52-F | Nov. 25, 1972 | Jan. 2, 1973 | 6,530 | Slave Point gas. |
| 3312 | Pacific et al Coyote c-80-B | Jan. 25, 1973 | Feb. 10, 1973 | 3,982 | Abandoned—dry. |
| 3293 | Pacific et al Hawthorne 7-5-86-24 | Jan. 1, 1973 | Jan. 29, 1973 | 5,800 | Abandoned—dry. |
| 3284 | Pacific et al Inga 14-21-87-23 | Dec. 12, 1973 | Dec. 25, 1973 | 5,363 | Inga oil. |
| 3408 | Pacific et al Laprise b-68-D | Nov. 25, 1973 | Dec. 7, 1973 | 4,265 | Abandoned—dry. |
| 3365 | Pacific Flatrock 16-12-84-17 | July 4, 1973 | July 23, 1973 | 4,880 | Abandoned—dry. |
| 3331 | Pacific HB Klowee d-9-E | Feb. 23, 1973 | Mar. 30, 1973 | 7,203 | Abandoned—dry. |
| 3264 | Pacific Imp Clarke a-10-D | Jan. 12, 1973 | Feb. 14, 1973 | 6,265 | Slave Point gas. |
| 3361 | Pacific Imp Clarke b-97-L | Mar. 27, 1973 | Apr. 27, 1973 | 6,325 | Slave Point gas. |
| 3243 | Pacific IOE Inga 16-28-87-23 | Feb. 1, 1973 | Feb. 20, 1973 | 5,415 | Water injection. |
| 3301 | Pacific Kotcho a-56-K | Feb. 14, 1973 | Mar. 25, 1973 | 6,601 | Slave Point gas. |
| 3377 | Pacific et al Laprise c-34-D | Aug. 15, 1973 | Aug. 26, 1973 | 4,455 | Abandoned—dry. |
| 3409 | Pacific Muskwa b-94-L | Dec. 19, 1973 | | | Drilling. |
| 3383 | Pacific et al Peejay b-52-H | Oct. 2, 1973 | Oct. 11, 1973 | 3,903 | Water injection. |
| 3271 | Pacific Petitot a-45-D | Jan. 7, 1973 | Feb. 2, 1973 | 6,656 | Abandoned—dry. |
| 3130 | Pacific et al Rabbit b-39-A | Jan. 24, 1973 | Feb. 2, 1973 | 3,980 | Abandoned—dry. |
| 3132 | Pacific et al Rabbit b-82-B | Jan. 12, 1973 | Jan. 23, 1973 | 4,035 | Abandoned—dry. |
| 3320 | Pacific et al S Osprey d-73-G | Feb. 5, 1973 | Feb. 16, 1973 | 3,917 | Halfway gas. |
| 3342 | Pacific Tepee d-31-K | Feb. 20, 1973 | Mar. 22, 1973 | 4,858 | Halfway gas. |
| 3313 | Pacific WP Clarke c-31-G | Feb. 19, 1973 | Mar. 3, 1973 | 7,319 | Abandoned—dry. |
| 3285 | Pacific WP S Black c-72-C | Jan. 3, 1973 | Jan. 12, 1973 | 4,085 | Abandoned—dry. |
| 3424 | Pacific Yoyo d-17-L | Dec. 7, 1973 | | | Drilling. |
| 3398 | Pembina Coseka Rigel 10-32-87-18 | Nov. 10, 1973 | Dec. 2, 1973 | 4,680 | Abandoned—dry. |
| 3329 | Pembina Laprise d-79-I | Feb. 18, 1973 | Mar. 8, 1973 | 3,940 | Abandoned—dry. |
| 3235 | Penzl Mesa Clarke a-36-C | Dec. 10, 1972 | Jan. 10, 1973 | 7,050 | Slave Point gas. |
| 3419 | Penzl Mesa Fontas a-24-H | Dec. 16, 1973 | | | Drilling. |

| | | | | | |
|---|---|---|---|---|---|
| 3268 | Penzl Mesa Fontas d-77-H | Dec. 31, 1972 | Feb. 17, 1973 | 8,250 | Slave Point gas. |
| 3334 | Penzl Mesa Jackfish d-45-K | Feb. 22, 1973 | Mar. 23, 1973 | 7,380 | Abandoned—dry. |
| 3253 | Provident Siphon 7-8-87-15 | Jan. 16, 1973 | Feb. 2, 1973 | 4,575 | Abandoned—dry. |
| 3388 | Provident Wincan Oak 6-13-86-18 | Oct. 9, 1973 | Oct. 23, 1973 | 4,610 | Abandoned—dry. |
| 3317 | Provident Wincan Oak 10-22-86-18 | Feb. 6, 1973 | Feb. 24, 1973 | 4,635 | Abandoned—dry. |
| 3275 | Quasar Amoco Gutah d-73-E | Mar. 12, 1973 | Mar. 18, 1973 | 3,270 | Abandoned—dry. |
| 3277 | Quasar Amoco Lapp d-62-D | Feb. 18, 1973 | Feb. 25, 1973 | 3,400 | Abandoned—dry. |
| 3279 | Quasar Amoco Mars d-39-H | Jan. 29, 1973 | Feb. 6, 1973 | 3,460 | Abandoned—dry. |
| 3278 | Quasar Amoco Mercury d-39-A | Jan. 16, 1973 | Jan. 25, 1973 | 3,810 | Abandoned—dry. |
| 3276 | Quasar Amoco Slave d-33-H | Feb. 8, 1973 | Feb. 16, 1973 | 3,350 | Abandoned—dry. |
| 3258 | Quasar et al Elder a-27-E | Feb. 2, 1973 | Feb. 13, 1973 | 4,030 | Abandoned—dry. |
| 3194 | Quasar Mobil Flatbed d-57-D | Nov. 26, 1972 | Dec. 17, 1973 | 14,350 | Abandoned—dry. |
| 3368 | Quasar et al Grizzly a-3-A | Sept. 17, 1973 | ——— | ——— | Drilling. |
| 3180 | Quasar et al Grizzly b-62-G | Aug. 31, 1972 | Jan. 2, 1973 | 9,297 | Dunlevy gas. |
| 3181 | Quasar Grizzly a-85-G | Aug. 31, 1972 | Dec. 7, 1973 | 17,243 | Finished drilling. |
| 3233 | Quasar et al Grizzly d-30-H | Dec. 11, 1972 | June 22, 1973 | 14,028 | Abandoned—dry. |
| 3261 | Quasar HB Phillips Wolverine c-32-K | Jan. 17, 1973 | Nov. 12, 1973 | 9,156 | Finished drilling. |
| 3395 | Quasar et al Oetco c-28-I | Dec. 16, 1973 | ——— | ——— | Drilling. |
| 3270 | Quasar Oval 8-19-86-14 | Jan. 13, 1973 | Jan. 26, 1973 | 4,635 | Abandoned—dry. |
| 3274 | Quasar Amoco Redeye d-69-D | Feb. 28, 1973 | Mar. 8, 1973 | 3,470 | Halfway gas. |
| 3323 | Quintana CanDel et al Hostil d-15-I | Jan. 31, 1973 | Feb. 23, 1973 | 5,609 | Abandoned—dry. |
| 3347 | SOC et al Fireweed a-29-D | Mar. 9, 1973 | Mar. 19, 1973 | 4,415 | Abandoned—dry. |
| 3333 | SOC et al Fireweed b-4-K | Feb. 27, 1973 | Mar. 7, 1973 | 4,185 | Dunlevy gas. |
| 3356 | SOC et al Fireweed b-10-D | Mar. 13, 1973 | Mar. 21, 1973 | 4,274 | Abandoned—dry. |
| 3376 | SOC et al Inga d-55-B | Aug. 23, 1973 | Sept. 7, 1973 | 4,910 | Dunlevy gas. |
| 3392 | SOC et al W Jeans d-11-F | Nov. 7, 1973 | Nov. 24, 1973 | 4,495 | Dunlevy gas. |
| 3381 | Scurry Ballinderry Cecil 6-14-84-18 | Sept. 11, 1973 | Oct. 3, 1973 | 3,695 | Abandoned—dry. |
| 3354 | Scurry Ballinderry N Pine 6-21-85-18 | Nov. 16, 1973 | Dec. 5, 1973 | 5,970 | Abandoned—dry. |
| 3394 | Scurry CanPlac Cecil 10-18-84-17 | Oct. 20, 1973 | Nov. 13, 1973 | 6,475 | North Pine gas. |
| 3364 | Scurry CanPlac Eagle 6-22-84-18 | June 22, 1973 | July 14, 1973 | 6,120 | Belloy oil. |
| 3239 | Scurry CanPlac Eagle 6-27-84-18 | Jan. 10, 1973 | Jan. 29, 1973 | 6,070 | Belloy oil. |
| 3370 | Scurry CanPlac Eagle 6-34-84-18 | July 22, 1973 | Aug. 17, 1973 | 6,051 | Belloy oil. |
| 3382 | Scurry CanPlac Eagle 16-28-84-18 | Sept. 18, 1973 | Nov. 9, 1973 | 6,071 | Belloy gas. |
| 3399 | Scurry ML N Wilder 6-13-84-20 | Nov. 25, 1973 | Dec. 10, 1973 | 5,325 | Abandoned—dry. |
| 3406 | Signal Dogrib a-7-L | Dec. 12, 1973 | ——— | ——— | Drilling. |
| 3346 | Skye et al Fireweed b-22-H | Feb. 25, 1973 | Mar. 10, 1973 | 4,070 | Bluesky gas. |
| 3296 | TLI et al Grassy a-60-E | Jan. 25, 1973 | Apr. 5, 1973 | 6,550 | Abandoned—dry. |
| 3176 | TPPL et al Maple d-57-E | Jan. 10, 1973 | Feb. 2, 1973 | 4,385 | Abandoned—dry. |
| 3332 | TPPL et al W Inga 11-4-87-24 | Dec. 2, 1972 | Mar. 4, 1973 | 4,780 | Abandoned—dry. |
| 3325 | Tenn Monsanto et al W Weasel d-73-C | Feb. 24, 1973 | Mar. 2, 1973 | 3,855 | Halfway oil. |
| 3349 | Tenn Monsanto W Weasel b-81-C | Mar. 5, 1973 | Mar. 18, 1973 | 3,836 | Multiple Bluesky and Halfway gas. |
| 3367 | Texcan Cache 6-22-88-22 | Aug. 1, 1973 | Aug. 17, 1973 | 5,033 | Multiple Coplin and Halfway gas. |
| 3353 | Union et al Peejay b-2-E | Mar. 13, 1973 | Mar. 26, 1973 | 3,905 | Water injection. |
| 3315 | Union HB Aitken d-59-L | Feb. 9, 1973 | Feb. 24, 1973 | 4,301 | Abandoned—dry. |
| 3310 | Union HB Wildmint b-65-A | Feb. 6, 1973 | Feb. 15, 1973 | 3,725 | Halfway oil. |
| 3309 | Union HB Wildmint c-66-A | Feb. 17, 1973 | Feb. 23, 1973 | 3,770 | Water injection. |
| 3400 | Union Mason d-6-F | Nov. 14, 1973 | Dec. 28, 1973 | 8,000 | Abandoned—dry. |

TABLE 21—WELLS DRILLED AND DRILLING, 1973—*Continued*

| Well Authorization No. | Well Name | Date Spudded | Date Rig Released | Total Depth (Ft.) | Status at December 31, 1973 |
|---|---|---|---|---|---|
| 3252 | Wainoco et al E Osborne b-64-I | Dec. 23, 1972 | Jan. 6, 1973 | 4,215 | Abandoned—dry. |
| 3251 | Wainoco et al Kyklo a-45-B | Jan. 20, 1973 | Jan. 27, 1973 | 2,590 | Abandoned—dry. |
| 3249 | Wainoco et al Kyklo c-12-I | Dec. 27, 1972 | Jan. 7, 1973 | 2,160 | Abandoned—dry. |
| 3250 | Wainoco et al Kyklo d-77-L | Jan. 10, 1973 | Jan. 17, 1973 | 2,265 | Abandoned—dry. |
| 3248 | Wainoco et al Lichen c-54-A | Dec. 21, 1972 | Jan. 17, 1973 | 6,610 | Abandoned—dry. |
| 3304 | Wainoco Flatrock 6-18-84-16 | Jan. 26, 1973 | Feb. 11, 1973 | 4,835 | Multiple Halfway and Boundary Lake gas. |
| 3396 | Wainoco Francana Pluto 11-22-85-17 | Nov. 2, 1973 | Nov. 7, 1973 | 2,929 | Abandoned—junked. |
| 3404 | Wainoco Francana Pluto A11-22-85-17 | Nov. 8, 1973 | Nov. 30, 1973 | 5,989 | Abandoned—dry. |
| 3410 | Wainoco et al Peejay d-42-D | Dec. 26, 1973 | ——— | ——— | Drilling. |
| 3369 | Westcoast Phillips Dunedin c-20-I | July 31, 1973 | Nov. 19, 1973 | 7,825 | Abandoned—dry. |
| 3397 | Woods Wainoco Ashland Oak 6-7-86-17 | Oct. 31, 1973 | Nov. 24, 1973 | 4,369 | Halfway oil. |
| 3363 | Woods Wainoco Ashland Oak 6-18-86-17 | July 25, 1973 | Aug. 13, 1973 | 4,215 | Halfway gas. |
| 3267 | Woods Anadarko Siphon 6-5-87-16 | Dec. 30, 1972 | Jan. 10, 1973 | 4,530 | Abandoned—dry. |
| 3269 | Woods Wainoco Oak 11-24-86-18 | Jan. 9, 1973 | Jan. 22, 1973 | 4,192 | Halfway gas. |

## TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1973

| Field | Date Designated | Date(s) Revised | Field Location | Pool(s) | Number of Wells Capable of Production | Discovery Well(s) | Pool(s) Discovered |
|---|---|---|---|---|---|---|---|
| Airport | Oct. 1, 1968 | | Tp. 83, R. 17, W6M | 4, 5, 9 | — | Pacific Airport 8-32-83-17 (3), gas<br>Pacific Airport 12-34-83-17 (10), gas<br>Pacific Airport 9-32-83-17 (97), gas | 4<br>9<br>5 |
| Aitken Creek | Feb. 15, 1960 | Jan. 1, 1961<br>Oct. 1, 1963<br>Apr. 1, 1971 | N.T.S. 94-A-13 | 3<br>3 | 10<br>— | Union Aitken Creek b-42-L, oil<br>Union HB Aitken d-57-L, gas | 3<br>3 |
| Balsam | Dec. 31, 1971 | Mar. 31, 1972 | N.T.S 94-H-2 | 2, 9 | 3 | Union HB Balsam d-77-H, gas<br>Ipex Cox Hamilton Balsam d-47-H, oil<br>Union HB Balsam b-56-H, gas | 9<br>9<br>2 |
| Bear Flat | Oct. 1, 1969 | | Tp. 84, R. 20, W6M | 6 | 2 | Monsanto Bear Flat 7-16-84-20, oil | 6 |
| Beatton River | Aug. 7, 1959 | Jan. 1, 1962<br>Apr. 1, 1971 | N.T.S. 94-H-2 | 9 | 16 | Triad Beatton d-60-J, gas<br>Triad Beatton River b-38-J, oil | 9<br>9 |
| Beatton River West | Aug. 7, 1959 | Jan. 1, 1962<br>Oct. 1, 1964<br>Apr. 1, 1969<br>July 1, 1970<br>Jan. 1, 1971 | N.T.S. 94-H-2 | 2 | 15 | Triad West Beatton River d-39-K, oil | 2 |
| Beaverdam | Apr. 1, 1966 | | N.T.S 94-A-16 | 9 | 3 | Tenn Sun Beaverdam d-37-L, gas<br>Tenn Beaverdam d-38-L, oil | 9<br>9 |
| Beaver River | Jan. 1, 1971 | Oct. 1, 1971 | N.T.S 94-N-16, 95-C-1 | 14 | 5 | Pan Am Beaver River d-73-K, gas | 14 |
| Beavertail | Apr. 1, 1970 | | N.T.S 94-A-15 | 3, 9 | 4 | Pacific Sinclair Beavertail d-71-C, gas | 3, 9 |
| Beg | July 1, 1961 | Jan. 1, 1962<br>Apr. 1, 1962<br>July 1, 1962<br>Apr. 1, 1963<br>Apr. 1, 1964 | N.T.S. 94-B-16, 94-G-1, 94-G-8 | 5, 9 | 30 | Pacific et al Beg b-17-K, gas<br>Pacific et al Beg d-10-G, gas | 5<br>9 |
| Beg West | Apr. 1, 1962 | Oct. 1, 1963 | N.T.S. 94-G-1 | 5 | 3 | Pacific et al W Beg a-19-F, gas | 5 |
| Bernadet | Oct. 1, 1963 | | Tp. 87, 88, R. 24, 25, W6M | 3 | 1 | West Nat et al Bernadet 8-1-88-25, gas | 3 |
| Bivouac | Mar. 31, 1973 | | N.T.S. 94-A-13 | 11 | 2 | ARCo Bivouac d-68-C | 11 |
| Blueberry | Feb. 7, 1958 | Dec. 22, 1958<br>Feb. 15, 1960<br>May 27, 1960<br>Oct. 1, 1961<br>Jan. 1, 1963 | N.T.S 94-A-12, 94-A-13<br>Tp. 88, R. 25, W6M | 4, 5, 6, 9<br>11 | 34 | West Nat et al Blueberry b-22-D, gas<br>West Nat et al Blueberry b-32-D, gas<br>West Nat et al Blueberry d-87-D, gas<br>West Nat et al Blueberry a-61-L, gas<br>West Nat et al Blueberry d-82-L, oil | 9<br>4<br>5<br>6<br>11 |
| Blueberry East | Dec. 22, 1958 | | N.T.S 94-A-13 | 5, 9, 11 | 2 | West Nat et al E Blueberry b-38-C, gas<br>West Nat et al E Blueberry b-36-C, gas | 5, 9<br>11 |
| Blueberry West | Feb. 7, 1958 | July 1, 1961<br>Oct. 1, 1969 | N.T.S. 94-A-12, 94-B-9, 94-B-16<br>Tp. 88, R. 25, W6M | 4, 5 | 5 | West Nat et al W Blueberry d-82-L, gas<br>West Nat et al W Blueberry d-19-L, gas | 4<br>5 |

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1973—*Continued*

| Field | Date Designated | Date(s) Revised | Field Location | Pool(s) | Number of Wells Capable of Production | Discovery Well(s) | Pool(s) Discovered |
|---|---|---|---|---|---|---|---|
| Boundary Lake | Oct. 30, 1956 | Feb. 7, 1958<br>Aug. 7, 1959<br>Feb. 15, 1960<br>Jan. 1, 1961<br>Apr. 1, 1961<br>July 1, 1961<br>Jan. 1, 1962<br>Apr. 1, 1962<br>Oct. 1, 1963<br>Oct. 1, 1964<br>Jan. 1, 1965<br>Oct. 1, 1965<br>Jan. 1, 1966<br>Apr. 1, 1966 | Tp. 84–87, R. 13, W6M<br>Tp. 83–86, R. 14, 15, W6M | 2, 3, 4, 5<br>8, 9 | 332 | Pacific Boundary 8-15-85-14, gas and oil<br>Pacific Boundary 12-10-85-14, gas<br>Amerada Boundary 8-5-85-14, gas<br>Texaco NFA Boundary L 6-6-85-14 (1), oil<br>Sun Boundary Lake 6-23-85-14, oil<br>Texaco NFA Boundary 16-31-86-13, gas | 2, 4, 5<br>3<br>4<br>8<br>9<br>9 |
| Boundary Lake North | Jan. 1, 1965 | Apr. 1, 1966 | Tp. 87, R. 14, W6M | 9 | 4 | Texaco NFA N Boundary 7-3-87-14, gas | 9 |
| Bubbles | Nov. 24, 1959 | Feb. 15, 1960<br>May 27, 1960<br>Jan. 1, 1961 | N.T.S 94-G-1, 94-G-8, 94-H-4 | 5 | 10 | Pacific Imperial Bubbles b-33-I, gas | 5 |
| Bubbles North | Dec. 31, 1971 | Dec. 31, 1972 | N.T.S. 94-G-8 | 9 | 3 | Pac Imp N Bubbles d-95-B, gas | 9 |
| Buick Creek | Feb. 7, 1958 | Aug. 7, 1959<br>Jan. 1, 1961<br>July 1, 1961<br>Oct. 1, 1963<br>Jan. 1, 1965<br>Apr. 1, 1970<br>Sept. 30, 1972<br>Dec. 31, 1972<br>June 30, 1973<br>Dec. 31, 1973 | N.T.S 94-A-11, 94-A-14<br>N.T.S. 94-A-10, 94-A-15<br>Tp. 88, R. 19, W6M | 2, 4, 6 | 40 | MicMac et al Buick d-17-D, gas<br>Texaco NFA Buick Creek d-98-I (1), gas<br>Texaco NFA Buick Creek d-83-J (4), gas | 2<br>4<br>6 |
| Buick Creek North | Apr. 1, 1967 | | N.T.S. 94-A-14 | 3, 4 | 12 | Pacific West Prod N Buick c-22-F, gas | 3, 4 |
| Buick Creek West | Feb. 7, 1958 | Jan. 6, 1959<br>Feb. 15, 1960<br>Jan. 1, 1963<br>Dec. 31, 1973 | N.T.S. 94-A-11, 94-A-14 | 3, 4, 5, 9, 11 | 14 | Pacific West Buick Creek c-2-E (6), gas<br>Pacific W Buick Creek c-83-K (13A), oil<br>Pacific West Buick Creek b-78-C (2), gas<br>Pacific West Buick Creek c-58-C (8), gas<br>Pacific West Buick Creek b-23-E (1), gas<br>Cox Union W Buick c-32-F | 3<br>4<br>4<br>5<br>9<br>11 |
| Bulrush | July 1, 1964 | Apr. 1, 1965 | N.T.S. 94-A-16 | 9 | 4 | Union HB Sinclair Bulrush d-78-F, oil | 9 |
| Bulrush East | Apr. 1, 1967 | | N.T.S. 94-A-16 | 9 | 1 | Dome Provo Co-op E Bulrush d-5-K, oil | 9 |
| Cabin | Apr. 1, 1970 | Dec. 31, 1972 | N.T.S. 94-P-5 | 9 | 5 | West Nat Cabin a-19-G, gas | 9 |
| Cache Creek | Dec. 31, 1971 | Dec. 31, 1973 | Tp. 88, R. 22, W6M<br>N.T.S. 94-A-14 | 6, 9 | 3 | Texcan N Cache 6-28-88-22, gas | 6, 9 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cecil Lake | Sept. 30, 1972 | | Tp. 84, R. 17, 18, W6M | 6 | 7 | Scurry ML Cecil 6-31-84-17, gas | 6 |
| | | | | | | Scurry ML CAEL Cecil 10-24-84-18, oil | 6 |
| Charlie Lake | Jan. 1, 1961 | | Tp. 84, R. 18, W6M | 3 | 1 | Imp Pac Charlie 13-5-84-18, oil | 3 |
| Clarke Lake | Feb. 15, 1960 | May 27, 1960<br>Jan. 1, 1961<br>Apr. 1, 1962<br>Apr. 1, 1965<br>Apr. 1, 1966<br>Jan. 1, 1967<br>Apr. 1, 1967<br>July 1, 1967<br>July 1, 1968<br>July 1, 1969<br>July 1, 1970<br>Mar. 31, 1973 | N.T.S. 94-J-9, 94-J-10, 94-J-15, 94-J-16 | 13 | 39 | West Nat et al Clarke Lake c-47-J, gas | 13 |
| Clarke Lake South | Oct. 1, 1968 | | N.T.S. 94-J-9 | 13 | 2 | West Nat IOE S Clarke d-29-K, gas | 13 |
| Crush | Apr. 1, 1968 | July 1, 1968<br>Oct. 1, 1968 | N.T.S. 94-A-16 | 9 | 9 | Union et al Crush d-28-F, oil | 9 |
| Currant | Oct. 1, 1965 | Mar. 31, 1973<br>Dec. 31, 1973 | N.T.S. 94-A-9, 94-A-16 | 9 | 10 | Union HB Sinc Pac Currant d-37-C, gas | 9 |
| | | | | | | Sinclair et al Currant d-17-C, oil | 9 |
| Cypress | Dec. 31, 1971 | | N.T.S. 94-B-15 | 5 | 3 | Security Cypress a-28-F, gas | 5 |
| Dahl | Dec. 31, 1971 | | N.T.S. 94-H-7, 94-H-10 | 2 | 7 | Tenn Cdn-Sup Dahl d-53-J, gas | 2 |
| Dawson Creek | Feb. 7, 1958 | | Tp. 79, R. 15, W6M | 1 | 2 | Pac Sc Dawson Ck 1-15-79-15 (1), gas | 1 |
| Eagle | Dec. 31, 1971 | Mar 31, 1973<br>Sept. 30, 1973 | Tp. 84, R. 18, W6M | 10 | 5 | Raines Eagle 11-29-84-18, oil | 10 |
| Elm | Dec. 31, 1971 | | N.T.S 94-H-7 | 9 | 2 | BO & G et al Elm d-83-C, gas | 9 |
| | | | | | | Bralorne et al Elm b-62-C, oil | 9 |
| Evergreen | Dec. 31, 1971 | | N.T.S 94-H-2 | 9 | 2 | CDR Sun Evergreen d-54-J, gas | 9 |
| Farrell Creek | Jan. 1, 1968 | | N.T.S. 94-A-5, 94-B-8<br>Tp. 85, R. 26, W6M<br>Tp. 86, R. 26, W6M | 6, 9 | 5 | Ft St John Petroleums Farrell a-9-L, gas | 9 |
| | | | | | | CanDel et al Farrell a-41-I, gas | 6 |
| Fireweed | Dec. 31, 1972 | | N.T.S. 94-A-13, 94-A-14 | 2, 4, 5, 11 | 14 | West Nat et al Fireweed c-A1-H, gas | 11 |
| | | | | | | Union Fireweed d-53-G, gas | 4 |
| | | | | | | CDR Fireweed d-31-G, gas | 5 |
| | | | | | | Sierra et al Fireweed a-43-H, gas | 2 |
| Flatrock | July 1, 1971 | Oct. 1, 1971<br>Sept. 30, 1972<br>Dec. 31, 1972 | Tp. 84, R. 16, 17, W6M | 9 | 8 | Champlin Flatrock 10-9-84-16, gas | 9 |
| | | | | | | Wainoco et al Flatrock 6-13-84-17, oil | 9 |
| Fort St. John | Aug. 22, 1956 | Feb. 7, 1958<br>Feb. 15, 1960<br>Jan. 1, 1961<br>Oct. 1, 1968<br>Apr. 1, 1969 | Tp. 83, R. 18, 19, W6M | 4, 5, 6, 9, 10 | 29 | Pacific Ft St John A3-29-83-18 (31), gas | 4 |
| | | | | | | Pacific Ft St. John 14-15-83-18 (7), gas | 5 |
| | | | | | | Pacific Ft St. John B3-29-83-18 (52), gas | 6 |
| | | | | | | Pacific Ft St John 3-14-83-18 (9), oil | 6 |
| | | | | | | Pacific Ft St John 1-20-83-18 (30), gas | 9 |
| | | | | | | Imp Pac Ft St John 9-19-83-19 (45), oil | 10 |
| | | | | | | Pacific Ft St John 14-21-83-18 (4), gas | 10 |

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1973—*Continued*

| Field | Date Designated | Date(s) Revised | Field Location | Pool(s) | Number of Wells Capable of Production | Discovery Well(s) | Pool(s) Discovered |
|---|---|---|---|---|---|---|---|
| Fort St. John Southeast | Feb. 7, 1958 | | Tp. 82, 83, R.17, W6M | 4, 5, 9, 10 | 15 | Pacific Ft St John SE 10-31-82-17 (80), gas | 4 |
| | | | | | | Pac Ft St John SE A4-10-83-17 (55), gas | 5 |
| | | | | | | Pac Ft St John SE 10-33-82-17 (22), gas | 9 |
| | | | | | | Pac Ft St John SE 4-10-83-17 (12), gas | 10 |
| Grizzly | Dec. 31, 1971 | | N.T.S. 93-I-15 | 4 | 2 | Gray Oil PRP NW Grizzly c-25-A, gas | 4 |
| Grizzly North | Dec. 31, 1973 | | N.T.S. 93-I-15 | 4 | 1 | Quasar et al Grizzly b-62-G, gas | 4 |
| Gundy Creek | Feb. 7, 1958 | Jan. 6, 1959 | N.T.S 94-B-16 | 5, 6 | 5 | West Nat Gundy Creek b-69-A, gas | 6 |
| | | | | | | West Nat Gundy Creek c-80-A, gas | 5 |
| | | | | | | West Nat et al Halfway 5-1-87-25, gas | 5 |
| Halfway | Dec. 22, 1958 | | Tp. 86, 87, R. 25, W6M | 5, 6 | 4 | West Nat et al Halfway 8-11-87-25, gas | 6 |
| | | | | | | West Nat et al Halfway 14-11-87-25, oil | 6 |
| Helmet | Dec. 31, 1971 | | N.T.S. 94-P-7 | 13 | 2 | PPC Chevron et al Helmet b-11-K, gas | 13 |
| Highway | Feb. 7, 1958 | | N.T.S 94-B-16 | 4, 5, 11 | 6 | West Nat et al Highway b-3-I (1), gas | 4 |
| | | | | | | Pacific Highway b-25-I (1), gas | 5 |
| | | | | | | Pacific Highway a-90-I (4), gas | 11 |
| Inga | Jan. 1, 1967 | Apr. 1, 1968 | | | | | |
| | | July 1, 1968 | | | | | |
| | | Oct. 1, 1968 | Tp. 85, R. 23, W6M | | | | |
| | | Jan. 1, 1969 | Tp. 86, R. 23, 24, W6M | | | Cdn-Sup et al Inga 10-25-88-24, oil | 7 |
| | | Apr. 1, 1969 | Tp 87, R. 23, 24, W6M | | | Hunt Sands Pac Imp Inga 7-16-86-23, oil | 5 |
| | | July 1, 1970 | Tp. 88, R. 23, 24, W6M | | | Texaco Inga 6-25-87-24, oil | 6 |
| | | Oct. 1, 1970 | N.T.S. 94-A-12 | 5, 6, 7 | 80 | Pacific Inga 6-29-86-23, gas | 5 |
| | | Jan. 1, 1971 | N.T.S. 94-A-13 | | | Tenn Cdn-Sup et al Inga 13-7-88-23, gas | 7 |
| | | July 1, 1971 | | | | | |
| | | Dec. 31, 1972 | | | | | |
| Inga North | Dec. 31, 1971 | | N.T.S. 94-A-12, 94-A-13 | 7 | 3 | Pioneer Cabot N Inga d-51-K, gas | 7 |
| Jedney | Aug. 7, 1959 | Nov. 24, 1959 | | | | | |
| | | Feb. 15, 1960 | | | | | |
| | | Jan. 1, 1961 | N.T.S. 94-G-1, 94-G-8 | 3, 5, 9 | 42 | Pacific Imperial Jedney a-95-C, gas | 3 |
| | | Apr. 1, 1961 | | | | Pacific et al Jedney b-88-J, gas | 5 |
| | | Apr. 1, 1963 | | | | Pacific Imp Jedney d-99-J, gas | 9 |
| | | Oct. 1, 1963 | | | | | |
| Jedney West | July 1, 1964 | | N.T.S. 94-G-1, 94-G-8 | 5, 9 | 1 | Pacific et al W Jedney b-84-K, gas | 5, 9 |
| Julienne Creek | Apr. 1, 1971 | | N.T.S. 94-G-1, 94-G-2 | 9, 5 | 4 | Sinclair Julienne Ck a-50-D, gas | 5, 9 |
| Kobes-Townsend | Dec. 22, 1958 | Feb. 15, 1960 | N.T.S. 94-B-8, 94-B-9 | 4, 6, 9, 11 | 13 | Pacific Kobes a-3-A (4), gas | 4 |
| | | | | | | Pacific Kobes a-94-I (1), gas | 6, 9 |
| | | | | | | Pacific Townsend a-20-H (A-1), gas | 11 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Kotcho Lake | Apr. 1, 1962 | Apr. 1, 1967<br>June 30, 1972<br>Apr. 1, 1971<br>Dec. 31, 1972<br>Dec. 31, 1973 | N.T.S. 94-I-14, 94-P-3 | 4, 8 | 13 | West Nat Kotcho Lake c-67-K, gas | 13 |
| Kotcho Lake East | Dec. 31, 1973 | | N.T.S. 94-I-14 | 13 | 4 | West Nat Kotcho Lake d-39-J | 13 |
| La Garde | July 1, 1970 | | Tp. 87, R. 15, W6M | 4, 8 | 2 | Texaco NFA La Garde 7-21-87-15, gas | 4 |
| | | | | | | Texaco NFA La Garde 10-29-87-15, gas | 8 |
| Laprise Creek | Feb. 15, 1960 | Jan. 1, 1961<br>Apr. 1, 1961<br>Apr. 1, 1963<br>Jan. 1, 1964<br>Apr. 1, 1964<br>Mar. 31, 1972<br>Dec. 31, 1972 | N.T.S. 94-G-8, 94-H-4, 94-H-5 | 5 | 47 | Dome-Basco Laprise Ck a-35-H, gas | 5 |
| Laprise Creek West | July 1, 1962 | | N.T.S. 94-G-8 | 5 | 2 | Dome CDP C & E Laprise c-82-G, gas | 5 |
| Louise | Dec. 31, 1972 | | N.T.S. 94-P-3, 94-P-4 | 13 | 2 | Placid Louise c-80-L, gas | 13 |
| Milligan Creek | Feb. 7, 1958 | Aug. 7, 1959<br>Feb. 15, 1960<br>Jan. 1, 1961<br>Apr. 1, 1962<br>July 1, 1963<br>Jan. 1, 1970<br>Apr. 1, 1970 | N.T.S. 94-H-2 | 3, 9 | 29 | Union HB Milligan Creek d-73-G, oil | 9 |
| | | | | | | Union HB Milligan d-62-G, gas | 3 |
| | | | | | | Whitehall et al Milligan d-75-G, gas | 9 |
| Moberly Lake | Jan. 1, 1969 | Apr. 1, 1969 | Tp. 82, R. 22, W6M | 6 | 2 | JBA Moberly 10-15-82-22, oil | 6 |
| Montney | Feb. 7, 1958 | Jan. 6, 1959 | Tp. 87, R. 18, W6M | | | Pac Sunray Montney 16-32-86-19 (3), gas | 3 |
| | | Jan. 1, 1962 | Tp. 86, 87, R. 19, W6M | 3, 6, 9 | 4 | Pac Sunray Montney 14-36-86-19 (2), gas | 6 |
| | | | | | | Pac Sunray Montney 14-31-86-19 (5), gas | 9 |
| Nettle | Apr. 1, 1966 | | N.T.S 94-H-7 | 3 | 5 | Union KCL ROC Nettle d-67-A, oil | 3 |
| | | | | | | Union KCL ROC Nettle d-76-A, gas | 3 |
| Nig Creek | Aug. 7, 1959 | Feb. 15, 1960<br>Jan. 1, 1961<br>Apr. 1, 1961<br>Jan. 1, 1962<br>Apr. 1, 1962<br>Apr. 1, 1965<br>July 1, 1965<br>Apr. 1, 1966<br>Dec. 31, 1973 | N.T.S. 94-A-13, 94-H-3, 94-H-4 | 5 | 30 | Texaco NFA Nig Creek a-79-B (1), gas | 5 |
| | | | | | | Texaco NFA Nig d-87-A, oil | 5 |
| Nig Creek West | Oct. 1, 1971 | | N.T.S. 94-H-4 | 5 | 2 | Fargo Nig Creek c-19-C, gas | 5 |
| North Pine | Oct. 1, 1968 | Oct. 1, 1969 | Tp. 85, R. 18, W6M | 6 | 2 | Texaco N Pine 6-15-85-18, oil | 6 |
| | | | | | | Pacific et al N Pine 6-27-85-18, gas | 6 |
| Oak | Dec. 31, 1972 | Mar. 31, 1973<br>Dec. 31, 1973 | Tp. 86, 87, R. 18, W6M | 9 | 5 | Woods Wainoco Oak 6-34-86-18, gas | 9 |
| | | | | | | Woods Wainoco Ashland Oak 6-7-86-17, oil | |
| | | | | | | Pacific SR CanDel Osprey d-4-J, oil | 9 |
| Osprey | Apr. 1, 1966 | Apr. 1, 1970 | N.T.S. 94-A-15 | 9 | 6 | Tenn Osprey d-13-L, gas | 9 |

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1973—*Continued*

| Field | Date Designated | Date(s) Revised | Field Location | Pool(s) | Number of Wells Capable of Production | Discovery Well(s) | Pool(s) Discovered |
|---|---|---|---|---|---|---|---|
| Parkland | Feb. 7, 1958 | July 1, 1963<br>June 30, 1972<br>May 27, 1960<br>Jan. 1, 1961<br>Jan. 1, 1962<br>Apr. 1, 1962<br>July 1, 1965<br>Oct. 1, 1965<br>Jan. 1, 1966<br>Apr. 1, 1966<br>July 1, 1966<br>Oct. 1, 1966<br>Apr. 1, 1967<br>July 1, 1967<br>Jan. 1, 1968 | Tp. 81, R. 15, 16, W6M | 12 | 4 | Pacific Imp Parkland 6-29-81-15, gas | 12 |
| Peejay | Feb. 15, 1960 | | N.T.S. 94-A-15, 94-A-16 | 9 | 106 | Pacific SR West Cdn Peejay d-52-L, gas<br>Pacific Sinclair Peejay d-39-E, oil | 9<br>9 |
| Peejay West | Jan. 1, 1963 | Dec. 31, 1973 | N.T.S. 94-A-15 | 9 | 2 | Pacific SR West Cdn W Peejay d-54-G, oil<br>Baysel SR Can Del Peejay West d-83-G, gas | 9<br>9 |
| Peggo | Dec. 31, 1971 | | N.T.S. 94-P-7 | 13 | 2 | Midwest Chevron Peggo d-65-A, gas | 13 |
| Petitot River | Apr. 1, 1961 | | N.T.S. 94-P-12, 94-P-13 | 13 | 3 | West Nat Petitot River d-24-D, gas | 13 |
| Redeye | Mar. 31, 1973 | | N.T.S. 94-H-10 | 9 | 2 | Pan Am Redeye d-89-D, gas | 9 |
| Red Creek | Feb. 7, 1958 | Aug. 7, 1959<br>Feb. 15, 1960<br>Jan. 1, 1963<br>Apr. 1, 1963<br>Jan. 1, 1964<br>Oct. 1, 1964<br>Oct. 1, 1965<br>Jan. 1, 1967 | Tp. 85, R. 21, W6M<br>N.T.S. 94-A-10<br>Tp 87, 88, R. 16, W6M | 6, 9 | 2 | Pacific Red Creek 5-27-85-21 (36), gas | 6, 9 |
| Rigel | Oct. 1, 1962 | July 1, 1967<br>July 1, 1968<br>Oct. 1, 1968<br>Jan. 1, 1969<br>July 1, 1969<br>Apr. 1, 1970<br>Jan. 1, 1971<br>Dec. 31, 1973 | Tp 87, 88, R. 17, W6M<br>Tp. 87, 88, R. 18, W6M<br>Tp. 88, R. 19, W6M | 4 | 63 | Monsanto Rigel 6-13-87-17, oil<br>Imp Fina Rigel 4-27-88-17, gas | 4<br>4 |
| Rigel East | Dec. 31, 1971 | | Tp. 88, R.16, W6M | 9, 4 | 3 | Texaco NFA E Rigel 13-26-88-16, gas<br>Texaco NFA E Rigel 10-12-88-16, gas | 9<br>4 |
| Shekilie | Dec. 31, 1971 | | N.T.S. 94-I-16 | 13 | 2 | Pacific Shekilie b-24-A, gas | 13 |
| Sierra | Oct. 1, 1969 | | N.T.S. 94-I-14 | 14 | 2 | Socony Mobil Sierra c-78-C, gas | 14 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Siphon | Apr. 1, 1971 | Oct. 1, 1971<br>Dec. 31, 1971<br>Mar. 31, 1972<br>June 30, 1972<br>Dec. 31, 1972 | Tp. 86, 87, R. 16, W6M | 4, 5, 6, 9 | 19 | Pacific West Prod Siphon 7-34-86-16, gas 4<br>Pacific et al Siphon 11-27-86-16, gas 5, 6, 9 |
| Stoddart | Jan. 6, 1959 | Feb. 15, 1960<br>Apr. 1, 1965<br>Jan. 1, 1966<br>Apr. 1, 1967<br>Apr. 1, 1968<br>Apr. 1, 1969<br>Oct. 1, 1969<br>July 1, 1970<br>Jan. 1, 1971<br>Mar. 31, 1972 | Tp. 85, R. 18, 19, 20, W6M<br>Tp. 86, R. 19, 20, W6M | 6, 10 | 21 | Pacific Stoddart 4-24-86-20 (85), gas 10<br>Uno-Tex et al Stoddart 10-31-85-19, oil 10<br>Chaut Dunbar Stoddart 11-23-85-19, oil 6 |
| Stoddart West | Apr. 1, 1964 | July 1, 1970<br>Jan. 1, 1971<br>Apr. 1, 1971<br>Dec. 31, 1972 | Tp. 86, R. 20, 21, W6M<br>Tp. 87, R. 20, W6M | 9, 10 | 9 | Pacific W Stoddart 6-22-86-20, gas 9<br>Pacific W Stoddart 11-10-86-20, gas 10 |
| Sunrise | Feb. 7, 1958 | Jan. 1, 1961<br>Apr. 1, 1965<br>Oct. 1, 1969<br>Jan. 1, 1971<br>Mar. 31, 1973 | Tp. 78, R. 16, W6M<br>Tp. 79, R. 16, 17, W6M | 1 | 12 | Pacific Sunrise 10-7-79-16 (3), gas 1 |
| Thetlaandoa | Dec. 31, 1973 | | N.T.S. 94-P-6 | 11 | 2 | Amoco et al Thetlaandoa c-34-L 11 |
| Tsea | Dec. 31, 1971 | | N.T.S. 94-P-5, 94-P-12 | 13 | 2 | Texaco NFA Tsea b-68-K, gas 13 |
| Two Rivers | Apr. 1, 1969 | | Tp. 83, R. 16, W6M | 5, 6, 9 | 3 | Champlin Two Rivers 10-5-83-16, gas 6<br>Champlin et al Two Rivers 6-9-83-16, gas 5, 9 |
| Velma | Dec. 31, 1972 | | N.T.S. 94-H-8 | 2, 6 | 5 | GraMic Forest Buttes Velma d-15-E, gas 2<br>GraMic et al Velma b-70-C, gas 6 |
| Wargen | Dec. 31, 1971 | Mar. 31, 1972 | N.T.S. 94-H-6 | 2, 3 | 3 | Imp Pac Sunray Wargen c-58-C, gas 2<br>Pacific et al Wargen d-37-C, oil 3 |
| Weasel | Apr. 1, 1966 | Apr. 1, 1967 | N.T.S. 94-H-2, 94-A-15 | 5, 9 | 23 | Tenn Ashland Weasel d-35-B, oil 9<br>Sinclair Pacific Weasel d-93-J, gas 5<br>Pacific Sinclair Weasel d-50-A, gas 9 |
| Weasel West | Apr. 1, 1971 | Mar. 31, 1972<br>Mar. 31, 1973 | N.T.S. 94-H-2 | 9 | 5 | Tenn et al W Weasel d-71-C, oil 9 |
| Wilder | Jan. 1, 1971 | | Tp. 83, R. 19, W6M | 4, 9, 10 | 4 | Amerada Pac Wilder 11-17-83-19, gas 9, 10<br>Wainoco Woods Wilder 7-30-83-19, gas 4, 9 |
| Wildmint | Jan. 1, 1962 | July 1, 1962<br>Jan. 1, 1963<br>Apr. 1, 1964<br>Jan. 1, 1966 | N.T.S. 94-A-15, 94-H-2 | 9 | 27 | Union HB Wildmint d-46-A, oil 9<br>Tenn Wildmint d-4-A, gas 9 |
| Willow | July 1, 1963 | Apr. 1, 1970 | N.T.S. 94-H-2 | 3, 9 | 4 | Union HB Willow b-10-H, gas 9<br>Union HB Willow d-20-H, oil 3 |

## TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1973—*Continued*

| Field | Date Designated | Date(s) Revised | Field Location | Pool(s) | Number of Wells Capable of Production | Discovery Well(s) | Pool(s) Discovered |
|---|---|---|---|---|---|---|---|
| Wolf | Apr. 1, 1967 | | N.T.S. 94-A-15 | 9 | 6 | Baysel Sinclair Wolf d-93-B, oil<br>Baysel Sinclair Wolf d-3-G, gas | 9<br>9 |
| Yoyo | Apr. 1, 1965 | Jan. 1, 1967<br>Apr. 1, 1967<br>Jan. 1, 1968<br>Oct. 1, 1970<br>July 1, 1971 | N.T.S. 94-I-13, 94-I-14 | 13, 14 | 15 | West Nat et al Yoyo b-24-L, gas<br>West Nat et al Yoyo b-29-I, gas | 14<br>13 |

Numerical list of pools:

1. Lower Cretaceous Cadotte sandstone.
2. Lower Cretaceous Bluesky sandstone.
3. Lower Cretaceous Gething sandstone.
4. Lower Cretaceous Dunlevy sandstone.
5. Triassic Baldonnel carbonate (includes Baldonnel A and B of Fort St. John area).
6. Triassic Charlie Lake sandstone and carbonate.
7. Triassic Inga sandstone.
8. Triassic Boundary Lake carbonate.
9. Triassic Halfway sandstone.
10. Permian Belloy carbonate.
11. Debolt carbonate.
12. Upper Devonian Wabamun carbonate.
13. Middle Devonian Slave Point carbonate.
14. Middle Devonian Pine Point carbonate.

## TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1973[1]

| Field and Pool | Oil Wells | | Gas Wells | |
|---|---|---|---|---|
| | Capable | Operating | Capable | Operating |
| Aitken Creek—Gething | 6 | 3 | 4 | 3 |
| Balsam— | | | | |
| Bluesky | — | — | 1 | — |
| Halfway | 1 | — | 1 | — |
| Field totals | 1 | — | 2 | — |
| Bear Flat—North Pine | 2 | 1 | — | — |
| Beatton River—Halfway | 15 | 11 | 1 | — |
| Beatton River West—Bluesky | 12 | 10 | — | — |
| Beaverdam—Halfway | 1 | — | 2 | — |
| Beaver River—Nahanni | — | — | 5 | 4 |
| Beavertail— | | | | |
| Gething | — | — | 3 | 2 |
| Halfway | — | — | 1 | — |
| Field totals | — | — | 4 | 2 |
| Beg— | | | | |
| Baldonnel | — | — | 14 | 9 |
| Halfway | — | — | 16 | 13 |
| Field totals | — | — | 30 | 22 |
| Beg West—Baldonnel | — | — | 3 | — |
| Bernadet— | | | | |
| Gething | — | — | 1 | — |
| Mississippian | — | — | 2 | — |
| Field totals | — | — | 3 | — |
| Blueberry— | | | | |
| Dunlevy | — | — | 7 | 4 |
| Baldonnel | — | — | 4 | — |
| Blueberry | — | — | 2 | — |
| Halfway | — | — | 1 | — |
| Debolt | 19 | 18 | — | — |
| Field totals | 19 | 18 | 14 | 4 |
| Blueberry East— | | | | |
| Baldonnel | — | — | 1 | — |
| Debolt | — | — | 1 | — |
| Field totals | — | — | 2 | — |
| Blueberry West— | | | | |
| Dunlevy | — | — | 2 | — |
| Baldonnel | — | — | 2 | 2 |
| Field totals | — | — | 4 | 2 |
| Boundary Lake— | | | | |
| Bluesky | — | — | 2 | 1 |
| Gething | — | — | 2 | 2 |
| Dunlevy | 1 | — | 1 | — |
| Baldonnel | — | — | 6 | 4 |
| Cecil | 2 | 2 | — | — |
| Boundary Lake | 309 | 283 | — | — |
| Basal Boundary Lake | — | — | 1 | 1 |
| Halfway | 6 | 4 | 1 | — |
| Field totals | 318 | 289 | 13 | 8 |
| Boundary Lake North—Halfway | — | — | 4 | — |
| Bubbles—Baldonnel | — | — | 10 | 7 |
| Bubbles North—Halfway | — | — | 3 | — |
| Buick Creek— | | | | |
| Bluesky | — | — | 8 | 2 |
| Dunlevy | 1 | — | 31 | 20 |
| Cecil | — | — | 1 | — |
| Field totals | 1 | — | 40 | 22 |
| Buick Creek North— | | | | |
| Gething | — | — | 4 | 1 |
| Dunlevy | — | — | 8 | 4 |
| Field totals | — | — | 12 | 5 |

[1] Each zone of a multiple completion is counted as a well.

## TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1973[1]—*Continued*

| Field and Pool | Oil Wells | | Gas Wells | |
|---|---|---|---|---|
| | Capable | Operating | Capable | Operating |
| **Buick Creek West—** | | | | |
| Dunlevy | 2 | — | 9 | 5 |
| Baldonnel | — | — | 2 | 1 |
| Halfway | — | — | 1 | — |
| Confidential | — | — | 1 | — |
| Field totals | 2 | — | 13 | 6 |
| **Bulrush—Halfway** | 4 | 3 | — | — |
| **Bulrush East—Halfway** | 1 | — | — | — |
| **Cabin—Slave Point** | — | — | 5 | — |
| **Cache Creek—** | | | | |
| Coplin | — | — | 2 | — |
| Halfway | — | — | 1 | — |
| Field totals | — | — | 3 | — |
| **Cecil Lake—** | | | | |
| Cecil | — | — | 1 | — |
| North Pine | 2 | 2 | 3 | — |
| Halfway | — | — | 1 | — |
| Field totals | 2 | 2 | 5 | — |
| **Charlie Lake—Gething** | 1 | — | — | — |
| **Clarke Lake—Slave Point** | — | — | 39 | 26 |
| **Crush—Halfway** | 8 | 6 | 1 | — |
| **Currant—Halfway** | 5 | 3 | 5 | — |
| **Cypress—Baldonnel** | — | — | 3 | — |
| **Dahl—Bluesky** | — | — | 7 | — |
| **Dawson Creek—** | | | | |
| Dunvegan | — | — | 1 | — |
| Cadotte | — | — | 1 | — |
| Field totals | — | — | 2 | — |
| **Eagle—** | | | | |
| Belloy | 4 | 2 | — | — |
| Confidential | 1 | 1 | — | — |
| Field totals | 5 | 3 | — | — |
| **Elm—Halfway** | 1 | — | 1 | — |
| **Evergreen—Halfway** | — | — | 2 | — |
| **Farrell Creek—** | | | | |
| Charlie Lake | — | — | 2 | 2 |
| Halfway | — | — | 3 | 1 |
| Field totals | — | — | 5 | 3 |
| **Fireweed—** | | | | |
| Bluesky | — | — | 2 | — |
| Dunlevy | — | — | 7 | — |
| Baldonnel | — | — | 2 | — |
| Debolt | — | — | 3 | — |
| Field totals | — | — | 14 | — |
| **Flatrock—** | | | | |
| Siphon | — | — | 1 | — |
| Boundary Lake | 1 | 1 | 1 | — |
| Halfway | — | — | 5 | 3 |
| Field totals | 1 | 1 | 7 | 3 |
| **Fort St. John—** | | | | |
| Dunlevy | — | — | 2 | — |
| Baldonnel | — | — | 12 | 6 |
| Pingel | 4 | 2 | 1 | — |
| Halfway | — | — | 7 | 5 |
| Belloy | 1 | — | 2 | 2 |
| Field totals | 5 | 2 | 24 | 13 |
| **Fort St. John Southeast—** | | | | |
| Dunlevy | — | — | 1 | — |
| Baldonnel | — | — | 2 | 2 |
| Siphon | — | — | 1 | — |
| Pingel | — | — | 1 | — |
| Halfway | — | — | 5 | 2 |
| Belloy | — | — | 5 | 1 |
| Field totals | — | — | 15 | 5 |

[1] Each zone of a multiple completion is counted as a well.

## TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1973[1]—*Continued*

| Field and Pool | Oil Wells | | Gas Wells | |
|---|---|---|---|---|
| | Capable | Operating | Capable | Operating |
| Grizzly—Dunlevy | — | — | 2 | 1 |
| Grizzly North—Dunlevy | — | — | 1 | — |
| Gundy Creek— | | | | |
| Baldonnel | — | — | 4 | — |
| Blueberry | — | — | 1 | — |
| Field totals | — | — | 5 | — |
| Halfway— | | | | |
| Baldonnel | — | — | 2 | — |
| Charlie Lake | 1 | — | 1 | — |
| Field totals | 1 | — | 3 | — |
| Helmet—Slave Point | — | — | 2 | — |
| Highway— | | | | |
| Dunlevy | — | — | 1 | — |
| Baldonnel | — | — | 4 | — |
| Debolt | — | — | 1 | — |
| Field totals | — | — | 6 | — |
| Inga— | | | | |
| Baldonnel | 1 | — | 3 | — |
| Inga | 69 | 53 | 6 | 1 |
| Field totals | 70 | 53 | 9 | 1 |
| Inga North—Inga | — | — | 3 | — |
| Jedney— | | | | |
| Gething | — | — | 1 | — |
| Baldonnel | — | — | 19 | 16 |
| Halfway | — | — | 22 | 18 |
| Field totals | — | — | 42 | 34 |
| Jedney West—Halfway | — | — | 1 | — |
| Julienne Creek— | | | | |
| Baldonnel | — | — | 2 | 1 |
| Halfway | — | — | 2 | 2 |
| Field totals | — | — | 4 | 3 |
| Kobes-Townsend— | | | | |
| Dunlevy | — | — | 3 | 2 |
| Charlie Lake | — | — | 6 | 3 |
| Halfway | — | — | 2 | 2 |
| Debolt | — | — | 2 | 1 |
| Field totals | — | — | 13 | 8 |
| Kotcho Lake—Slave Point | — | — | 12 | 6 |
| Kotcho Lake East—Slave Point | — | — | 3 | — |
| LaGarde— | | | | |
| Dunlevy | — | — | 1 | — |
| Boundary Lake | — | — | 1 | — |
| Field totals | — | — | 2 | — |
| Laprise Creek—Baldonnel | — | — | 47 | 33 |
| Laprise Creek West—Baldonnel | — | — | 2 | — |
| Louise—Slave Point | — | — | 2 | — |
| Milligan Creek— | | | | |
| Gething | — | — | 3 | 1 |
| Halfway | 25 | 17 | 1 | — |
| Field totals | 25 | 17 | 4 | 1 |
| Moberly Lake—Charlie Lake | 2 | — | — | — |
| Montney— | | | | |
| Gething | — | — | 1 | — |
| Cecil | — | — | 1 | — |
| Halfway | — | — | 2 | — |
| Field totals | — | — | 4 | — |
| Nettle— | | | | |
| Gething | 3 | — | 1 | — |
| Halfway | — | — | 1 | — |
| Field totals | 3 | — | 2 | — |

[1] Each zone of a multiple completion is counted as a well.

## TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1973[1]—*Continued*

| Field and Pool | Oil Wells | | Gas Wells | |
|---|---|---|---|---|
| | Capable | Operating | Capable | Operating |
| Nig Creek—Baldonnel | 1 | 1 | 29 | 22 |
| Nig Creek West—Baldonnel | — | — | 2 | — |
| North Pine—North Pine | — | — | 2 | 1 |
| Oak— | | | | |
| Cecil | — | — | 1 | — |
| Halfway | — | — | 5 | — |
| Field totals | — | — | 6 | 1 |
| Osprey—Halfway | 3 | 1 | 1 | — |
| Parkland— | | | | |
| Belloy | — | — | 2 | — |
| Wabamun | — | — | 2 | 2 |
| Field totals | — | — | 4 | 2 |
| Peejay—Halfway | 101 | 75 | 4 | — |
| Peejay West—Halfway | 2 | — | 2 | — |
| Peggo—Slave Point | — | — | 2 | — |
| Petitot River—Slave Point | — | — | 3 | — |
| Red Creek— | | | | |
| North Pine | — | — | 1 | — |
| Halfway | — | — | 1 | — |
| Field totals | — | — | 2 | — |
| Redeye—Halfway | — | — | 2 | — |
| Rigel— | | | | |
| Bluesky | — | — | 3 | 1 |
| Dunlevy | 7 | 4 | 54 | 26 |
| Field totals | 7 | 4 | 57 | 27 |
| Rigel East— | | | | |
| Dunlevy | — | — | 2 | — |
| Halfway | — | — | 1 | — |
| Field totals | — | — | 3 | — |
| Shekilie—Slave Point | — | — | 2 | — |
| Sierra—Pine Point | — | — | 2 | 2 |
| Siphon— | | | | |
| Dunlevy | — | — | 5 | 5 |
| Baldonnel | — | — | 4 | — |
| Siphon | — | — | 5 | 2 |
| Halfway | — | — | 5 | 4 |
| Field totals | — | — | 19 | 11 |
| Stoddart— | | | | |
| Cecil | 1 | 1 | — | — |
| Belloy | 4 | 4 | 16 | 14 |
| Field totals | 5 | 5 | 16 | 14 |
| Stoddart West—Belloy | — | — | 8 | 4 |
| Sunrise— | | | | |
| Paddy | — | — | 2 | — |
| Cadotte | — | — | 10 | 1 |
| Field totals | — | — | 12 | 1 |
| Thetlaandoa—Mississippian | — | — | 2 | — |
| Tsea—Slave Point | — | — | 2 | — |
| Two Rivers— | | | | |
| Baldonnel | — | — | 1 | — |
| Siphon | — | — | 1 | 1 |
| Halfway | — | — | 1 | 1 |
| Field totals | — | — | 3 | 2 |
| Velma— | | | | |
| Gething | — | — | 3 | — |
| "A" Marker | — | — | 2 | — |
| Field totals | — | — | 5 | — |
| Wargen— | | | | |
| Gething | 2 | — | 1 | — |
| Field totals | 2 | — | 1 | — |

[1] Each zone of a multiple completion is counted as a well.

## TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1973[1]—*Continued*

| Field and Pool | Oil Wells | | Gas Wells | |
|---|---|---|---|---|
| | Capable | Operating | Capable | Operating |
| Weasel— | | | | |
| Baldonnel | — | — | 1 | 1 |
| Halfway | 19 | 15 | 3 | — |
| Field totals | 19 | 15 | 4 | 1 |
| Weasel West— | | | | |
| Bluesky | — | — | 1 | — |
| Halfway | 5 | 2 | — | — |
| Field totals | 5 | 2 | 1 | — |
| Wilder— | | | | |
| Halfway | — | — | 2 | 2 |
| Belloy | — | — | 2 | — |
| Field totals | — | — | 4 | 2 |
| Wildmint— | | | | |
| Bluesky | — | — | 1 | 1 |
| Halfway | 23 | 10 | 3 | — |
| Field totals | 23 | 10 | 4 | 1 |
| Willow— | | | | |
| Gething | 1 | 1 | 1 | — |
| Halfway | — | — | 2 | 1 |
| Field totals | 1 | 1 | 3 | 1 |
| Wolf—Halfway | 4 | 4 | 1 | — |
| Yoyo— | | | | |
| Slave Point | — | — | 1 | — |
| Pine Point | — | — | 14 | 10 |
| Field totals | — | — | 15 | 10 |
| Other areas— | | | | |
| Cadotte | — | — | 2 | — |
| Notikewin | — | — | 1 | — |
| Bluesky | 2 | — | 11 | — |
| Gething | — | — | 3 | — |
| Dunlevy | — | — | 5 | — |
| Baldonnel | — | — | 26 | — |
| Inga | — | — | 1 | — |
| Charlie Lake | — | — | 1 | — |
| Siphon | — | — | 1 | — |
| Coplin | 1 | — | 4 | 1 |
| Pingel | — | — | 2 | — |
| "A" Marker | — | — | 1 | — |
| Halfway | 5 | 1 | 32 | — |
| Permo Carboniferous | 1 | — | 4 | — |
| Belloy | — | — | 5 | — |
| Mississippian | — | — | 1 | — |
| Upper Kiskatinaw | — | — | 2 | — |
| Lower Kiskatinaw | — | — | 1 | — |
| Debolt | — | — | 10 | — |
| Banff | — | — | 2 | — |
| Jean Marie | — | — | 1 | — |
| Slave Point | — | — | 24 | 1 |
| Sulphur Point | — | — | 3 | — |
| Pine Point | — | — | 5 | — |
| Confidential | — | — | 11 | — |
| Area totals | 9 | 1 | 159 | 2 |
| Totals | 693 | 542 | 858 | 325 |

[1] Each zone of a multiple completion is counted as a well.

## TABLE 24—MONTHLY CRUDE-OIL PRODUCTION BY FIELDS AND POOLS, 1973

(Quantities in barrels.)

| Field and Pool | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitken Creek— | | | | | | | | | | | | | |
| Gething | 31,187 | 33,668 | 35,992 | 35,270 | 36,061 | 34,260 | 29,603 | 30,945 | 34,358 | 33,715 | 31,425 | 33,706 | 400,190 |
| Gething[1] | 1,966 | 2,554 | 2,838 | 2,624 | 2,849 | 2,829 | 2,477 | 2,668 | 2,665 | 2,881 | 2,800 | 2,785 | 31,936 |
| Field totals | 33,153 | 36,222 | 38,830 | 37,894 | 38,910 | 37,089 | 32,080 | 33,613 | 37,023 | 36,596 | 34,225 | 36,491 | 432,126 |
| Bear Flat—North Pine | 3,814 | 2,837 | 3,880 | 165 | 2,400 | 4,138 | 3,676 | 3,451 | 3,385 | 3,583 | 3,441 | 3,469 | 38,239 |
| Beatton River—Halfway[1] | 30,098 | 29,694 | 30,080 | 28,394 | 33,130 | 29,282 | 26,969 | 31,001 | 30,800 | 29,291 | 29,876 | 32,645 | 361,260 |
| Beatton River West—Bluesky | 17,896 | 8,016 | 13,395 | 13,731 | 13,922 | 5,458 | 10,372 | 13,548 | 16,266 | 17,695 | 22,418 | 23,596 | 176,313 |
| Beaverdam—Halfway[1] | 71 | 8 | 123 | 85 | 82 | 53 | 76 | 75 | 82 | 44 | ——— | ——— | 699 |
| Blueberry— | | | | | | | | | | | | | |
| Dunlevy[1] | 23 | 18 | 21 | 23 | 22 | 24 | 22 | 14 | 20 | 22 | 37 | ——— | 246 |
| Debolt | 44,306 | 38,324 | 42,010 | 41,365 | 45,168 | 41,161 | 33,391 | 37,902 | 33,365 | 42,326 | 43,525 | 45,254 | 488,097 |
| Field totals | 44,329 | 38,342 | 42,031 | 41,388 | 45,190 | 41,185 | 33,413 | 37,916 | 33,385 | 42,348 | 43,562 | 45,254 | 488,343 |
| Boundary Lake— | | | | | | | | | | | | | |
| Cecil | 2,883 | 2,805 | 2,663 | 2,238 | 2,249 | 1,720 | 1,704 | 1,585 | 1,509 | 1,000 | 1,997 | 1,738 | 24,091 |
| Boundary | 772,548 | 686,140 | 757,434 | 712,712 | 735,193 | 707,657 | 718,780 | 723,207 | 688,874 | 700,088 | 663,905 | 677,726 | 8,544,264 |
| Halfway | 8,003 | 6,775 | 5,816 | 5,993 | 6,407 | 5,377 | 6,793 | 7,106 | 6,618 | 5,016 | 5,745 | 5,240 | 74,889 |
| Field totals | 783,434 | 695,720 | 765,913 | 720,943 | 743,849 | 714,754 | 727,277 | 731,898 | 697,001 | 706,104 | 671,647 | 684,704 | 8,643,244 |
| Buick Creek— | | | | | | | | | | | | | |
| Dunlevy | 593 | 512 | 526 | 184 | 359 | 395 | 384 | 471 | 262 | 497 | 335 | 375 | 4,893 |
| Dunlevy[1] | 1,207 | 1,432 | 1,460 | 124 | 362 | 480 | 872 | 980 | 1,404 | 1,146 | 1,221 | 1,373 | 12,061 |
| Field totals | 1,800 | 1,944 | 1,986 | 308 | 721 | 875 | 1,256 | 1,451 | 1,666 | 1,643 | 1,556 | 1,748 | 16,954 |
| Bulrush—Halfway | 3,868 | 2,086 | 3,541 | 3,769 | 4,796 | 3,863 | 3,873 | 2,195 | 2,601 | 4,480 | 3,028 | 4,261 | 42,361 |
| Cecil Lake—Cecil | 8,366 | 8,304 | 9,794 | 254 | 4,946 | 5,960 | 6,333 | 6,101 | 5,836 | 5,377 | 5,611 | 5,700 | 72,582 |
| Crush—Halfway | 28,241 | 30,825 | 33,427 | 31,850 | 32,033 | 28,023 | 27,159 | 29,488 | 31,158 | 29,067 | 30,592 | 27,840 | 359,703 |
| Currant—Halfway | 13,994 | 13,713 | 14,151 | 19,044 | 18,215 | 21,034 | 20,769 | 22,698 | 12,899 | 12,800 | 11,796 | 8,645 | 189,758 |
| Eagle— | | | | | | | | | | | | | |
| Belloy | ——— | ——— | ——— | ——— | ——— | ——— | ——— | 1,332 | 6,891 | 5,603 | 7,132 | 5,025 | 25,983 |
| Confidential | ——— | ——— | ——— | ——— | ——— | 4,217 | 4,276 | 7,317 | 7,575 | 7,862 | 7,106 | 8,646 | 46,999 |
| Field totals | ——— | ——— | ——— | ——— | ——— | 4,217 | 4,276 | 8,649 | 14,466 | 13,465 | 14,238 | 13,671 | 72,982 |
| Flatrock— | | | | | | | | | | | | | |
| Boundary | 604 | 503 | 616 | 52 | 712 | 582 | 529 | 474 | 426 | 538 | 350 | 182 | 5,568 |
| Halfway | 1,010 | 2,156 | 3,351 | ——— | 786 | 2,131 | 2,727 | 1,946 | 1,289 | 241 | ——— | ——— | 15,637 |
| Field totals | 1,614 | 2,659 | 3,967 | 52 | 1,498 | 2,713 | 3,256 | 2,420 | 1,715 | 779 | 350 | 182 | 21,205 |
| Fort St. John—Pingel | 5,361 | 6,088 | 6,668 | 4,973 | 4,952 | 5,394 | 4,935 | 4,835 | 5,455 | 6,052 | 5,502 | 5,521 | 65,736 |
| Inga—Inga | 308,505 | 280,562 | 309,105 | 240,265 | 261,068 | 256,689 | 260,976 | 229,363 | 235,692 | 237,906 | 235,030 | 232,106 | 3,087,267 |
| Jedney— | | | | | | | | | | | | | |
| Baldonnel[1] | 66 | 139 | 96 | 102 | 89 | 33 | ——— | ——— | 171 | 143 | 121 | 107 | 1,067 |
| Halfway[1] | 29 | 60 | 41 | 42 | 39 | 14 | ——— | ——— | 3 | 43 | 66 | 57 | 394 |
| Field totals | 95 | 199 | 137 | 144 | 128 | 47 | ——— | ——— | 174 | 186 | 187 | 164 | 1,461 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Milligan—Halfway | 182,775 | 173,904 | 189,844 | 174,324 | 186,067 | 185,350 | 186,712 | 178,574 | 167,318 | 169,544 | 151,888 | 169,634 | 2,115,934 |
| Nig Creek—Baldonnel | 844 | 813 | 842 | 638 | 646 | 786 | 753 | 750 | 708 | 728 | 708 | 723 | 8,939 |
| Oak—Halfway[1] | | | | | | | | | | | 402 | 527 | 929 |
| Osprey—Halfway | 4,523 | 3,188 | 2,129 | 4,016 | 2,010 | 1,715 | 1,781 | 1,615 | 1,743 | 3,223 | 3,957 | 2,784 | 32,684 |
| Peejay—Halfway | 277,199 | 254,139 | 276,199 | 280,138 | 279,140 | 257,099 | 257,847 | 260,505 | 251,119 | 246,048 | 233,241 | 245,474 | 3,118,148 |
| Rigel— | | | | | | | | | | | | | |
| Dunlevy | 5,399 | 4,222 | 5,176 | 497 | 2,437 | 3,005 | 4,352 | 4,457 | 4,229 | 4,432 | 3,348 | 5,691 | 47,245 |
| Dunlevy[1] | 43 | 32 | 33 | 3 | | | | | | | | | 111 |
| Field totals | 5,442 | 4,254 | 5,209 | 500 | 2,437 | 3,005 | 4,352 | 4,457 | 4,229 | 4,432 | 3,348 | 5,691 | 47,356 |
| Siphon— | | | | | | | | | | | | | |
| Dunlevy[1] | 511 | 433 | 498 | 542 | 496 | 473 | 414 | 465 | 376 | 308 | 167 | 72 | 4,755 |
| Siphon[1] | 262 | 347 | 790 | 333 | 409 | 347 | 326 | 94 | | | 34 | 35 | 2,977 |
| Halfway[1] | 2,158 | 1,647 | 1,405 | 391 | 938 | 1,529 | 1,273 | 1,161 | 1,176 | 1,027 | 1,641 | 1,681 | 16,027 |
| Field totals | 2,931 | 2,427 | 2,693 | 1,266 | 1,843 | 2,349 | 2,013 | 1,720 | 1,552 | 1,335 | 1,842 | 1,788 | 23,759 |
| Stoddart— | | | | | | | | | | | | | |
| Cecil | 459 | 1,223 | 702 | | | 91 | 323 | | 604 | 354 | 343 | 337 | 4,436 |
| Belloy | 3,143 | 2,889 | 2,876 | 1,067 | 2,644 | 2,984 | 2,712 | 3,523 | 3,122 | 3,162 | 2,973 | 2,980 | 34,075 |
| Field totals | 3,602 | 4,212 | 3,578 | 1,067 | 2,644 | 3,075 | 3,035 | 3,523 | 3,726 | 3,516 | 3,316 | 3,317 | 38,511 |
| Stoddart West—Belloy[1] | 3,159 | 2,788 | 3,620 | 3,669 | 3,725 | 3,403 | 3,388 | 4,222 | 3,564 | 3,743 | 3,539 | 3,477 | 42,297 |
| Two Rivers—Siphon[1] | 800 | 594 | 672 | 648 | 565 | 585 | 628 | 478 | 532 | 628 | 621 | 597 | 7,348 |
| Weasel—Halfway | 75,514 | 78,788 | 92,507 | 85,828 | 65,000 | 82,802 | 92,101 | 72,709 | 85,669 | 90,454 | 99,573 | 98,217 | 1,019,162 |
| Weasel West—Halfway | 4,375 | 2,325 | 2,320 | 2,034 | 2,163 | 1,994 | 1,986 | 1,399 | 920 | 10,097 | 10,371 | 9,224 | 49,208 |
| Wildmint—Halfway | 62,083 | 50,415 | 66,440 | 61,122 | 62,359 | 56,948 | 56,154 | 55,961 | 52,461 | 54,551 | 46,972 | 46,368 | 671,834 |
| Willow— | | | | | | | | | | | | | |
| Gething | 2,004 | 1,886 | 2,140 | 2,008 | 2,032 | 1,887 | 1,883 | 1,757 | 1,903 | 2,486 | 1,713 | 1,665 | 23,364 |
| Halfway[1] | 241 | 237 | 233 | 241 | 217 | 135 | 215 | 125 | 215 | 191 | 190 | 218 | 2,458 |
| Field totals | 2,245 | 2,123 | 2,373 | 2,249 | 2,249 | 2,022 | 2,098 | 1,882 | 2,118 | 2,677 | 1,903 | 1,883 | 25,822 |
| Wolf—Halfway | 4,266 | 3,057 | 3,373 | 3,424 | 3,790 | 3,118 | 3,882 | 3,994 | 3,640 | 5,701 | 6,023 | 6,272 | 50,540 |
| Other areas— | | | | | | | | | | | | | |
| Coplin | 81 | 114 | 44 | | | | | | | | | | 239 |
| Coplin[1] | | | | | | | | | 305 | 1,272 | 726 | 876 | 3,180 |
| Halfway | | | | | | | | | | | | 248 | 248 |
| Field totals | 81 | 114 | 44 | | | | | | 305 | 1,273 | 726 | 1,124 | 3,667 |
| Totals— | | | | | | | | | | | | | |
| Crude | 1,903,942 | 1,729,971 | 1,917,041 | 1,755,355 | 1,810,685 | 1,755,120 | 1,773,735 | 1,740,209 | 1,698,695 | 1,733,917 | 1,669,924 | 1,711,292 | 21,199,886 |
| Field condensate | 10,536 | 10,289 | 11,830 | 8,827 | 9,793 | 9,905 | 9,691 | 10,282 | 10,513 | 11,449 | 11,565 | 11,805 | 126,485 |
| Total crude and equivalent | 1,914,478 | 1,740,260 | 1,928,871 | 1,764,182 | 1,820,478 | 1,765,025 | 1,783,426 | 1,750,491 | 1,709,208 | 1,745,366 | 1,681,489 | 1,723,097 | 21,326,371 |

[1] Condensate.

## TABLE 25—MONTHLY NATURAL GAS PRODUCTION BY FIELDS AND POOLS, 1973

(Volumes in MSCF at 14.65 psia and 60°F)

| Field and Pool | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitken Creek—Gething | 244,852 | 302,829 | 333,320 | 302,680 | 327,884 | 295,565 | 290,444 | 302,528 | 318,498 | 333,510 | 320,089 | 323,805 | 3,696,004 |
| Beaverdam—Halfway | 54,993 | 31,964 | 72,557 | 58,833 | 68,080 | 24,728 | 37,781 | 44,841 | 45,717 | 13,261 | ——— | ——— | 452,755 |
| Beaver River—Nahanni | 6,869,197 | 6,336,860 | 6,848,212 | 6,890,708 | 6,680,147 | 6,331,572 | 5,260,524 | 3,515,010 | 2,029,285 | 2,570,804 | 2,432,501 | 2,386,876 | 58,151,696 |
| Beavertail—Gething | 298,201 | 269,417 | 285,213 | 299,368 | 297,717 | 271,941 | 272,101 | 229,846 | 247,957 | 208,866 | 266,171 | 265,039 | 3,211,837 |
| Beg— | | | | | | | | | | | | | |
| Baldonnel | 295,199 | 298,709 | 324,848 | 322,225 | 270,582 | 266,633 | 288,611 | 273,036 | 219,238 | 272,515 | 331,910 | 313,138 | 3,476,644 |
| Halfway | 406,965 | 358,806 | 391,582 | 384,306 | 302,540 | 240,635 | 333,474 | 337,660 | 326,470 | 352,794 | 256,237 | 344,754 | 4,036,223 |
| Field totals | 702,164 | 657,515 | 716,430 | 706,531 | 573,122 | 507,268 | 622,085 | 610,696 | 545,708 | 625,309 | 588,147 | 657,892 | 7,512,867 |
| Blueberry— | | | | | | | | | | | | | |
| Dunlevy | 54,822 | 58,459 | 82,251 | 59,037 | 66,699 | 52,863 | 58,668 | 55,104 | 93,098 | 85,614 | 70,482 | 70,488 | 807,585 |
| Halfway | ——— | ——— | ——— | ——— | ——— | ——— | ——— | 56,911 | 44,291 | 61,081 | 2,363 | ——— | 164,646 |
| Field totals | 54,822 | 58,459 | 82,251 | 59,037 | 66,699 | 52,863 | 58,668 | 112,015 | 137,389 | 146,695 | 72,845 | 70,488 | 972,231 |
| Blueberry West—Baldonnel | 72,855 | 61,223 | 60,853 | 4,061 | 50,524 | 45,906 | 47,389 | 36,705 | 27,398 | 25,903 | 75,832 | 90,137 | 598,786 |
| Boundary Lake— | | | | | | | | | | | | | |
| Bluesky | 12,449 | 9,686 | 12,462 | 4,888 | 1,371 | 4,922 | 8,096 | 7,227 | 1,012 | 3,470 | 5,713 | 4,150 | 75,446 |
| Gething | 17,646 | 16,243 | 50,353 | 12,533 | 12,177 | 22,367 | 54,104 | 70,088 | 23,618 | 54,818 | 64,094 | 55,671 | 453,712 |
| Baldonnel | 98,997 | 81,594 | 115,962 | 95,453 | 95,749 | 93,039 | 86,842 | 84,546 | 53,656 | 103,868 | 91,581 | 103,855 | 1,105,142 |
| Basal Boundary | 15,612 | 14,055 | 16,936 | 14,375 | 12,476 | 13,414 | 14,977 | 17,033 | 9,531 | 14,162 | 16,642 | 14,284 | 173,497 |
| Field totals | 144,704 | 121,578 | 195,713 | 127,249 | 121,773 | 133,742 | 164,019 | 178,894 | 87,817 | 176,318 | 178,030 | 177,960 | 1,807,797 |
| Boundary Lake North—Halfway | 3,894 | 39,297 | 31,027 | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | ——— | 74,218 |
| Bubbles—Baldonnel | 301,332 | 269,333 | 277,134 | 160,091 | 271,840 | 172,375 | 387,708 | 319,966 | 315,474 | 247,027 | 264,813 | 281,720 | 3,268,813 |
| Buick Creek— | | | | | | | | | | | | | |
| Bluesky | 77,162 | 71,490 | 79,034 | 62,288 | 62,556 | 41,548 | 13,022 | 9,828 | 43,490 | 66,036 | 57,761 | 69,925 | 654,140 |
| Dunlevy | 1,026,576 | 1,033,838 | 1,105,843 | 822,083 | 897,364 | 812,536 | 708,019 | 901,443 | 1,112,192 | 996,553 | 1,099,261 | 1,191,339 | 11,707,047 |
| Field totals | 1,103,738 | 1,105,328 | 1,184,877 | 884,371 | 959,920 | 854,084 | 721,041 | 911,271 | 1,155,682 | 1,062,589 | 1,157,022 | 1,261,264 | 12,361,187 |
| Buick Creek North— | | | | | | | | | | | | | |
| Gething | 25,882 | 21,645 | 22,112 | 19,768 | 20,569 | 24,057 | 8,841 | 15,274 | 17,951 | 21,045 | 23,664 | 23,954 | 244,762 |
| Dunlevy | 215,872 | 190,880 | 202,068 | 189,149 | 202,848 | 190,466 | 75,863 | 150,165 | 184,167 | 186,979 | 184,896 | 185,067 | 2,158,420 |
| Field totals | 241,754 | 212,525 | 224,180 | 208,917 | 223,417 | 214,523 | 84,704 | 165,439 | 202,118 | 208,024 | 208,560 | 209,021 | 2,403,182 |
| Buick Creek West— | | | | | | | | | | | | | |
| Dunlevy | 184,591 | 180,877 | 184,483 | 170,491 | 179,945 | 240,846 | 71,960 | 114,889 | 162,240 | 184,807 | 199,814 | 198,885 | 2,073,828 |
| Baldonnel | 9,912 | ——— | ——— | ——— | 21,173 | 15,901 | 4,681 | 13,656 | 10,797 | 11,254 | 10,084 | 8,853 | 106,311 |
| Field totals | 194,503 | 180,877 | 184,483 | 170,491 | 201,118 | 256,747 | 76,641 | 128,545 | 173,037 | 196,061 | 209,898 | 207,738 | 2,180,139 |
| Clarke Lake—Slave Point | 11,166,823 | 9,204,782 | 11,206,123 | 10,765,327 | 9,435,850 | 8,549,371 | 8,084,259 | 10,553,146 | 10,887,354 | 11,497,026 | 11,377,447 | 11,561,516 | 124,289,024 |
| Farrell Creek— | | | | | | | | | | | | | |
| Charlie Lake | 81,243 | 62,839 | 73,341 | 65,197 | 49,994 | 53,012 | 56,721 | 1,538 | 46,528 | 53,092 | 65,576 | 78,590 | 687,671 |
| Halfway | 42,299 | 35,688 | 33,948 | 53,368 | 27,365 | 10,874 | ——— | 44,849 | 43,527 | 41,303 | 38,707 | 37,573 | 409,501 |
| Field totals | 123,542 | 98,527 | 107,289 | 118,565 | 77,359 | 63,886 | 56,721 | 46,387 | 90,055 | 94,395 | 104,283 | 116,163 | 1,097,172 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fort St. John— | | | | | | | | | | | | | |
| Baldonnel | 167,707 | 155,775 | 148,578 | 171,349 | 172,903 | 79,067 | 53,347 | 144,760 | 162,587 | 169,442 | 161,100 | 162,122 | 1,748,737 |
| Halfway | 103,781 | 94,861 | 94,404 | 85,321 | 89,232 | 67,819 | 71,551 | 75,340 | 74,533 | 80,914 | 91,980 | 98,665 | 1,028,401 |
| Belloy | 30,923 | 27,201 | 21,907 | 24,430 | 21,578 | 10,883 | 15,602 | 28,083 | 28,385 | 27,628 | 28,306 | 29,375 | 294,301 |
| Field totals | 302,411 | 277,837 | 264,889 | 281,100 | 283,713 | 157,769 | 140,500 | 248,183 | 265,505 | 277,984 | 281,386 | 290,162 | 3,071,439 |
| Fort St. John Southeast— | | | | | | | | | | | | | |
| Baldonnel | 54,294 | 14,546 | 52,549 | 48,868 | 21,669 | 18,616 | 50,666 | 53,481 | 50,539 | 55,976 | 53,053 | 54,885 | 529,142 |
| Halfway | 62,560 | 19,432 | 59,743 | 55,882 | 21,918 | 23,133 | 52,338 | 49,597 | 54,176 | 61,633 | 62,126 | 59,398 | 581,936 |
| Belloy | 98,701 | 26,068 | 92,831 | 112,576 | 45,223 | 34,553 | 94,171 | 78,692 | 83,562 | 121,086 | 103,150 | 104,917 | 995,530 |
| Field totals | 215,555 | 60,046 | 205,123 | 217,326 | 88,810 | 76,302 | 197,175 | 181,770 | 188,277 | 238,695 | 218,329 | 219,200 | 2,106,608 |
| Grizzly—Dunlevy | | | | | | | | | 10,087 | 46,888 | | 68,034 | 125,009 |
| Grizzly North—Dunlevy | | | | 21,283 | 61,556 | 1,239 | | 8,923 | 71,061 | 79,355 | | | 243,417 |
| Inga—Inga | 350,972 | 312,858 | 353,077 | 358,835 | 333,293 | 309,920 | 343,891 | 398,785 | 405,448 | 360,474 | 373,034 | 420,160 | 4,320,747 |
| Jedney— | | | | | | | | | | | | | |
| Baldonnel | 764,086 | 698,358 | 732,541 | 748,389 | 796,903 | 630,920 | 632,867 | 336,965 | 587,955 | 761,168 | 703,042 | 684,862 | 8,078,056 |
| Halfway | 668,521 | 530,789 | 624,169 | 614,911 | 557,422 | 484,661 | 510,318 | 301,328 | 461,613 | 595,718 | 563,684 | 615,006 | 6,528,140 |
| Field totals | 1,432,607 | 1,229,147 | 1,356,710 | 1,363,300 | 1,354,325 | 1,115,581 | 1,143,185 | 638,293 | 1,049,568 | 1,356,886 | 1,266,726 | 1,299,868 | 14,606,196 |
| Julienne Creek— | | | | | | | | | | | | | |
| Baldonnel | 20,466 | 22,913 | 24,100 | 5,689 | 25,874 | 17,071 | 25,427 | 19,457 | 22,485 | 7,190 | 16,244 | 17,188 | 224,104 |
| Halfway | 93,285 | 77,641 | 82,409 | 78,023 | 81,846 | 72,460 | 73,755 | 68,018 | 66,646 | 65,130 | 67,592 | 66,685 | 893,490 |
| Field totals | 113,751 | 100,554 | 106,509 | 83,712 | 107,720 | 89,531 | 99,182 | 87,475 | 89,131 | 72,320 | 83,836 | 83,873 | 1,117,594 |
| Kobes-Townsend— | | | | | | | | | | | | | |
| Dunlevy | 27,403 | 22,167 | 25,553 | 25,520 | 29,975 | 27,726 | 25,334 | 16,460 | 21,856 | 20,723 | 20,588 | 21,055 | 284,360 |
| Charlie Lake | 44,804 | 41,333 | 46,286 | 46,842 | 50,553 | 40,064 | 209,929 | 47,041 | 40,107 | 45,244 | 50,998 | 48,635 | 711,836 |
| Halfway | 283,650 | 261,432 | 284,873 | 262,040 | 256,040 | 229,967 | 129,896 | 259,724 | 195,873 | 251,063 | 293,069 | 260,572 | 2,968,199 |
| Debolt | 83,720 | 75,007 | 83,674 | 81,184 | 82,493 | 79,610 | 82,377 | 76,478 | 70,985 | 71,358 | 78,564 | 76,284 | 941,734 |
| Field totals | 439,577 | 399,939 | 440,386 | 415,586 | 419,061 | 377,367 | 447,536 | 399,703 | 328,821 | 388,388 | 443,219 | 406,546 | 4,906,129 |
| Kotcho Lake—Slave Point | 452,812 | 571,958 | 527,446 | 843,149 | 1,065,426 | 183,785 | | 231,190 | 519,993 | 705,274 | 721,825 | 669,333 | 6,492,191 |
| Laprise Creek—Baldonnel | 2,192,026 | 2,139,597 | 2,370,872 | 2,159,573 | 2,001,708 | 1,723,465 | 1,755,325 | 1,739,999 | 1,765,538 | 2,177,714 | 2,345,416 | 2,430,810 | 24,802,043 |
| Milligan—Gething | 2,497 | 1,064 | 674 | 630 | 386 | 247 | 816 | 1,410 | 2,270 | 139 | 1,494 | 5,507 | 17,134 |
| Nig Creek—Baldonnel | 1,285,849 | 1,089,774 | 1,167,592 | 1,155,588 | 1,243,349 | 1,116,355 | 996,993 | 1,183,704 | 1,225,584 | 1,225,553 | 1,189,662 | 1,290,424 | 14,170,427 |
| North Pine—North Pine | 31,885 | 27,861 | 34,267 | 40,517 | 27,197 | | 13,097 | 4,499 | 36,546 | 39,367 | 39,822 | 38,902 | 333,960 |
| Oak—Halfway | | | | | | | | | | | 134,986 | 140,750 | 275,736 |
| Parkland—Wabamun | 400,803 | 357,093 | 395,359 | 391,830 | 367,252 | 257,628 | 366,064 | 424,511 | 405,982 | 420,959 | 402,243 | 407,073 | 4,596,797 |
| Rigel— | | | | | | | | | | | | | |
| Bluesky | 17,882 | 16,208 | 17,556 | 17,378 | 17,801 | 17,207 | 14,606 | 16,162 | 16,790 | 17,271 | 16,136 | 16,313 | 201,310 |
| Dunlevy | 2,010,461 | 1,782,133 | 1,789,628 | 1,879,197 | 1,867,013 | 1,811,832 | 1,670,723 | 1,628,194 | 1,722,358 | 1,844,267 | 1,755,850 | 1,808,010 | 21,569,666 |
| Field totals | 2,028,343 | 1,798,341 | 1,807,184 | 1,896,575 | 1,884,814 | 1,829,039 | 1,685,329 | 1,644,356 | 1,739,148 | 1,861,538 | 1,771,986 | 1,824,323 | 21,770,976 |
| Sierra—Pine Point | 1,809,867 | 1,589,891 | 1,708,751 | 1,806,742 | 1,685,506 | 1,271,753 | 1,870,216 | 2,022,965 | 2,226,323 | 2,206,842 | 2,209,763 | 2,268,066 | 22,676,685 |
| Siphon— | | | | | | | | | | | | | |
| Dunlevy | 799,504 | 764,878 | 811,896 | 763,895 | 724,247 | 723,035 | 746,554 | 703,810 | 754,194 | 760,976 | 694,482 | 735,342 | 8,982,813 |
| Siphon | 114,944 | 121,672 | 129,969 | 27,036 | 104,153 | 115,981 | 109,873 | 105,570 | 110,662 | 115,031 | 124,173 | 127,497 | 1,306,561 |
| Halfway | 317,745 | 284,354 | 320,445 | 143,466 | 213,572 | 274,217 | 257,970 | 226,476 | 215,201 | 244,394 | 263,729 | 264,789 | 3,026,358 |
| Field totals | 1,232,193 | 1,170,904 | 1,262,310 | 934,397 | 1,041,972 | 1,113,233 | 1,114,397 | 1,035,856 | 1,080,057 | 1,120,401 | 1,082,384 | 1,127,628 | 13,315,732 |

## TABLE 25—MONTHLY NATURAL GAS PRODUCTION BY FIELDS AND POOLS, 1973—*Continued*

(Volumes in MSCF at 14.65 psia and 60°F)

| Field and Pool | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stoddart—Belloy | 1,147,182 | 1,018,108 | 1,135,958 | 1,166,269 | 1,061,531 | 446,126 | 720,540 | 1,004,907 | 1,024,672 | 1,087,384 | 1,071,608 | 1,076,223 | 11,960,508 |
| Stoddart West— | | | | | | | | | | | | | |
| Halfway | 33,024 | 58,672 | 52,111 | 1,959 | 17,567 | 3,423 | 18,222 | ..... | ..... | ..... | ..... | ..... | 184,978 |
| Belloy | 279,827 | 283,074 | 382,834 | 300,201 | 308,307 | 219,432 | 190,198 | 281,233 | 283,287 | 287,445 | 322,962 | 317,524 | 3,456,324 |
| Field totals | 312,851 | 341,746 | 434,945 | 302,160 | 325,874 | 222,855 | 208,420 | 281,233 | 283,287 | 287,445 | 322,962 | 317,524 | 3,641,302 |
| Sunrise—Cadotte | 26,674 | 21,109 | 27,728 | 17,081 | 10,480 | ..... | 12,405 | 12,078 | 16,583 | 17,060 | 16,865 | 18,238 | 196,301 |
| Two Rivers— | | | | | | | | | | | | | |
| Siphon | 44,156 | 38,092 | 41,450 | 41,657 | 29,683 | 43,645 | 41,309 | 34,966 | 36,672 | 37,378 | 35,741 | 37,302 | 462,051 |
| Halfway | 194,634 | 173,293 | 186,474 | 176,614 | 68,443 | 65,132 | 112,641 | 175,852 | 181,833 | 183,632 | 174,354 | 185,795 | 1,878,697 |
| Field totals | 238,790 | 211,385 | 227,924 | 218,271 | 98,126 | 108,777 | 153,950 | 210,818 | 218,505 | 221,010 | 210,095 | 223,097 | 2,340,748 |
| Wilder—Halfway | 273,104 | 263,978 | 270,692 | 255,248 | 218,457 | 178,073 | 160,940 | 166,588 | 278,877 | 279,534 | 297,181 | 312,481 | 2,955,153 |
| Wildmint—Gething | 9,929 | 8,889 | 1,418 | 8,419 | 8,465 | 8,203 | 7,567 | 7,292 | 7,178 | 6,439 | 6,723 | 7,009 | 87,531 |
| Willow—Halfway | 188,581 | 186,829 | 191,786 | 177,630 | 170,991 | 88,421 | 151,864 | 92,162 | 155,212 | 157,705 | 138,780 | 126,339 | 1,826,300 |
| Yoyo—Pine Point | 6,550,715 | 5,681,955 | 5,014,541 | 5,111,748 | 5,234,209 | 4,683,130 | 5,267,441 | 6,645,620 | 6,068,451 | 7,319,827 | 7,028,735 | 7,383,836 | 71,990,208 |
| Other areas— | | | | | | | | | | | | | |
| Coplin | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 234,426 | 719,581 | 579,721 | 318,136 | 1,851,864 |
| Slave Point | 207,377 | 275,405 | 265,696 | 307,392 | 47,713 | ..... | ..... | 291,791 | 312,865 | 342,984 | 314,305 | 308,004 | 2,673,532 |
| Field totals | 207,377 | 275,405 | 265,696 | 307,392 | 47,713 | ..... | ..... | 291,791 | 547,291 | 1,062,565 | 894,026 | 626,140 | 4,525,396 |
| Totals | 42,823,725 | 38,086,782 | 41,381,499 | 40,290,590 | 38,497,384 | 33,133,370 | 33,020,918 | 36,119,400 | 36,272,884 | 40,423,534 | 39,808,724 | 40,691,165 | 460,549,975 |

## TABLE 26—SUMMARY OF DRILLING AND PRODUCTION STATISTICS, 1973

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well authorizations— | | | | | | | | | | | | | |
| Issued | 35 | 30 | 8 | | 1 | 3 | 9 | 6 | 5 | 12 | 22 | 30 | 161 |
| Cancelled | 1 | 4 | 1 | 1 | | | 1 | 1 | | | 2 | | 11 |
| Wells spudded | 45 | 33 | 18 | | | 3 | 7 | 5 | 5 | 12 | 4 | 23 | 165 |
| Rigs operated (during month) | 44 | 41 | 36 | 15 | 10 | 11 | 11 | 13 | 13 | 17 | 23 | 31 | 62[1] |
| Rigs operating (at month's end) | 36 | 32 | 14 | 10 | 8 | 7 | 10 | 9 | 10 | 14 | 14 | 23 | |
| Development footage | 35,571 | 69,296 | 62,059 | 11,204 | | | 8,650 | 17,703 | 13,658 | 20,865 | 35,305 | 34,768 | 309,079 |
| Exploratory outpost footage | 57,404 | 48,239 | 62,432 | 7,292 | | 19,028 | 6,120 | 11,371 | | 3,695 | 22,253 | 20,272 | 258,106 |
| Exploratory wildcat footage | 48,825 | 53,238 | 51,308 | 14,240 | 21,237 | 22,653 | | 12,322 | 8,140 | 16,388 | 16,981 | 42,236 | 307,568 |
| Total footage drilled | 141,800 | 170,773 | 175,799 | 32,736 | 21,237 | 41,681 | 14,770 | 41,396 | 21,798 | 40,948 | 74,539 | 97,276 | 874,753 |
| Wells abandoned | 22 | 22 | 21 | 4 | 2 | 3 | 1 | 3 | 1 | 3 | 8 | 9 | 99 |
| Service wells | | 2 | 1 | | | | | | | 1 | | | 4 |
| Finished drilling wells | | | | | | | | | | | 1 | 3 | 4 |
| Oil wells completed | 2 | 1 | 1 | | | | 1 | 1 | 1 | | 1 | 1 | 9 |
| Producible oil wells | 754 | 704 | 703 | 701 | 701 | 702 | 699 | 698 | 698 | 699 | 695 | 693 | |
| Producing oil wells | 561 | 553 | 550 | 544 | 544 | 549 | 540 | 560 | 541 | 541 | 540 | 542 | |
| Production in barrels | 1,903,589 | 1,729,971 | 1,920,087 | 1,755,652 | 1,810,665 | 1,755,386 | 1,773,742 | 1,737,541 | 1,698,952 | 1,733,997 | 1,658,884 | 1,711,292 | 21,189,758 |
| Average daily production | 61,406 | 61,785 | 61,938 | 58,522 | 58,409 | 58,513 | 57,217 | 56,050 | 56,632 | 55,935 | 55,294 | 55,203 | 58,075 |
| Gas wells completed | 10 | 13 | 15 | 1 | | 1 | 1 | 4 | 3 | 3 | 4 | 2 | 58 |
| Producible gas wells | 819 | 823 | 834 | 846 | 853 | 853 | 853 | 852 | 852 | 855 | 816 | 858 | |
| Producing gas wells | 315 | 322 | 324 | 323 | 322 | 309 | 303 | 318 | 330 | 330 | 326 | 325 | |
| Production in MSCF[2] | 43,074,162 | 38,310,947 | 41,665,646 | 40,316,381 | 38,499,640 | 33,142,822 | 33,029,390 | 36,150,202 | 36,475,339 | 40,680,104 | 40,067,479 | 41,035,570 | 462,447,682 |
| Average daily production | 1,389,489 | 1,368,248 | 1,344,053 | 1,343,879 | 1,241,924 | 1,104,761 | 1,065,464 | 1,166,136 | 1,215,845 | 1,312,261 | 1,335,583 | 1,323,728 | 1,267,614 |

[1] Rigs operated during 1973.
[2] Nonassociated gas production only.
NOTE—Each zone of a mutiple completion is counted as one well.

## TABLE 27—MONTHLY SUPPLY AND DISPOSITION OF CRUDE OIL/PENTANES PLUS, 1973

(Quantities in barrels.)

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Available Supply* | | | | | | | | | | | | | |
| British Columbia production— | | | | | | | | | | | | | |
| Crude | 1,903,589 | 1,729,971 | 1,920,087 | 1,755,652 | 1,810,665 | 1,755,386 | 1,773,742 | 1,737,541 | 1,698,952 | 1,733,997 | 1,658,884 | 1,711,292 | 21,189,758 |
| Field condensate | 10,596 | 10,289 | 11,830 | 8,827 | 9,793 | 9,905 | 9,691 | 10,282 | 10,513 | 11,413 | 11,565 | 11,805 | 126,509 |
| Plant condensate | 92,269 | 91,234 | 106,711 | 105,453 | 99,431 | 84,321 | 87,859 | 82,637 | 81,784 | 99,293 | 97,051 | 104,658 | 1,132,701 |
| Alberta imports—crude and equivalent | 10,327,393 | 9,462,528 | 10,463,323 | 10,218,164 | 9,269,957 | 8,774,254 | 10,875,602 | 11,015,079 | 9,455,639 | 9,800,591 | 10,613,464 | 11,725,810 | 122,001,804 |
| Totals | 12,333,847 | 11,294,022 | 12,501,951 | 12,088,096 | 11,189,846 | 10,623,866 | 12,746,894 | 12,845,539 | 11,246,888 | 11,645,294 | 12,380,964 | 13,553,565 | 144,450,772 |
| *Disposition* | | | | | | | | | | | | | |
| Inventory change— | | | | | | | | | | | | | |
| Field | 2,700 | 3,240 | —8,665 | 1,917 | —11,933 | 5,525 | 1,127 | —1,542 | 2,140 | —279 | 3,719 | 4,247 | 2,196 |
| Plant | —959 | 9,867 | 16,043 | 9,055 | —14,267 | 4,805 | —12,111 | 341 | —2,627 | —6,854 | 9,932 | —2,190 | 11,035 |
| British Columbia transporters | 103,382 | —211,591 | —20,595 | 220,423 | 215,174 | —713,946 | —92,800 | 367,357 | —298,563 | 272,709 | —293,709 | —59,032 | —511,191 |
| Miscellaneous— | | | | | | | | | | | | | |
| Pipe-line use | 4,453 | 5,844 | 8,681 | 49,672 | 8,262 | 4,245 | 8,415 | —5,154 | 9,631 | 10,338 | 52,052 | 14,052 | 170,491 |
| Field losses and adjustments | —1,673 | —6,345 | —249 | 4,365 | 3,650 | —434 | 469 | 60 | —293 | 27 | 238 | —7,587 | —7,772 |
| Plant losses and adjustments | —7,228 | 4,003 | 2,685 | 6,042 | 12,776 | 6,081 | 4,801 | 3,233 | 3,724 | 8,742 | 4,473 | 5,427 | 54,759 |
| Transporters' losses and adjustments | 28,817 | 7,377 | 16,717 | —4,572 | 17,543 | 31,871 | —3,045 | —12,274 | 26,519 | —11,904 | —26,006 | —17,694 | 53,349 |
| Deliveries— | | | | | | | | | | | | | |
| To British Columbia refineries— | | | | | | | | | | | | | |
| British Columbia crude | 1,727,363 | 1,865,270 | 2,015,561 | 2,011,640 | 1,931,620 | 2,273,917 | 1,973,713 | 1,874,341 | 1,602,251 | 2,087,317 | 1,777,623 | 1,808,428 | 22,949,044 |
| Alberta crude | 2,660,257 | 2,346,442 | 2,250,902 | 1,679,969 | 1,282,305 | 1,901,754 | 2,524,876 | 2,534,094 | 2,449,457 | 2,164,441 | 2,801,062 | 2,984,014 | 27,579,573 |
| British Columbia condensate | 63,260 | 44,917 | 25,641 | 49,908 | 45,122 | 46,635 | 53,032 | 38,621 | 75,590 | 64,557 | 38,962 | 55,551 | 601,796 |
| Power generation in British Columbia | | | | | | | | | 88,920 | | | | 88,920 |
| To Eastern Canada— | | | | | | | | | | | | | |
| British Columbia crude | | | | | | | | | | | 7,165 | | 7,165 |
| Alberta crude | | | | | | | | | | | 407,460 | 2,731,627 | 3,139,087 |
| Export to United States— | | | | | | | | | | | | | |
| British Columbia crude | 141,483 | 102,895 | 64,065 | 48,726 | 151,704 | 63,260 | 30,991 | 30,770 | 66,672 | 34,091 | 49,650 | 33,125 | 817,432 |
| Alberta crude | 7,527,950 | 7,135,801 | 8,240,678 | 8,057,749 | 7,723,324 | 6,947,250 | 8,213,211 | 8,132,001 | 7,260,499 | 6,806,513 | 7,173,099 | 5,709,602 | 88,927,677 |
| British Columbia condensate | 30,082 | 26,006 | 55,313 | 48,303 | 36,029 | 20,578 | 37,028 | 35,004 | | 27,062 | 50,918 | 43,110 | 409,433 |
| Field sales | 3,053 | 737 | 150 | 50 | 52,818 | 26,800 | 42,137 | 40,442 | 5,097 | 32,848 | 43,684 | 45,933 | 293,749 |
| Reporting adjustments | 50,907 | —40,441 | —164,976 | —95,151 | —264,281 | 5,525 | —34,950 | —191,755 | —42,129 | 155,686 | 280,642 | 204,952 | —135,971 |
| Totals | 12,333,847 | 11,294,022 | 12,501,951 | 12,088,096 | 11,189,846 | 10,623,866 | 12,746,894 | 12,845,539 | 11,246,888 | 11,645,294 | 12,380,964 | 13,553,565 | 144,450,772 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *British Columbia Refineries* | | | | | | | | | | | | | |
| Receipts— | | | | | | | | | | | | | |
| British Columbia crude | 1,727,363 | 1,865,270 | 2,015,561 | 2,011,640 | 1,931,620 | 2,273,917 | 1,973,713 | 1,874,341 | 1,744,555 | 2,073,258 | 1,759,572 | 1,804,779 | 23,055,589 |
| Alberta crude | 2,660,257 | 2,346,442 | 2,250,902 | 1,679,969 | 1,282,305 | 1,901,754 | 2,524,876 | 2,534,094 | 2,549,192 | 2,232,830 | 2,851,184 | 3,057,251 | 27,871,056 |
| British Columbia condensate | 63,260 | 44,917 | 25,641 | 52,920 | 48,104 | 46,635 | 59,043 | 41,624 | 78,594 | 64,557 | 38,962 | 55,551 | 619,808 |
| Alberta condensate | 8,463 | 1,493 | 488 | 2,448 | 5,833 | 5,343 | 7,941 | 1,938 | 5,022 | 4,090 | 6,679 | 1,994 | 51,732 |
| Alberta butane | 14,609 | 11,380 | 7,393 | 3,232 | | | | | 2,850 | 10,714 | 15,479 | | 65,657 |
| Totals | 4,473,952 | 4,269,502 | 4,299,985 | 3,750,209 | 3,267,862 | 4,227,649 | 4,565,573 | 4,451,997 | 4,380,213 | 4,385,449 | 4,671,876 | 4,919,575 | 51,663,842 |
| *Disposition* | | | | | | | | | | | | | |
| Inventory changes | —50,484 | 215,154 | 3,928 | —48,151 | —13,626 | —176,896 | —1,384 | —24,176 | —34,271 | —119,156 | 153,902 | 89,287 | —5,873 |
| Losses and adjustments | 367 | —814 | —553 | —141 | —2,524 | 66 | 576 | 873 | 211,598 | 981 | —404 | —1,372 | 208,653 |
| Refinery runs— | | | | | | | | | | | | | |
| British Columbia crude | 1,773,002 | 1,628,579 | 2,088,460 | 1,989,512 | 1,845,079 | 2,500,491 | 2,008,609 | 1,839,186 | 1,640,397 | 2,042,215 | 1,837,920 | 1,747,679 | 22,941,129 |
| Alberta crude | 2,668,878 | 2,366,969 | 2,172,161 | 1,751,428 | 1,384,713 | 1,853,353 | 2,491,342 | 2,586,904 | 2,475,023 | 2,380,671 | 2,620,552 | 3,027,853 | 27,779,847 |
| British Columbia condensate | 63,260 | 44,917 | 25,641 | 49,908 | 45,122 | 46,635 | 59,043 | 41,624 | 75,590 | 64,557 | 38,962 | 55,551 | 610,810 |
| Alberta condensate | 4,320 | 3,317 | 2,955 | 4,421 | 9,098 | 4,000 | 7,387 | 7,586 | 9,026 | 5,467 | 5,465 | 577 | 63,619 |
| Alberta butane | 14,609 | 11,380 | 7,393 | 3,232 | | | | | 2,850 | 10,714 | 15,479 | | 65,657 |
| Total refinery runs | 4,524,069 | 4,055,162 | 4,296,610 | 3,798,501 | 3,284,012 | 4,404,479 | 4,566,381 | 4,475,300 | 4,202,886 | 4,503,624 | 4,518,378 | 4,831,660 | 51,461,062 |

## TABLE 28—MONTHLY SUPPLY AND DISPOSITION OF NATURAL GAS, 1973

(Volumes in MSCF at 14.65 psia and 60°F)

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Available Supply* | | | | | | | | | | | | | |
| British Columbia production— | | | | | | | | | | | | | |
| Wet gas | 16,854,431 | 14,701,065 | 15,965,214 | 14,518,119 | 14,738,479 | 11,865,583 | 12,445,659 | 12,757,760 | 14,337,951 | 18,166,214 | 15,907,300 | 16,358,870 | 178,616,645 |
| Dry gas | 26,219,731 | 23,609,882 | 25,700,432 | 25,798,262 | 23,761,161 | 21,277,239 | 20,583,731 | 23,392,442 | 22,137,388 | 22,513,890 | 24,160,179 | 24,676,700 | 283,831,037 |
| Associated gas | 1,750,261 | 1,528,929 | 1,814,643 | 1,520,703 | 1,631,281 | 1,615,737 | 1,720,841 | 1,604,877 | 1,552,617 | 1,582,692 | 1,545,189 | 1,562,877 | 19,430,647 |
| Less injected | 314,911 | 312,258 | 386,843 | 355,233 | 410,438 | 370,067 | 363,450 | 318,046 | 340,585 | 427,054 | 371,062 | 416,480 | 4,386,427 |
| Net British Columbia production | 44,509,512 | 39,527,618 | 43,093,446 | 41,481,851 | 39,720,483 | 34,388,492 | 34,386,781 | 37,437,033 | 37,687,371 | 41,835,742 | 41,241,606 | 42,181,967 | 477,491,902 |
| Imports— | | | | | | | | | | | | | |
| Alberta | 41,914,805 | 37,986,240 | 41,820,223 | 39,479,060 | 38,556,032 | 36,514,160 | 36,892,061 | 38,516,101 | 37,434,044 | 40,841,242 | 39,099,365 | 41,687,669 | 470,741,002 |
| Yukon | | | | | | | | | | | | | |
| Northwest Territories | 3,385,193 | 2,914,165 | 3,218,762 | 3,065,487 | 3,138,065 | 2,916,034 | 2,945,774 | 2,640,494 | 2,417,074 | 2,835,326 | 2,758,908 | 2,822,762 | 35,058,044 |
| Totals | 89,809,510 | 80,428,023 | 88,132,431 | 84,026,398 | 81,414,580 | 73,818,686 | 74,224,616 | 78,593,628 | 77,538,489 | 85,512,310 | 83,099,879 | 86,692,398 | 983,290,948 |
| *Disposition* | | | | | | | | | | | | | |
| Flared— | | | | | | | | | | | | | |
| Field | 470,572 | 390,295 | 518,976 | 428,501 | 422,993 | 419,292 | 457,532 | 456,551 | 445,040 | 523,642 | 621,200 | 536,372 | 5,690,966 |
| Plant— | | | | | | | | | | | | | |
| Residual gas | 2,147 | 4,583 | 8,182 | 43,793 | 82,011 | 3,700 | | 2,500 | | | | | 146,916 |
| Natural gas | 256 | 837 | | 56 | 3,542 | 80,709 | 62,809 | 177,711 | 117,837 | 14,729 | 17,159 | 5,166 | 480,811 |
| Gas-gathering systems | 3,274 | 2,875 | 41,379 | 2,099 | 1,489 | 1,481 | | | 2,383 | 2,293 | 1,729 | 886 | 59,888 |
| Fuel— | | | | | | | | | | | | | |
| Lease | 258,896 | 250,583 | 291,080 | 269,174 | 318,367 | 254,040 | 246,483 | 237,615 | 337,924 | 352,204 | 283,195 | 256,071 | 3,355,632 |
| Plant | 1,595,169 | 1,555,876 | 1,641,963 | 1,575,818 | 1,491,927 | 1,372,187 | 1,583,163 | 1,391,166 | 1,390,044 | 1,586,514 | 1,683,198 | 1,703,889 | 18,565,114 |
| Transporters | 3,318,331 | 2,803,695 | 3,171,738 | 3,112,235 | 2,673,917 | 2,143,918 | 2,163,781 | 2,499,983 | 2,329,953 | 2,756,851 | 2,515,170 | 2,509,440 | 31,999,012 |
| Line-pack changes—transporters | 120,043 | —34,522 | 21,356 | 26,313 | 137,060 | 117,267 | —46,181 | —225,747 | 326,605 | 57,077 | 48,881 | 98,720 | 646,872 |
| Losses and metering difference— | | | | | | | | | | | | | |
| Field | 884,866 | 460,380 | 319,926 | 37,352 | 419,345 | —155,198 | 260,281 | 541,066 | 687,237 | 93,965 | 111,606 | 387,906 | 4,048,732 |
| Gas gathering systems | 14,660 | 3,705 | —6,752 | 5,036 | —1,857 | 6,418 | —4,708 | —20,282 | 6,819 | —271 | 188 | 1,309 | 4,265 |
| Gas plants | 335,918 | 1,107,861 | 325,448 | 298,337 | 469,817 | 614,348 | 641,707 | 478,281 | 971,522 | 604,563 | 510,120 | 564,020 | 6,921,942 |
| Transporters | 116,124 | 110,699 | 273,235 | 2,930 | 104,033 | 85,520 | 249,655 | 289 | 53,560 | 75,764 | 90,628 | —19,926 | 1,142,511 |
| Processing shrinkage | 4,419,855 | 3,942,613 | 4,237,861 | 4,186,951 | 3,911,441 | 3,508,978 | 3,484,558 | 3,898,605 | 3,798,499 | 4,220,987 | 4,312,846 | 4,397,705 | 48,320,899 |
| Deliveries— | | | | | | | | | | | | | |
| British Columbia distributors— | | | | | | | | | | | | | |
| Northern | 1,413,848 | 1,399,557 | 1,379,409 | 1,288,776 | 1,242,313 | 1,173,400 | 642,572 | 980,222 | 1,128,847 | 1,229,587 | 1,562,266 | 1,585,945 | 15,026,742 |
| Interior | 4,542,594 | 3,888,476 | 3,903,040 | 3,286,060 | 3,178,861 | 2,980,015 | 2,576,973 | 2,579,571 | 2,248,220 | 3,623,406 | 4,365,349 | 4,535,092 | 41,707,657 |
| Lower Mainland | 8,204,993 | 7,258,764 | 7,920,062 | 7,861,854 | 8,045,654 | 7,746,851 | 7,495,417 | 7,564,488 | 7,690,088 | 8,037,455 | 9,504,287 | 9,279,776 | 96,609,689 |
| Export— | | | | | | | | | | | | | |
| British Columbia natural gas | 24,257,338 | 21,779,861 | 24,621,184 | 24,110,642 | 22,696,919 | 18,647,670 | 19,212,136 | 21,221,474 | 19,881,600 | 23,620,540 | 20,995,108 | 21,115,749 | 262,160,221 |
| Alberta natural gas | 39,385,973 | 35,954,049 | 39,446,492 | 37,440,664 | 36,606,223 | 34,882,039 | 35,186,898 | 36,898,519 | 35,775,858 | 38,795,245 | 36,851,630 | 39,793,284 | 447,016,874 |
| Reporting adjustments | 464,653 | —452,164 | 17,852 | 55,607 | —389,475 | —63,949 | 11,540 | —88,384 | 346,453 | —82,241 | —367,681 | —59,006 | —606,795 |
| Totals | 89,809,510 | 80,428,023 | 88,132,431 | 84,026,398 | 81,414,580 | 73,818,686 | 74,224,616 | 78,593,628 | 77,538,489 | 85,512,310 | 83,099,879 | 86,692,398 | 983,290,148 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receipts— | | | | | | | | | | | | | |
| Natural gas | 14,155,513 | 12,562,903 | 13,199,260 | 12,434,203 | 12,490,022 | 11,786,611 | 10,714,897 | 11,123,932 | 11,518,297 | 12,890,691 | 15,433,019 | 15,385,444 | 153,694,792 |
| Gas from storage | 95,481 | | | | | | 8,110 | 7 | 8,181 | | | 3,911 | 115,690 |
| L.P. gas | 127,000 | 100,575 | 99,253 | 81,256 | 62,954 | 60,463 | 55,013 | 62,661 | 56,299 | 80,239 | 107,264 | 108,711 | 1,001,688 |
| Disposition— | | | | | | | | | | | | | |
| Gas used in operations | 46,209 | 35,641 | 41,731 | 51,310 | 7,498 | 9,285 | 5,688 | 22,368 | 24,002 | 34,448 | 36,546 | 53,603 | 368,329 |
| Losses and adjustments | 1,003,721 | −1,505,352 | −595,844 | −928,265 | −1,370,245 | −569,758 | −518,219 | 386,344 | 599,148 | 2,175,594 | 3,067,120 | 1,205,518 | 2,949,762 |
| Line-pack changes | −14,836 | −25,192 | 25,462 | −6,665 | 8,091 | 4,808 | −43,794 | 10,187 | 29,570 | −45,868 | 19,108 | 55,123 | 15,994 |
| Gas to storage | | 33,857 | 99,438 | 101,024 | 94,007 | 92,383 | | | | 23,973 | 248 | | 444,930 |
| Sales— | | | | | | | | | | | | | |
| Residential | 5,036,976 | 5,031,285 | 4,144,485 | 3,376,735 | 2,633,562 | 1,899,373 | 1,323,657 | 1,006,505 | 1,073,274 | 1,667,948 | 3,035,715 | 4,172,061 | 34,401,576 |
| Commercial | 3,593,706 | 3,624,868 | 3,278,571 | 2,409,024 | 2,356,125 | 1,436,486 | 1,291,421 | 1,004,161 | 1,225,679 | 1,561,029 | 2,674,423 | 3,216,742 | 27,672,235 |
| Industrial | 4,575,359 | 5,185,943 | 5,630,345 | 5,187,070 | 5,342,134 | 5,211,156 | 4,386,152 | 4,701,252 | 4,624,793 | 5,620,946 | 5,467,690 | 5,821,995 | 61,754,835 |
| Electric power | 136,859 | 282,428 | 674,325 | 2,325,226 | 3,481,804 | 3,763,341 | 4,333,115 | 4,055,783 | 4,006,311 | 1,932,860 | 1,239,433 | 973,024 | 27,204,509 |
| Total sales | 13,342,900 | 14,124,524 | 13,727,726 | 13,298,055 | 13,813,625 | 12,310,356 | 11,334,345 | 10,767,701 | 10,930,057 | 10,782,783 | 12,417,261 | 14,183,822 | 151,033,155 |
| Value to distributors | 9,949,590 | 10,426,736 | 10,058,289 | 8,293,618 | 7,108,576 | 6,654,629 | 6,048,016 | 5,764,312 | 5,953,181 | 8,197,808 | 9,007,340 | 11,551,080 | 99,013,175 |

## TABLE 29—MONTHLY PRODUCTION AND DISPOSITION OF BUTANE, PROPANE, AND SULPHUR, 1973

(Quantities in barrels of 34.9722 Canadian gallons at 60°F)

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Butane*** | | | | | | | | | | | | | |
| Production (bbl.)— | | | | | | | | | | | | | |
| Plant | 50,538 | 53,802 | 63,814 | 58,750 | 64,130 | 61,672 | 57,613 | 42,790 | 58,154 | 59,201 | 55,074 | 60,398 | 685,936 |
| Refinery | 41,453 | 33,975 | 34,362 | 37,221 | 30,820 | 44,250 | 48,491 | 37,368 | 21,444 | 29,977 | 36,911 | 33,598 | 429,870 |
| Opening inventory | 12,509 | 14,483 | 14,070 | 18,653 | 18,229 | 12,972 | 12,474 | 14,799 | 15,034 | 10,290 | 10,759 | 13,949 | 168,221 |
| Gasoline enrichment | 19,950 | 19,105 | 17,112 | 10,699 | 11,169 | 11,064 | 8,882 | 5,155 | 9,969 | 28,595 | 22,720 | 22,136 | 186,556 |
| Plant fuel | 7,383 | ..... | 3,909 | 22,983 | 3,336 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 37,611 |
| Losses and adjustments | ..... | ..... | ..... | 748 | ..... | ..... | 1,875 | 2,201 | 325 | 4,980 | 2,320 | 2,895 | 13,848 |
| Sales— | | | | | | | | | | | | | |
| British Columbia | 60,556 | 66,957 | 70,763 | 62,443 | 84,511 | 93,772 | 92,278 | 72,567 | 74,048 | 55,134 | 63,755 | 64,876 | 861,660 |
| Alberta | ..... | ..... | ..... | ..... | ..... | ..... | 744 | ..... | ..... | ..... | ..... | ..... | 744 |
| Export—U.S.A. | 2,128 | 2,128 | 1,809 | 1,018 | 1,191 | 1,584 | ..... | ..... | ..... | ..... | ..... | ..... | 9,858 |
| Total sales | 62,684 | 64,585 | 72,572 | 63,461 | 85,702 | 95,356 | 93,022 | 72,567 | 74,048 | 55,134 | 63,755 | 64,876 | 867,762 |
| Closing inventory | 14,483 | 14,070 | 18,653 | 18,229 | 12,972 | 12,474 | 14,799 | 15,034 | 10,290 | 10,759 | 13,949 | 18,038 | 173,750 |
| ***Propane*** | | | | | | | | | | | | | |
| Production (bbl.)— | | | | | | | | | | | | | |
| Plant | 55,494 | 49,545 | 57,257 | 50,324 | 58,568 | 51,027 | 52,194 | 46,490 | 49,730 | 45,186 | 55,679 | 52,372 | 623,866 |
| Refinery | 46,000 | 42,387 | 44,521 | 44,372 | 32,393 | 35,233 | 43,714 | 43,013 | 38,733 | 46,507 | 45,407 | 39,884 | 502,164 |
| Opening inventory | 15,115 | 13,505 | 13,468 | 15,157 | 14,733 | 9,404 | 11,559 | 9,318 | 12,601 | 10,060 | 8,246 | 8,973 | 142,139 |
| Plant fuel | ..... | 280 | 1,476 | 272 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2,028 |
| Losses and adjustments | ..... | ..... | 1 | 301 | 3 | 2 | 3 | 14 | 3 | 5,380 | 2 | 2 | 5,711 |
| Sales— | | | | | | | | | | | | | |
| British Columbia | 103,104 | 91,689 | 98,612 | 94,547 | 96,287 | 84,103 | 98,146 | 86,206 | 91,001 | 88,127 | 100,357 | 89,188 | 1,121,367 |
| Export— | | | | | | | | | | | | | |
| Northwest Territories | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| U.S.A. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Offshore | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Total sales | 103,104 | 91,689 | 98,612 | 94,547 | 96,287 | 84,103 | 98,146 | 86,206 | 91,001 | 88,127 | 100,357 | 89,188 | 1,121,367 |
| Closing inventory | 13,505 | 13,468 | 15,157 | 14,733 | 9,404 | 11,559 | 9,318 | 12,601 | 10,060 | 8,246 | 8,973 | 12,039 | 139,063 |
| ***Sulphur*** | | | | | | | | | | | | | |
| Production (long tons) | 7,219 | 6,473 | 7,284 | 6,342 | 4,741 | 4,767 | 5,216 | 5,368 | 5,642 | 6,689 | 6,275 | 6,791 | 72,807 |
| Opening inventory | 95,105 | 101,297 | 105,804 | 111,257 | 108,117 | 106,047 | 103,440 | 103,408 | 106,618 | 107,953 | 109,268 | 111,134 | 1,269,448 |
| Losses and adjustments | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sales— | | | | | | | | | | | | | |
| British Columbia | ..... | ..... | ..... | 5,876 | 3,857 | 3,605 | 2,334 | 1,798 | 2,157 | 2,046 | 2,800 | 2,772 | 27,245 |
| Export | 1,027 | 1,966 | 1,831 | 3,606 | 2,954 | 3,769 | 2,914 | 360 | 2,150 | 3,328 | 1,609 | 1,388 | 26,902 |
| Total sales | 1,027 | 1,966 | 1,831 | 9,482 | 6,811 | 7,374 | 5,248 | 2,158 | 4,307 | 5,374 | 4,409 | 4,160 | 54,147 |
| Closing inventory | 101,297 | 105,804 | 111,257 | 108,117 | 106,047 | 103,440 | 103,408 | 106,618 | 107,953 | 109,268 | 111,134 | 113,765 | 1,288,108 |

## TABLE 30—MONTHLY GROSS VALUES TO PRODUCERS OF CRUDE OIL, NATURAL GAS, NATURAL GAS LIQUIDS, AND SULPHUR, 1973

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ |
| Crude oil | 5,497,897 | 4,970,523 | 5,686,411 | 5,156,623 | 5,826,212 | 5,609,799 | 5,672,242 | 6,180,167 | 6,074,301 | 6,195,217 | 5,964,129 | 6,153,671 | 68,987,192 |
| Natural gas | 4,221,225 | 3,811,197 | 4,243,462 | 4,115,738 | 3,914,756 | 3,385,894 | 3,347,687 | 3,654,368 | 3,627,467 | 4,153,630 | 4,078,132 | 4,135,356 | 46,688,912 |
| Products— | | | | | | | | | | | | | |
| Natural gas liquids[1] | 57,608 | 46,314 | 55,667 | 54,050 | 52,389 | 51,008 | 51,517 | 51,667 | 46,434 | 49,218 | 52,624 | 60,006 | 628,502 |
| Sulphur | | | | | | | | | | | | | |
| Total products | 57,608 | 46,314 | 55,667 | 54,050 | 52,389 | 51,008 | 51,517 | 51,667 | 46,434 | 49,218 | 52,624 | 60,006 | 628,502 |
| Total value | 9,776,730 | 8,828,034 | 9,985,540 | 9,326,411 | 9,793,357 | 9,046,701 | 9,071,446 | 9,886,202 | 9,748,202 | 10,398,065 | 10,094,885 | 10,349,033 | 116,304,606 |

[1] Includes condensate, pentanes plus, propane, and butane, but does not include petroleum from Boundary Lake Gas Conservation Plant, which is included under crude oil sales values.

NOTE—This statement includes amendments received up to March 5, 1974.

## TABLE 31—CRUDE-OIL PIPE-LINES, 1973

| Company | Fields Served | Size and Mileage of Main and Lateral Lines | | Pumping-stations | | Present Capacity (Bbl./Day) | Gathering Mileage | Throughput (Bbl./Day) | Storage Capacity (Bbl.) |
|---|---|---|---|---|---|---|---|---|---|
| | | Size (In.) | Mileage | Number | Capacity (Bbl./Day) | | | | |
| Blueberry-Taylor Pipeline Co. | Aitken Creek, Blueberry | 12¾ | 2.2 | — | — | — | — | — | — |
| | | 8⅝ | 62.8 | 1 | 5,000 | 12,000 | 37.4 | 2,539 | 65,000 |
| | Fort St. John | — | — | — | — | — | — | 180 | — |
| | Inga | 6⅝ | 1.7 | 1 | 12,500 | 12,500 | — | 8,450 | 1,000 |
| | Stoddart | — | — | — | — | — | — | 116 | — |
| Trans-Prairie Pipelines (B.C.) Ltd. | Beatton River, Beatton River West, Boundary Lake, Bulrush, Currant, Milligan Creek, Osprey, Peejay, Weasel, Wildmint, Willow, Wolf | 4½ | 45.6 | 1 | 36,000 | 52,000[1] | 84.6 | 58,060 | 160,000 |
| | | 6⅝ | 24.3 | 2 | 45,000 | 45,000[2] | — | — | — |
| | | 8⅝ | 103.0 | — | — | — | — | — | — |
| | | 12¾ | 39.0 | — | — | — | — | — | — |
| Tenneco Oil & Minerals Ltd. | Inga | 6⅝ | 3.2 | — | — | — | — | — | — |
| | | 4½ | 8.7 | 1 | 10,000 | 10,000 | 13.9 | 4,000 | — |
| | | 3½ | 2.0 | 1 | 1,600 | — | — | — | — |
| Westcoast Petroleum Ltd. | | 12 | 505.0 | 12 | 70,000 | 70,000 | — | 54,625 | 586,000 |

[1] Boundary Lake.
[2] Terminal to Westcoast Petroleum Ltd.

## TABLE 32—CRUDE-OIL REFINERIES, 1973

| Name | Location | Type | Year of First Operation | Source of Crude | Crude-oil Capacity (Bbl. per Calendar Day) | Storage Capacity (Bbl.) | Cracking-plant Units | Cracking Capacity (Bbl. per Calendar Day) | Other Units |
|---|---|---|---|---|---|---|---|---|---|
| Chevron Canada Ltd. | North Burnaby | Comp. | 1936 | B.C. and Alberta | 20,000 | 1,613,200 | Catalytic-fluid | 8,100 | Catalytic polymerization, catalytic reformer, lube-oil blending plant, asphalt. |
| Gulf Oil Canada Limited | Kamloops | Comp. | 1954 | B.C. | 5,900 | 650,000 | Catalytic-fluid | 1,900 | Catalytic polymerization, catalytic reformer, distillate, desulphurization, merox. |
| Gulf Oil Canada Limited | Port Moody | Comp. | 1958 | B.C. and Alberta | 30,000 | 1,625,000 | Catalytic-fluid | 8,480 | Catalytic reformer, distillate, desulphurization, alkylation-sulphuric acid, naphtha, merox. |
| Imperial Oil Enterprises Ltd. | Ioco | SCA | 1915 | B.C. and Alberta | 36,800 | 3,025,000 | Catalytic-fluid | 11,700 | Catalytic polymerization, powerformer, toluene extraction, LPG plant. |
| Pacific Petroleums Ltd. | Taylor | Comp. | 1960 | B.C. | 12,200 | 1,010,000 | FCCU | 4,400 | H.F. alkylation, asphalt, pentane splitter, platformer, unifiner, HDS unit, DDS unit. |
| Shell Canada Limited | Shellburn | Comp. | 1932 | B.C. and Alberta | 22,000 | 2,455,300 | Catalytic-fluid | 6,000 | Catalytic polymerization, platformer, vacuum flashing, solvent fractionation, distillate hydrotreater, sulphur recovery. |
| Union Oil Company of Canada Limited | Prince George | SA | 1967 | B.C. | 8,000 | 630,500 | | | Unifiner, reformer, asphalt. |

Symbols: SCA—skimming, cracking, asphalt; Comp.—complete.

## TABLE 33—NATURAL GAS PIPE-LINES, 1973

| Company | Source of Natural Gas | Transmission-lines | | Compressor Stations | | Present Daily Capacity (MSCF) | Gathering and Distribution Lines | | Areas Served by Distributors |
|---|---|---|---|---|---|---|---|---|---|
| | | Size (In.) | Mileage | Number | Horse-power | | Size (In.) | Mileage | |
| British Columbia Hydro and Power Authority | Westcoast Transmission Co. Ltd. | 30 | 38.9 | — | — | 513,600 | — | 3,894.5 | |
| | | 24 | 12.2 | — | — | — | — | — | |
| | | 20 | 44.1 | — | — | — | — | — | Lower Mainland of British Columbia. |
| | | 18 | 37.3 | — | — | — | — | — | |
| | | 16 | 17.6 | — | — | — | — | — | |
| | | 12 | 81.0 | — | — | — | — | — | |
| Columbia Natural Gas Ltd. | Alberta and Southern Gas Co. Ltd. | 8 | 56.1 | — | — | 85,500 | 8 | 1.7 | Cranbrook, Fernie, Kimberley, Creston, Sparwood, Elk Valley, Skookumchuck, Elko, Elkford, and Yahk. |
| | | 6 | 70.4 | — | — | — | 6 | 3.3 | |
| | Westcoast Transmission Co. Ltd. | 4 | 22.8 | — | — | — | 4 | 9.2 | |
| | | 3 | 27.6 | — | — | — | 3 | 19.9 | |
| | | 2 | 0.5 | — | — | — | 2 | 38.4 | |
| | | | | | | | 1¼ | 50.8 | |
| Gas Trunk Line of British Columbia | Beg field | — | — | 1 | 1,000 | — | 16 | 27.4 | To Westcoast Transmission Co. Ltd. |
| | | — | — | — | — | — | 6⅝ | 5.9 | |
| | Boundary Lake field | — | — | — | — | — | 16 | 31.4 | |
| | | — | — | — | — | — | 6⅝ | 2.9 | |
| | Jedney and Bubbles field | — | — | 4 | 4,960 | — | 12¾ | 31.5 | |
| | | — | — | — | — | — | 10¾ | 7.0 | |
| | Laprise Creek field | — | — | 1 | 2,160 | — | 12¾ | 23.8 | |
| | Nig Creek field | — | — | 1 | 1,800 | — | 16 | 28.3 | |
| Inland Natural Gas Co. Ltd. | Westcoast Transmission Co. Ltd. | 12 | 254.3 | 1 | 2,200 | 120,000 | 8 | 12.4 | Mackenzie, Hudson Hope, Chetwynd, Prince George, Cariboo, North Okanagan, Okanagan, and West Kootenay areas. |
| | | 10 | 119.1 | 1 | 2,200 | — | 6 | 27.1 | |
| | | 8 | 25.7 | — | — | — | 4 | 148.3 | |
| | | 6 | 99.9 | — | — | — | 3 | 84.5 | |
| | | 4 | 140.7 | — | — | — | 2 | 513.7 | |
| | | 3 | 67.0 | — | — | — | 1½ | 20.7 | |
| | | 2 | 69.2 | — | — | — | 1¼ | 158.2 | |
| | | 1¼ | 3.5 | — | — | — | — | — | |
| Northland Utilities (B.C.) Ltd. | Peace River Transmission Co. Ltd. | 3 | 2.0 | — | — | 10,900 | 10 | 0.4 | Dawson Creek, Pouce Coupe, and Rolla. |
| | | 2 | 0.4 | — | — | — | 8 | 1.6 | |
| | | 1¼ | 3.2 | — | — | — | 6 | 2.7 | |
| | | — | — | — | — | — | 4 | 12.1 | |
| | | — | — | — | — | — | 3 | 5.4 | |
| | | — | — | — | — | — | 2 | 24.8 | |
| | | | | | | | 1¼ | 15.9 | |
| | | | | | | | ¾ | 0.6 | |
| Pacific Northern Gas Ltd. | Westcoast Transmission Co. Ltd. | 10¾ | 274.4 | 2 | 3,150 | 54,000 | 6 | 2.5 | Vanderhoof, Fraser Lake, Burns Lake, Smithers, Terrace, Prince Rupert, Kitimat, Houston, Fort St. James. |
| | | 8⅝ | 92.4 | — | — | — | 4 | 10.3 | |
| | | 6⅝ | 36.0 | — | — | — | 3 | 17.1 | |
| | | 4½ | 14.0 | — | — | — | 2 | 41.1 | |
| | | 3½ | 43.7 | — | — | — | 1¼ | 30.8 | |
| | | 2⅞ | 17.8 | — | — | — | ¾ | 20.6 | |
| | | 2⅜ | 22.6 | — | — | — | ½ | 0.1 | |
| | | 1⅜ | 3.6 | — | — | — | — | — | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plains Western Gas & Electric Co. Ltd. | Westcoast Transmission Co. Ltd. | 6 | 0.3 | — | — | — | 4 | 13.9 | Fort St. John, Taylor, Grandhaven, Charlie Lake, Airport. |
| | | 4 | 20.7 | — | — | — | 3 | 2.0 | |
| | | 3 | 5.7 | — | — | — | 2½ | 1.5 | |
| | | 2 | 2.0 | — | — | — | 2 | 42.0 | |
| | | — | — | — | — | — | 1½ | 1.9 | |
| | | — | — | — | — | — | 1¼ | 0.1 | |
| | | — | — | — | — | — | 1 | 7.9 | |
| | | — | — | — | — | — | ¾ | 2.2 | |
| Union Oil Company of Canada | Milligan-Peejay system | — | — | — | — | 55,000 | 10¾ | 22.1 | To Westcoast Transmission Co. Ltd. |
| | | — | — | — | — | 39,300 | 8⅝ | 13.6 | |
| | | — | — | — | — | 17,400 | 6⅝ | 7.1 | |
| Westcoast Transmission Co. Ltd. | Alberta | 26 | 32.5 | — | — | 215,000 | — | — | |
| | Taylor-Willow Flats | 30 | 76.6 | | | | | | |
| | Willow Flats-Huntingdon | 30 | 570.3 | 13 | 263,640 | 1,360,000 | — | — | |
| | | 36 | 462.1 | | | | | | |
| | Alaska Highway system | — | 422.1 | — | — | — | 26 | 37.5 | |
| | | — | — | — | — | — | 20 | 18.1 | |
| | | — | — | — | — | — | 18 | 17.9 | |
| | | — | — | — | — | — | 12¾ | 9.9 | |
| | Beaver River | 24 | 110.9 | — | — | 270,000 | — | — | |
| | Blueberry West field | — | — | — | — | — | 8⅝ | 6.7 | |
| | Boundary Lake field | — | — | — | — | — | 16 | 0.5 | |
| | Bubbles field | — | — | 1 | 660 | — | — | — | |
| | Buick Creek field | — | — | — | — | — | 10¾ | 5.6 | |
| | Buick Creek East field | — | — | — | — | — | 8⅝ | 6.6 | |
| | Buick Creek West field | — | — | 1 | 1,980 | — | 20 | 16.2 | |
| | Clarke Lake field | — | — | — | — | — | 16 | 8.2 | |
| | Dawson Creek field | — | — | — | — | — | 8⅝ | 5.4 | |
| | Fort St. John field | — | — | 1 | 1,980 | — | 18 | 7.8 | |
| | | — | — | — | — | — | 10¾ | 0.9 | |
| | | — | — | — | — | — | 8⅝ | 0.7 | |
| | Fort St. John Southeast field | 12 | 7.0 | — | — | — | 12¾ | 4.0 | |
| | Fort Nelson plant | 30 | 220.8 | 4 | 93,400 | 858,000 | — | — | |
| | Chetwynd | 36 | 44.5 | — | — | — | — | — | |
| | Gundy Creek field | — | — | — | — | — | 10¾ | 6.1 | |
| | Kobes-Townsend field | — | — | 1 | 6,000 | — | 12¾ | 18.9 | |
| | | — | — | — | — | — | 8⅝ | 5.5 | |
| | Kotcho Lake field | — | — | — | — | — | 12 | 10.0 | |
| | Laprise Creek field | — | — | 1 | 3,160 | — | — | — | |
| | Milligan-Peejay system | — | — | — | — | — | 12 | 32.2 | |
| | Montney field | — | — | — | — | — | 4½ | 7.4 | |
| | Parkland field | — | — | — | — | — | 8⅝ | 6.6 | |
| | Red Creek field | — | — | 1 | 230 | — | 4½ | 2.9 | |
| | Rigel field | — | — | 1 | 6,800 | — | 12¾ | 9.6 | |
| | | | | 1 | 1,400 | — | 10¾ | 10.3 | |
| | Sierra field | — | — | — | — | — | 12 | 6.8 | |
| | Stoddart field | — | — | 1 | 1,400 | — | 8⅝ | 6.3 | |

## TABLE 34—GAS-PROCESSING PLANTS, 1973

| Operator | Location | Fields Served | Plant Type | Year of First Operation | Plant Capacity, Million SCF/Day | | Natural Gas | Residual Gas to— |
|---|---|---|---|---|---|---|---|---|
| | | | | | In | Out | | |
| Amoco Canada Petroleum Company Limited | Units 68, 69, Block J, N.T.S. Map 94-N-16 | Beaver River | Dehydration | 1971 | 247 | 239.5 | | Westcoast Transmission Co. Ltd. |
| Imperial Oil Limited | SE. ¼ Sec. 2, Tp. 85, R. 14, W6M | Boundary Lake | Inlet separator, M.E.A. absorption treating, glycol absorption dehydration, combined refrigeration and oil absorption natural gas liquid recovery, distillation | 1964 | 21 | 17 | Pentanes plus, propane, butane | Westcoast Transmission Co. Ltd. |
| Mobil Oil of Canada Ltd. | Unit 91, Block D, N.T.S. Map 94-I-14 | Sierra | Inlet separator, dry desiccant dehydration | 1969 | 63.5 | 63 | | Westcoast Transmission Co. Ltd. |
| Pacific Petroleums Ltd. | Sec. 36, Tp. 82, R.18, W6M | All British Columbia producing gasfields except Parkland, Dawson Creek, Boundary Lake, Sierra, Clarke Lake, Yoyo, and Beaver River. | Inlet separator, M.E.A. treating dry desiccant, dehydration oil absorption, distillation | 1957 | 500 | 460 | Condensate, pentanes plus | Westcoast Transmission Co. Ltd. |
| Westcoast Transmission Co. Ltd. | NW. ¼ Sec. 10, Tp. 85, R. 14, W6M | Boundary Lake | M.E.A. absorption, dehydration | 1961 | 9.4 | 8.9 | Condensate | Westcoast Transmission Co. Ltd. |
| Westcoast Transmission Co. Ltd. | Unit 85, Block G, N.T.S. Map 94-J-10 | Beaver River, Clarke Lake, Yoyo | Potassium carbonate, M.E.A. D.E.A. absorption, dehydration | 1965 | 1,000 | 900 | | Westcoast Transmission Co. Ltd. |

## TABLE 35—SULPHUR PLANTS, 1973

| Name | Location | Raw Material | Principal Product | Year of First Operation | Capacity (Long Tons per Day) |
|---|---|---|---|---|---|
| Canadian Occidental Petroleum Ltd. | Taylor | Hydrogen sulphide | Sulphur | 1957 | 300 |

# Inspection of Mines

## CHAPTER 5

By J. W. Peck, Chief Inspector of Mines

CONTENTS



LIST OF DRAWINGS



## COAL MINES REGULATION ACT

The *Coal Mines Regulation Act* was extensively amended in 1973 during the second session of the Legislature. The intent of the amendments was mainly to improve the regulation of the use of cranes, vehicles, diesel equipment, and of technological developments in open-pit mining. There were also some amendments to the regulations to improve clearances and controls on haulage and conveyerways underground. Finally, there were a series of amendments recognizing safety committees and unions and making it possible for organized workers to take a more active part in safety programmes.

## MINES REGULATION ACT

Extensive amendments were made to the *Mines Regulation Act* during the second legislative session. The major intent of the amendments was to keep safety legislation abreast of recent mining technological developments, particularly in areas of new types of explosives, hoisting, and self-propelled vehicles in use both

underground and on the surface. Amendments were also made to make it possible for organized labour to take a more active part in safety programmes at mines and to give recognition to the workman category of miner.

## FATAL ACCIDENTS

Seven fatal accidents occurred to persons employed at seven different mining operations. Of these seven accidents, one occurred at a coal-mining operation, two in connection with surface exploration, and the remaining four at metal-mining operations. Only one of the accidents happened underground and five involved the use of mobile equipment.

The following table shows the mines at which fatal accidents occurred in 1973, with comparative figures for 1972:

| Company | Location | Number of Fatal Accidents | |
|---|---|---|---|
| | | 1973 | 1972 |
| Baroid of Canada Ltd. | Spillimacheen | — | 1 |
| Brenda Mines Ltd. | Peachland | 1 | — |
| Cominco Ltd. | Kimberley | — | 1 |
| Giant Mascot Mines Limited | Choate | 1 | 5 |
| Giant Metallics Mines Limited | Sandon | — | 1 |
| Granduc Operating Company | Stewart | — | 3 |
| Granges Exploration Aktiebolag | 50 miles southwest of Houston | 1 | — |
| Granisle Copper Limited | Granisle | 1 | — |
| Haste Mine Development Ltd. | Stewart | — | 1 |
| Kaiser Resources Ltd.— | | | |
| Balmer Hydraulic | Michel | — | 1 |
| Balmer North | Michel | — | 1 |
| Harmer Pit | Harmer Ridge | 1 | — |
| KRC Operators Ltd. | Revelstoke | — | 1 |
| Noranda Exploration Company, Limited | Nanika River | 1 | — |
| Similkameen Mining Company Limited | Princeton | 1 | — |
| Utah Mines Ltd. | Port Hardy | — | 1 |
| Western Mines Limited | Myra Falls | — | 1 |
| Totals | | 7 | 17 |

The following table classifies fatalities as to cause and location:

| Cause | Number | Coal Mines | | Mines Other Than Coal | |
|---|---|---|---|---|---|
| | | Surface | Underground | Surface | Underground |
| Drowned | 1 | — | — | 1 | — |
| Fall of ground | 1 | — | — | — | 1 |
| Transportation— | | | | | |
| (*a*) Capsized vehicle | 2 | — | — | 2 | — |
| (*b*) Crushed by vehicle | 3 | 1 | — | 2 | — |
| Totals | 7 | 1 | — | 5 | 1 |

A description of each fatal accident follows:

*Peter Sykes,* aged 41, married and employed as a heavy-duty truck-driver by Granisle Copper Limited at their McDonald Island property on Babine Lake, died of a ruptured lung on February 15, 1973, subsequent to the truck he was driving sliding into Babine Lake.

As Granisle mine is on a small island, room for tailings storage is limited and they are being deposited in Babine Lake between Starrett and McDonald Islands between two dams or causeways connecting these islands. The causeways are

constructed from waste rock and overburden removed while uncovering the ore. Currently the east causeway of No. 2 tailings dam is being increased in width and height preparatory to increasing No. 2 pond storage capacity.

During day shift of February 15, 14 loads of waste had been dumped on the causeway and on the afternoon shift a bulldozer was being used to spread the material and to push it over the edge of the dump. The dumping operation continued on the afternoon shift and at about 5 p.m. the truck being driven by Mr. Sykes passed the bulldozer and continued on to the south end of the causeway, about 100 yards from the tractor. No one observed the truck movements until it was seen to be sliding backward down the dump and into the lake. It is presumed the driver was turning around preparatory to dumping, and that he backed close to the edge of the dump where the waste had built up to a fairly steep angle (about 60 degrees) above the lake. It is believed that at this time part of the bank sheared to about its normal angle of repose (about 45 degrees). As the truck was on the sliding material it continued into the lake and under the ice.

After about 15 minutes, Sykes floated to the surface, was immediately removed and given artificial respiration, but did not respond to this treatment. He was removed to Burns Lake hospital where he was pronounced dead. It is believed his injury was possibly caused by being crushed by the truck or by rolling rocks as he endeavoured to escape.

Salvage divers reported the truck had slid down to a depth of about 50 feet and about 100 feet from the shoreline. It was noted the driver's door was unlatched and the window broken.

At the inquest held May 31 at Granisle the jury's verdict was that Peter Sykes died February 15, 1973, as a result of the accident investigated by the jury. The jury determined his death was unnatural and accidental, and attached no blame to anyone. The jury recommended:

"(1) that dormant areas of dumps be inspected by the superintendent before being reactivated.

"(2) that the shiftboss should inspect the dumps in use at the beginning of his shift.

"(3) that material used on dumps should contain a higher percentage of rock than that used at the time of the accident."

The inspector investigating the accident was of the opinion that the steepened dump bank was confined to the zone above lake level and could be attributed to frost action. He therefore recommended several changes to the "Safe Dumping Regulations" established at Granisle mine. These included requiring the dump ridge or safety berm to be at least 2 feet high, and unless trucks are dumping at the established berm, the rear wheels shall not approach closer than 15 feet from the dump edge. Other changes included increasing the length of the active dump and in defining the extent to which the lake ice shall be broken at dumps.

*William Joseph Szliske,* aged 21 years, and employed as a dumpman at the Harmer open pit of Kaiser Resources Ltd., was instantly killed on June 7, 1973, when run over by the left front wheel of an empty 200-ton Lectra Haul truck.

Szliske was, on the day of the accident, on afternoon shift, and was at the Harmer No. 2 dump where he was directing trucks backing up to the waste dump. He directed one truck into dumping position and then walked across in front of this truck from left to right to direct a second truck into position to the right of the first truck. As soon as the second truck commenced dumping he was returning across in front of the first truck when it started moving. He was knocked down run over by the left front wheel and died almost instantly from injuries received.

The driver of the first truck had no way of knowing the dumpman was passing in front as the dumpman was too close to the big truck. At that moment the shift foreman, who was approaching, signalled the truck-driver to stop, which he did immediately.

It is not known why Szliske passed back in front of the first truck, but he may have been going over to a crew bus parked to the left of the first truck and in which Szliske had a pair of gloves and a can of pop.

The inquest was held in Sparwood on June 20, 1973, and the jury's verdict was as follows:

"We, the jury find that William Joseph Szliske died on June 7, 1973, at approximately 9.10 pm on Harmer #2, by being run over and crushed by a 200-ton truck. We find that death was accidental with no blame attached to anyone."

The District Inspector subsequently directed all open-pit operators in his district to ensure that where dumpmen are employed there is some positive means of signalling between dumpmen and truck-drivers, and that trucks are not to move away from the dump unless directed to do so by the dumpman.

*Gordon Stuart Hood*, aged 23 years, single and employed as a geologist by Noranda Exploration Company, Limited in the Nanika River area, 50 miles southwest of Houston disappeared while engaged in silt sampling on July 4, 1973. It is supposed Mr. Hood drowned in Nanika River while endeavouring to cross from a river bar to the east bank. He had been landed by helicopter onto the bar.

On the evening of July 3, 1973, the supervisor of the deceased indicated to Mr. Hood he desired a silt survey traverse to be made on the east side of the river. Landing and pick-up points were indicated on the east side of the river. En route to the landing point on the morning of July 4, Mr. Hood decided to change the two points chosen the previous night. He decided to land on a river bar and asked for a pick-up on the west side of Nanika River. On landing on the river bar the helicopter pilot asked Hood if he thought he could safely cross the river and Hood advised he thought he could, so the pilot left without further observation. Although the missing man was aware he would have to cross the river, he failed to equip himself with a life-jacket from the camp supply.

When Hood failed to appear at the prearranged pick-up point, a search was made of the bar on which he had been landed. His tracks indicated he had gone to the north end of the bar and then returned to the south end where he attempted to cross to the east bank of the river. Helicopter sweeps were made of his intended route of travel until darkness that evening. The following day extensive ground and air searches were started, commencing from Hood's point of entry into the river and downstream to Morice Lake and also upstream to Kidprice Lake. Several surveying items carried by Hood were discovered that day in the river downstream from the bar. Intensive daily searches continued until July 18 and a further 11 traverses by foot or by helicopter were made from July 21 to August 10. Frequent helicopter sweeps were made until October 4 when a ground search located several items of personal clothing on a bar about 3 miles below the bar where Hood entered the river. Extensive old tracks of an animal, probably a bear, were found at this location also.

It is supposed Mr. Hood lost his footing while crossing the river as it was at a fairly high level. It is also supposed he drowned and his body lodged underwater on the bar where his clothes were found. When the flood-water level receded the body would be exposed and could presumably be removed by animals.

The inquest was held in Houston, November 15, 1973, and the jury's verdict was as follows:

"Gordon Hood died on or about 4 July 1973 and that death was unnatural and accidental with no blame attached to any of the parties." The jury also recommended: "Exploration crews consist of two men, one of whom is experienced."

The District Inspector advised it was his opinion the accident occurred due to inexperience on the part of the deceased and on the part of the helicopter pilot in that both failed to recognize a dangerous situation. He also suggested expanding the jury's recommendation as follows:

"It is recommended that two men, one of whom is experienced, be used on all exploration work where helicopter support is involved and also in cases where remote or potentially hazardous terrain make supervision of communication difficult." His recommendation to forward this suggestion to operating and exploration companies has been carried out.

He further recommended a length of light nylon rope be supplied to all exploration crews. The Chief Inspector has forwarded the recommendations of the inquest jury and that of the Inspector to all prospecting companies.

*Alexander Albert Pop* (Popove), age 50, married, and employed as service-truck operator by Similkameen Mining Company Limited at Ingerbelle mine, died on August 29, 1973, from injuries received when crushed between a grader he was servicing and the fuel truck he operated.

The truck was equipped with a hydraulic motor drive for the fuelling pump and an engine, auxiliary-accelerator control at the back end of the truck. It was also equipped with a lock plate to insure the gear-shift lever could not move from the neutral position during fuelling.

Operational procedures established for the use of the fuelling pump were to stop the truck, and place the gear-shift lever in the neutral position; swing the lock plate over to keep the gear-shift lever in neutral; accelerate the engine to insure the vehicle did not move (as it would do if not in neutral); set the parking brakes; place the wheel chocks; go to the rear of the truck, reel off the hose and place the hose nozzle in the vehicle being fuelled; return to the rear of the truck to open the fuel valve and accelerate the engine to speed the pumping action. It was determined that on the day prior to the accident Mr. Pop was under observation as a trainee fuel-truck operator for a period of six hours. It was believed he was capable and understood the job.

Evidence presented at the inquest indicated that a grader had stopped for fuelling about 8 to 10 feet behind the fuel truck. Pop got out of the truck without having accelerated the engine, did not place the wheel chocks but went to the rear of the truck and accelerated the engine from the rear control. He then pulled out the hose and was walking toward the grader when the truck suddenly started to back up. Pop was pinned between the truck and grader. The grader operator, on seeing the accident, quickly jumped into the truck, shifted the lock plate, and moved the truck forward. Pop fell to the ground, was subsequently treated by the first aid attendants and was taken by ambulance to the hospital where the attending doctor pronounced Pop dead on arrival. The post-mortem investigation indicated Pop had a blood alcohol content rating of 0.04.

A subsequent examination of the fuel truck indicated the gear-shift lever could be blocked in reverse position as readily as in neutral with the locking plate and that a 4 to 10-second delay could occur before the engine power train overcame parking-brake resistance.

It would appear the operator had inadvertently left the engine in reverse before leaving the cab, and by not using the wheel chocks he had failed to prevent or arrest any motion which the truck might have developed.

At the inquest held in Princeton on November 7, 1973, the jury came to the following verdict:

"We, the Jury, find:

"Concerning the death of Alexander Albert Pop which occurred between 8:05 a.m. and 8:20 a.m., August 29, 1973 as a result of an accident on the property of Similkameen Mining Co. Ltd. at which place death did occur.

"Cause of death was severe crushing between two vehicles that is a fuel truck and grader.

"We find death was accidental resulting from operator's error coupled with unsafe locking device installed on gear shift.

"We recommend:

(A) Fool proof locking device on gear shift
(B) Parallel fueling positions
(C) Pumping controls side mounted
(D) Enforce regulations on wheel block placements."

*Harold Herbert Engels*, aged 34 years, single, and employed as a mucking-machine operator at the Pride of Emory mine of Giant Mascot Mines Limited, died from injuries received from a fall at the mine on September 28, 1973.

On the day of the accident Engels and a partner were working in 2766 bulldoze chamber slushing ore from the Chinaman 2600 stope and down 193 ore pass raise. On the day of the accident Engels and his partner had bulldozed hung-up rocks four times between the start of the shift at 4 p.m. and 7 p.m. This was accomplished by tying different amounts of explosives to bulldoze sticks inserted into the throat of the drawpoint and detonated there. The concussion induced the hung-up rock to fall.

Because of poor initial fragmentation of the ore in the stope, it had been necessary to set off four separate concussion blasts in the drawpoint in order to endeavour to bring down hung-up ore. At about 7 p.m., and contrary to operating instructions, Engels entered the throat of the drawpoint with a bulldoze charge of six sticks of 1¾ by 16-inch 75-per-cent Forcite attached to a 12-foot 6-inch bulldoze stick. Engels, carrying this charge, crossed the grizzly without having his safety belt and rope attached, and climbed up into the throat of the drawpoint. Engels' partner watched him climb up until his feet disappeared from view about the brow of the drawpoint. The partner advised he then heard what he thought was small rocks falling, following which Engels came sliding down head first out of the throat and down through the grizzly to fall down 193 ore pass raise. As Engels did not utter any sound during this time it is altogether possible he had been knocked unconscious by the falling rocks.

The partner immediately went for help and, subsequently, two men descended the ore pass by using ropes. They brought Engels up in a stretcher. To minimize the danger of falling rocks from the hang-up in 2600 stope, planks were laid across the grizzly to cover the opening while the two rescuers were in the ore pass, however a further hazard existed as part way down the ore pass a raise entered from another stope in which a hung-up condition existed at its throat also. Engels was being taken from the mine when the doctor arrived and pronounced Engels to be dead.

An inquest was held in Hope on December 17, 1973, at which the jury returned the following verdict:

"We, the Jury, having been duly empanelled find that Harold Herbert Engels died at approximately 7:00 p.m. on September 28, 1973 at or about the 2766 Bulldoze Chamber level at Giant Mascot Mines near Hope, B.C. of a fractured skull and subdural hemorrhage.

"This accidental death was caused as a result of Mr. Engels' negligence in not adhering to Standard Safety Mines Regulations by going beyond the collar of the drawpoint in this mining area."

*Floyd David Cunningham,* aged 31 years, married, and employed by Shepard Enterprises Ltd. as diamond-drill foreman at the Bergette prospect of Granges Exploration Aktiebolag, 2 miles west of Sibola Peak, 50 miles south-southwest of Houston, died instantly on October 9, 1973, from head injuries received when crushed by the canopy of the tractor he was driving.

Mr. Cunningham, an experienced tractor driver, was descending on the road to the camp and decided to take a shortcut. The shortcut took him across glacial ice sloping downhill about 2 to 10 degrees. He began to experience difficulties in manœuvring, so attempted to turn the tractor around but the tractor, being equipped only with normal track grousers, slid about 70 feet and dropped about 10 feet at a roadcut bank. The tractor landed on its side, during which time Cunningham was crushed by the canopy. The tractor then rocked back to a normal attitude. Cunningham was thrown out and fell under the canopy as it descended to the ground when the tractor was on its side. As visibility was satisfactory at the time, it was believed Cunningham misjudged the slope of the ice and the ability of the tractor to travel on it.

At the inquest held in Houston on November 5, 1973, the following verdict was made by the jury:

"We, the jury, having been duly impanelled, find that Floyd David Cunningham, of Kamloops, aged 31, died on 9th day of October, 1973, at or near Houston as a result of head injuries due to being crushed between a Cat and ice pack. We find that this death was unnatural and that it was accidental. We attach no blame to any person in connection with the death. We recommend that equipment owners ensure that adequate safety equipment is installed, for example, canopy screens, ice lugs, when their equipment is working on remote mining operations."

*Gabriel William White,* aged 45 years, single, and employed as a 100-ton Unit-Rig truck-driver by Brenda Mines Ltd. at Brenda mine, died on October 20 as a result of injuries sustained when he backed the truck he was operating over the low-grade ore stockpile.

During the early part of White's shift he stopped three or four times to talk to the operator of a bulldozer whom he advised that he (White) felt as if he was drunk and that he was taking valium pills by doctor's prescription because of a nervous condition. It was noted also that White staggered as he walked. White also reported he had difficulty in staying awake.

At about 10 a.m. a witness saw the truck back over the dump berm, somersault, and then roll down the dump about 150 feet, stopping on its left side. First aid attendants reached White with minimum delay, and took him by ambulance to the hospital, where he was pronounced dead on arrival. His injuries included a fracture of the chest, internal bleeding of the lungs, and a fracture of the skull. Death was attributed to hæmorrhage shock. A blood analysis indicated an alcohol content of 0.06 per cent.

An inquest was held in Summerland on November 14, 1973, at which the jury reached the following verdict:

"We, the Jury, having been duly empanelled find that Mr. Gabriel W. White of Kelowna, aged 45, died on October 20, as a result of cause of death. [sic]

"We find that this death was accidental due to misjudgement.

"We find that no blame attached to any other party.

"We recommend that any person who is on medication of sedative nature be reported from doctor to management."

It is to be noted that section 23, Rule 280 (*b*), of the *Mines Regulation Act* states as follows:

"No person shall be employed if his ability to work safely is impaired, by any means, to such a degree that he endangers his own safety or that of another person."

It is also to be noted that the relationship between a doctor and patient is considered to be personal and therefore a doctor would not be obliged to comply with the final recommendation.

## FATAL ACCIDENTS AND ACCIDENTS INVOLVING LOSS OF TIME

There were seven fatal accidents and 771 accidents in which compensation was paid reported to the Department. These were investigated and reported on by the Inspector of Mines.

The following three tables classify these accidents as to cause, occupation, and parts of the body injured. The accidents that occurred in the coal-mining industry are reported separately from those occurring in all other types of mining operations. The fourth table lists all fatal and compensable accidents which occurred in lode and coal mines over a 10-year period, and relates these accidents to the number of men employed.

*Accidents Causing Death or Injury Classified as to Cause*

| | Coal Mines | | Mines Other Than Coal | |
|---|---|---|---|---|
| | Number of Accidents | Percentage of Total | Number of Accidents | Percentage of Total |
| Atmosphere | 5 | 2.2 | 18 | 3.3 |
| Explosives | — | — | 2 | 0.4 |
| Falls of ground | 16 | 7.4 | 53 | 9.6 |
| Falls of persons | 79 | 35.7 | 138 | 25.1 |
| Lifting and handling material | 29 | 13.1 | 54 | 9.8 |
| Machinery and tools | 47 | 21.3 | 156 | 28.4 |
| Transportation | 28 | 12.6 | 52 | 9.4 |
| Miscellaneous | 17 | 7.7 | 77 | 14.0 |
| Totals | 221 | 100.0 | 550 | 100.0 |

*Accidents Causing Death or Injury Classified as to the Occupation of Those Injured*

| Occupation | Coal Mines | | Mines Other Than Coal | |
|---|---|---|---|---|
| | Number of Accidents | Percentage of Total | Number of Accidents | Percentage of Total |
| Underground— | | | | |
| Chutemen | — | — | 8 | 1.4 |
| Haulagemen | 10 | 4.5 | 45 | 8.2 |
| Miners | 10 | 4.5 | 180 | 32.7 |
| Helpers | — | — | 15 | 2.7 |
| Timbermen and facemen | 16 | 7.2 | 14 | 2.5 |
| Mechanics (electricians, supplymen, welders, pipefitters, etc.) | 12 | 5.4 | 34 | 6.2 |
| Miscellaneous | 18 | 8.2 | 5 | 0.9 |
| Surface— | | | | |
| Mechanics, electricians, repairmen, etc. | 58 | 26.3 | 88 | 16.0 |
| Mill and crusher workers | 1 | 0.5 | 68 | 12.4 |
| Carpenters | 2 | 0.9 | 4 | 0.7 |
| Miners and drillers | 3 | 1.4 | 41 | 7.5 |
| Vehicle drivers | 43 | 19.4 | 17 | 3.1 |
| Surveyors, labourers, construction, etc. | 34 | 15.4 | 25 | 4.6 |
| Miscellaneous | 14 | 6.3 | 6 | 1.1 |
| Totals | 221 | 100.0 | 550 | 100.0 |

*Accidents Causing Death or Injury Classified as to the Parts of the Body*

| Location | Coal Mines | | Mines Other Than Coal | |
|---|---|---|---|---|
| | Number of Accidents | Percentage of Total | Number of Accidents | Percentage of Total |
| Eyes | 16 | 7.2 | 33 | 6.0 |
| Head, face, and neck | 8 | 3.6 | 38 | 6.9 |
| Trunk | 58 | 26.2 | 155 | 28.2 |
| Upper extremities | 51 | 23.3 | 143 | 26.0 |
| Lower extremities | 72 | 32.5 | 147 | 26.7 |
| General | 16 | 7.2 | 34 | 6.2 |
| Totals | 221 | 100.0 | 550 | 100.0 |

*Compensable[1] and Fatal Accidents Related to Persons Employed in Coal and Mines Other Than Coal*

| Year | Number of Accidents[2] | | Number of Persons Employed | | Frequency per 1,000 Persons | |
|---|---|---|---|---|---|---|
| | Coal | Other | Coal | Other | Coal | Other |
| 1964 | 134 | 547 | 713 | 5,400 | 188 | 101 |
| 1965 | 116 | 559 | 649 | 5,522 | 179 | 101 |
| 1966 | 97 | 739 | 614 | 7,210 | 158 | 102 |
| 1967 | 92 | 688 | 457 | 6,716 | 201 | 102 |
| 1968 | 73 | 682 | 553 | 9,254 | 132 | 74 |
| 1969 | 93 | 725 | 700 | 9,633 | 133 | 75 |
| 1970 | 172 | 860 | 1,275 | 11,622 | 135 | 74 |
| 1971 | 196 | 737 | 1,457 | 10,684 | 135 | 69 |
| 1972 | 227 | 771 | 1,985 | 11,231 | 114 | 69 |
| 1973 | 294 | 817 | 2,216 | 11,495 | 133 | 71 |

[1] Subsequent to April 1, 1972, a compensable accident has been determined as being an accident where the injured man is not able to work the next or any subsequent working-day because of the injury received. Prior to that date an accident was determined as an injury causing a loss of more than three days' work. The statistics since that date are therefore not directly comparable with those of previous years.

[2] These totals are submitted by the Workmen's Compensation Board as having occurred in the mining industry operations.

## DANGEROUS AND UNUSUAL OCCURRENCES

One hundred and forty-eight dangerous and (or) unusual occurrences were reported as required by sections 9 and 10 respectively of the *Mines Regulation Act* and the *Coal Mines Regulation Act*. Sixteen of these were recorded at coal-mining operations and the balance from all other types of mining activity. Of the 148 occurrences recorded, 99 happened on the surface and 49 underground.

In summary, 61 involved the use of vehicles, mainly haulage and pickup trucks, and the incidents related to vehicles running out of control, collisions, backing over dumps, and running off roads. Twenty-six fires were recorded, and of the 11 which occurred underground, five involved the use of vehicles. Thirteen incidents occurred involving the use of explosives, and 10 in connection with the use of electricity. Seven hoisting incidents were reported, and six where individuals were caught in or between machinery. Five unusual occurrences were recorded involving falls of rock and three in which dump slumps, tailings spills, and crane-boom failures were recorded. The remainder were of a miscellaneous nature.

On January 1 a fire in the concentrate drier at an open-pit mining operation released sulphur dioxide fumes in the drier building.

On January 2 at an open-pit mine a ruptured hydraulic line on a Lectra Haul truck sprayed hydraulic fluid over a hot exhaust manifold. The fluid ignited and the fire severly damaged the vehicle.

On January 3 a pickup truck at an underground mining operation rolled over after the left front wheel broke through the snow at the edge of the road.

On January 5 a personnel vehicle being operated between an underground mine and its local community drove off the road when the left front wheel dropped through the snow on a curve. It is possible that in both this and the previous incident snow-ploughing had masked the road edge.

On January 9 three men working underground failed to properly guard the area where three drift rounds were being blasted. The blasting certificates of two of the three workmen involved were suspended.

On January 10 an explosion occurred in an underground jaw crusher when a large piece of ore was being crushed. It is presumed the ore contained explosives that had not detonated during normal blasting operations. The crusher operator was not injured, although he was close to the crusher.

On January 12 an underground workman reported that, as he was walking along a drift, a concussion wave, smoke, and water were suddenly ejected from an unmarked diamond-drill hole during a blasting operation in a nearby drift heading. On investigation it was found the location of this drill hole had not been plotted on the mine plans.

On January 13 an underground scooptram operator reported that while mucking out a development round he twice encountered burning Cilgel explosives. A 1 by 8-inch stick was discovered burning in the drift between the loading and dumping points while another was observed in the muck pile. An investigation discovered several sticks of Cilgel were on the ground between the muck pile and the dump, but it could not determine how they came to be there other than having dropped from the scooptram while mucking out a round in which a missed hole had occurred. It could not be determined, either, what ignited them. It was suggested it may have occurred after being exposed to the hot diesel exhaust. While this ignition source is possible it is highly improbable this occurred.

On January 14 at an open-pit mine an electrician was slightly injured when the truck he was driving went off the road and rolled approximately 160 feet in snow. It was believed the driver was driving too fast for the condition of the road, and after hitting a rock in the wheel track he was unable to redover control before driving over the edge.

On January 17 at an underground mine the service cage operating in a shaft stuck twice, just below a shaft station, because of inadequate clearances between the cage and the guides. The guides were planed to increase clearance and the cage operated satisfactory past that point. The following day the cage stuck about 350 feet lower in the shaft and the cable kinked after about 475 feet had been reeled out. On investigation, slight damage had been done to the cage. This was repaired, and the guides planed and aligned to permit unobstructed operation.

On January 18 the hoisting rope of the south side skip compartment in a shaft was damaged. Damage followed when an improper signal was given by a shaftman to the hoist operator. Unknown to the hoistman the shaft bonnet was being used by the shaft crew, and when the skip was moved the bonnet came into contact with the dumping yoke. The bonnet being inadequately secured to the shaft cable, slid some 12 to 18 inches down the hoist rope, resulting in a broken strand and some superficial damage. The recommendations to avoid future mishaps were that when

the shaft inspection bonnet is being used the hoistman shall be advised, and the shaftboss shall be present until he is satisfied the work being done is satisfactory.

On January 20 an underground workman was severely bruised when caught between a locomotive and a derailed 15-ton muck car. The injured man was endeavouring to re-rail a car using a piece of steel, instead of by using car jacks as required in operating procedures.

On January 23 a fire in an underground main haulage tunnel was caused by oil spilling from fuel tank cars being ignited by sparks falling from the pantograph of the electric locomotive. Investigation revealed the fuel tanks had been overfilled with no room being left for temperature expansion. The pressure built up in the fuel tank causing a fine spray of fuel to be emitted from the pressure relief valves. Efforts to prevent recurrence of this type of hazard were to require fuel cars to be located at the tail end of the supply train, and during filling, the tanks shall not be filled within 1 foot of the top of the capped opening. Also the suggestion was made that the locomotive used for hauling flammable or explosive materials be equipped with two pantographs.

On January 25 at an open-pit concentrator a fire in the concentrate drier released sulphur dioxide fumes in the drier building.

On January 26 at an aggregate producing plant a workman had his right arm severed just below the shoulder when his arm was caught in the head pulley of a conveyer. The workman was applying salt to the conveyer-belt to inhibit ice from forming on the pulley. The workman failed to observe established operating procedures in applying the salt.

On January 29 at an open pit a workman had completed loading boulders with explosive in preparation for secondary blasting. The boulders had previously been drilled to a depth of half their thickness. On making his final check he found a small piece of explosive which had not been loaded into a hole. Upon inserting this piece of explosive into the hole, small white crystals resembling ammonium nitrate prills were discovered around the collar of the hole. An immediate ignition of the explosive charge occurred upon tamping with the loading stick. There was a sound similar to a child's cap gun, followed by a small volume of white smoke. Upon investigation it was found that some of the remaining unused sticks of explosives were dry and partly hollow. It was thought that the explosive sticks were the end of a batch, and the air contained in the hollow portion may have contributed to the spontaneous ignition during loading under pressure of the stick. The actual cause of this incident was, however, not conclusively determined.

On February 2 a Telecruiser Mobile Crane was on clean-up and salvage work near a dock in the tailings pond at an open-pit mining operation. The crane was parked off the access road on a 5-per-cent slope. Upon lifting a length of pipe, the crane house was swung and came in contact with an overhead high-voltage power-line. Two phases of the line were short circuited, resulting in the tripping out of the circuit-breaker at the switch house. The operator stated he felt the crane house move and tried to apply the house brake. This brake is used only for parking. After contacting the power-line the operator swung the house away from the line and lowered the pipe. The conclusion following investigation was that the crane house swung due to the off-level position it was in prior to the lift. There were no injuries.

On February 13 at an open pit a 2,300-volt trailing cable was damaged while the power unit was being moved. The cable was pinched and developed a short circuit across all three phases. The fault continued to arc, during which time efforts were made to enter the power unit, where a fire had developed in the main alter-

nator. Investigation indicated the overload protection did not function. Recommendations made were to ensure the overload relays are correctly adjusted; to introduce the use of cable carriers, with sufficient slack cable being provided; and to shut down the power unit prior to relocation.

On February 22 a fire occurred on a scooptram underground when a hydraulic hose was cut by a falling rock, causing a fine spray of hydraulic fluid to be ignited by contact with an electrical short circuit which resulted from damaged head lights. The operator was able to obtain help quickly and the fire was extinguished before the rubber tires caught fire. The operator received second-degree burns to his hands and a first-degree burn to the left side of his face. It was recommended that all hydraulic fluid shall be nonflammable.

On February 22 at an open-pit minesite an International TD-25 and a 950 loader were doing minor ground excavation to the bank of the river when the dozer made contact with and ripped a hole in a buried high-pressure natural gas pipe-line. The escaping gas ignited and the dozer operator, together with two other company employees, suffered injuries. The operator was hospitalized with relatively severe burns. The fire was extinguished shortly after the gas was turned off. Extensive damage was caused to the TD-25 dozer while the 950 loader was completely destroyed. Recommendations made were that a survey of all underground utilities be made and an accurate plan plotted, and such a plan shall be consulted prior to authorizing any ground excavation.

On February 26 at a limestone-quarrying operation the driver of a loaded 35-ton Euclid truck sustained left shoulder injuries after jumping out of the truck when it ran out of control down a 30-per-cent grade after a rear axle fractured. The truck travelled out of control for about 200 feet and halted within a distance of about 20 feet after running into a pile of gravel. It is apparent the truck was operating on a grade greater than that for which the braking capabilities had been designed.

On March 2, when the operator of a Unimog backed out of an underground level and down a ramp, he found he had no control of the vehicle. His passenger and he managed to jump clear of the vehicle. The Unimog continued down the ramp for a distance of 150 feet, coming to rest against a loose muck pile. Inspection revealed excessive wear of the front brake shoes and drums. To prevent any further incident of this type, brake shoes and brake drums are to be inspected at regular intervals.

On March 3 a Haulpak truck went off the road and over the bank at an open-pit mine. The driver was uninjured and only superficial damage to the steering was sustained by the truck. Investigation indicated visibility at the time was excellent; the driver was driving on the wrong side of the road and also driving carelessly, in that he was too close to the snow bank. Records indicated this driver had been involved in two previous accidents, although no blame had been attached. In this instance, however, he was discharged. Following further investigation by the Safety Committee, recommendations were made for a training instructor to use this incident as an example.

On March 5 at an open-pit mine a Terex R-35 rear dump truck, while in the dump position, came in contact with and severed a 4,160-volt power-distribution line. The severed power-line remained alive, and the plant electrician, with assistance from a high-voltage-line crew, was required to cut off the power and repair the line. Following the accident, all dumping was forbidden in the area, line fuses have been installed, and the power-line flagged with fluorescent tape. All supervisors have been instructed in the use of line disconnects, and all operating crews

have been instructed to remain in their vehicles should a similar situation again arise.

On March 8 at an underground mine two men became nauseated by blasting gases in the scram drift they were driving. It was believed the muckpile they were scraping was not sufficiently wet nor was it being adequately ventilated.

On March 12 at an underground mine the main powder magazine was broken into by persons unknown, and a considerable amount of explosives, detonators, and primacord was stolen. Entry to the magazine was made via the door, the padlock having been removed. The local RCMP detachment was notified and investigated the incident.

On March 16 a Unimog stalled on an underground ramp. The operator proceeded to restart the engine by moving the fan blade. When the engine did start, the vehicle began to roll down the ramp and continued for 150 feet, hitting the wall near a ventilation door. The operator stepped clear of the vehicle uninjured, the Unimog suffered minor damage. Investigation revealed the braking system to be in good order, and the emergency brakes were automatically applied at the moment of engine stall; however, the operator took the unit out of gear, and failed to apply the parking brakes. Upon restarting the engine, the emergency brakes were released as the air pressure increased, and the vehicle then proceeded to roll down the ramp unretarded.

On March 17 a fire occurred underground when the compressor on a scooptram overheated and ignited oil which had dripped onto the compressor. The fire was promptly extinguished by the operator. This incident could have been avoided if the drip pan had been in place.

On March 18 an accident occurred underground when a scooptram operator attempted to stop in order to change direction. The unit failed to slow down, and then hit the rock wall. Investigation revealed that the brakes, both service and emergency, were found to be in working order, but it was concluded that an accumulation of debris found jammed under the brake pedal did not allow the pedal to function properly.

On March 19 at an underground mine a rock fall of approximately 400 tons occurred in the travelway in an area that had been rock bolted with 8-foot bolts, screened, and strapped. The caved area extended into a sheared zone above the rock bolts. No one was injured and it is presumed the caving occurred between shifts.

On March 24 there was an unusual occurrence at an open-pit mine when a fire occurred behind the cab of a service truck. The shifter and leadhand were at the scene almost immediately and used a total of seven chemical extinguishers without any visible sign of effect upon the fire because of the intensity of the heat. The fire truck was called, but by the time it arrived the fuel tank had exploded and the truck was engulfed in flames. Since there was 500 gallons of diesel fuel in the tank, the shiftboss ordered a load of waste be dumped on the burning truck. This was done, and the danger of the fire spreading was eliminated. After the investigation of the incident it was recommended that the exhaust stacks extending up beyond the roof of the cab be installed with cooling mufflers on any service trucks, and a minimum of two 10-pound dry chemical extinguishers be externally mounted on all fuel and service trucks. Also all service-truck drivers be instructed in fire-fighting and required to perform shift check-out of the fuel tank and exhaust systems.

On March 26 at an underground mine two men became nauseated in the raise heading they were driving. It is believed the atomizer was located too far from the raise face at the time of the last blasting.

On March 29 at the powerhouse of an underground mining operation a fire in the valve house caused about $1,000 damage. It is believed the ground return of a welding machine in use in the powerhouse caused an arcing between the mill water-line to which it was attached and some conductor in the building wall through which it passed. It was recommended that any future welding being done in the powerhouse should be done while using the electric power outlet provided in that area and that the fire protection provided in the powerhouse be improved.

On April 2 a cage hung up in the shaft of an underground mining operation. The incident was caused as a result of the guide timbers swelling subsequent to being wetted on the week-end.

On April 12 an unusual incident occurred at an open-pit mine dump in an area where wet overburden had been dumped. A truck with a mixed load of rock and overburden was backing into dumping position when the rear wheels settled as the toe of the dump face slumped. The wet overburden had been dumped three weeks previously and outwardly appeared to be stable. The immediate area was closed to dumping pending stabilization of the dump.

On April 18 at an underground mine an electric motor starter switch blew up in the surface compressor room while it was being thrown by a mechanic. The mechanic received flash burns to his face and the back of his left hand. Inspection revealed a burned switch with excessive arcing having occurred across the top of the fuse caps. The actual cause of the arcing remains unexplained; however, the fuse holder was an old design of which previous incidents of this type of failure have been recorded. It was recommended that this old style of switch be replaced with an improved type of fuse switch and that electrical repairs be performed only by persons qualified to do so.

On April 22 at an open-pit mine a valve in the tailings disposal system malfunctioned, causing the tailings pipe to rupture and a tailings spill into a nearby lake. The valve was repaired and the tailings drainage system revised to avoid future spills in the area.

On April 29 at an open-pit coal mine the driver of a loaded 100-ton Lectra Haul truck was slightly injured after the truck ran out of control at a corner, drove through a small berm and down a 50-foot steep incline, at the bottom of which it capsized. Investigation indicated a steering failure because the steering ram had disconnected.

On April 30 the south skip in a shaft of an underground mine was double loaded after the skip door tripping mechanism had failed to function because of too low air pressure. Although the installation was television monitored, the unloading failure was not observed. The investigation subsequent to the incident recommended modifying the control circuitry to insure the necessary air pressure for operating the skip door tripping mechanism. It was also recommended closer attention be given to the television monitor and instructions issued that in the event of double loading the skip is not to be moved until the load is lightened to its designed loading.

On May 3 at an underground mine the first stage of a two-stage fan failed when the jack-shaft bearing overheated and the shaft bent, thus causing the fan blades to break off. It was recommended that thermostats, complete with pyrometers, be installed on all pillow bearings. It was noted this control had been installed but was not correctly adjusted.

On May 4 at an open-pit mine an inexperienced driver of a Lectra Haul truck backed into another similar vehicle in the truck parking area preparatory to a change of shift. Parking area procedures have been revised to avoid having trucks back in when the driver's view is obstructed.

On May 6 at an open-pit mine four braces in the lower boom section of a dragline were damaged when an inexperienced operator pulled the bucket into the boom. The operator was intending to set the bucket down for normal greasing, but on noting a parked tractor in line of travel he hoisted the bucket but forgot he had the drag engaged. After investigation it was recommended that only authorized personnel are permitted to operate the dragline; that all equipment in the vicinity must be parked outside the swing radius of the dragline, and that any damage to a dragline shall be considered as being of important concern requiring the machine to be stopped and the supervisor notified.

On May 8 at the camp of an underground mine five electric blasting caps bundled together with lead wire were found cached under some tin sheets under the kitchen. No conclusions were reached as to when or why the caps were hidden.

On May 8 at an open-pit operation the driver of a loaded 200-ton Lectra Haul truck backed over the edge of a haul road while placing surfacing material on the road. An investigation indicated the steering and brakes were in satisfactory condition. The cause of the incident was attributed to driver error and the steepness of the grade on which the vehicle was operating.

On May 9 at an underground mining operation an electrical short circuit caused a fire on a post near a chute in 41-188 stope. The fire was extinguished without incident.

On May 9 at an underground mining operation the operator of the King Nipper diesel-driven haulage vehicle fell off the vehicle and onto the ramp when the driver's seat, to which he was secured with a safety belt, broke from its supporting rod. At the same time the fail-safe braking system failed to function, thereby permitting the vehicle to creep forward. It was recommended that the seat be attached to the frame with support brackets and the support rod of galvanized pipe be replaced with one made from black iron pipe. It was also recommended that the fail-safe mechanism be made serviceable and that vehicle drivers shall be again instructed to report all unsatisfactory operating conditions.

On May 16 at an underground mining operation a truck was dumping a load of gravel near the main transformer substation when the raised truck box came too close to the high-voltage overhead wire. The electric power arced about 12 to 18 inches from the power-line to the truck box and from the vehicle to the ground. The power supply was interrupted by the safety switchgear and the driver climbed unhurt to the ground.

On May 18 at an underground mining operation a man was slightly injured by falling rock in a stope as he was inspecting backfilling being done in the stope. The area that caved had been scaled about two weeks previously and no mining had been done since that time; however, as the ground was fractured, it is presumed it loosened during the intervening period. When the caving condition was first noticed an attempt was made to retreat, but the wet sandfill hampered rapid movement.

On May 22 an explosion occurred in the hospital dressing-room at an underground mining operation. The explosion involved a number of glass bottles containing mixed chemicals on top of a glass cabinet. The chemicals involved were in two solutions having the following listed compositions. Catgut was being stored in test tubes in three to five jars which were filled with the second solution.

| | |
|---|---|
| 96 per cent isopropyl alcohol | 90 per cent isopropyl alcohol |
| 1 per cent formaldehyde | 0.7 per cent diethylethomolamine |
| 0.05 per cent sodium nitrate | 0.1 per cent sodium nitrate |
| 0.05 per cent diethylethomolamine | water g.s. ad 100 per cent |
| water g.s. ad 100 per cent | |

It is believed that somehow the diethylethomolamine lost its effectiveness and permitted oxidation to occur and the subsequent explosion of the sodium nitrate.

On May 24 at an open-pit mining operation the right front wheel of a loaded 85-ton Lectra Haul truck fell off as the truck was proceeding upgrade to the primary crusher. The cause of the failure was not determined, but it is possible the tire rim was not correctly seated.

On May 25 at an underground mine a miner approached a working place where he knew another miner was intending to do some blasting. On reaching the working place, and on seeing the other miner, a shot detonated, knocking both him and the other miner down. He immediately directed his helper, who was accompanying him, to retreat and then ran into the blasting area, picked up and carried out the other miner, who was injured. They had travelled only a short distance before two more holes exploded. The rescuer's action undoubtedly saved the injured man's life, whose injuries included a broken arm, a damaged knee, facial and arm cuts, and considerable loss of blood. The blaster had experienced difficulties in lighting the fourth fuse, and had remained too long in the blasting area.

On June 2 the 60-foot boom of a P&H mobile crane failed and collapsed while endeavouring to raise a 14-ton load. The crane boom was at an angle of inclination of 80 degrees and at an operating radius of about 10 feet. It was determined the incident was due to equipment misuse in that the load-chart rating for the particular project indicates a zero safe loading.

On June 6 at an underground mine a small fire occurred in the controller of an electric locomotive subsequent to its having been cleaned with varsol which had not dried.

On June 6 at an underground mine the driver of a scooptram lost control of his vehicle while proceeding downramp. The scooptram struck a ventilation door and momentarily pinned a workman to the wall. The accident was attributed to operator inexperience and possible inadequate or unserviceable brakes.

On June 7 at an underground mine the man-deck of the north side skip in a shaft was filled with ore when the deck came unfastened and dropped down while ore was being hoisted. The ore was removed without incident, and it was recommended that the man-deck be removed during muck-hoisting operations.

On June 13 at an underground mining operation an employee received second-degree burns to his hands when engulfed in hot, dusty air issuing from a drawhole in a hot muck stope area. A few seconds after a blast had detonated, a large run of muck occurred in the stope, causing a violent ejection of the extremely hot atmosphere contained in the stope.

On June 14 at an underground mine a welder was slightly burned when a fire occurred at the oxygen gauge of the oxyacetylene welding outfit he was using. The gauges and hoses were apparently in good condition and the cause of the accident was attributed to the possibility of oil or grease on the gauge.

On June 18 a shaft cage suddenly dropped about 4 feet as the cagetender was stepping into it. The cagetender fell to the floor and sustained abrasion injuries to his left knee. The accident was due to improper operating procedures in that the hoistman had not fully set both brakes after receiving the "man on" (3-bell) signal.

On June 24 a driller received burns to his face and left ear when the oil reservoir tank of an airtrac drill compressor exploded. It is believed the thermostat control on the by-pass switch diverting lubricating oil to the cooler failed to function after the engine reached operational temperature, thus permitting the oil temperature to rise to its flash point.

On June 26 at an underground mining operation two men were slightly injured in a shaft when the compressed airline burst as they were clamping a patch over a leak hole in the 8-inch pipe.

On June 27 an unusual occurrence was the finding of some cartridge explosives behind a drawer and against the wall of a closet in a bunkhouse. It was not determined how the explosives came to be placed where located.

On June 29 at an underground mine a load-haul-dump unit capsized on a road. The driver found the brakes would not hold the vehicle on the steep grade down which it was descending and directed it into the bank where it overturned. Examination indicated a burst hydraulic line in the braking system.

On June 29, because of an air leak in the braking system and because of a sticking clutch pedal, a Unimog truck ran away and capsized on an underground ramp.

On July 1 a premature explosion of several loaded holes occurred in a draw hole and subsequently in another draw hole underground. The holes being loaded were in an area of spontaneous heating in broken ore where it was believed the rock temperatures in the holes would not exceed 150°F; however, an attempt was made to cool the rock with water. Temperatures taken after flushing did not exceed 142°F and loading was completed in the first drawpoint and was almost completed in the other drawpoint when a detonation occurred in the first drawpoint. The area was evacuated and apparently subsequently the remaining loaded holes in both drawpoints detonated due to overheating. It is recommended closer control be exercised in recording the rock temperatures and that no blasting be done where the rock temperatures exceed 150°F.

On July 5 a fire started underground on the exhaust manifold of a Wagner 20-ton ore carrier. An investigation showed a faulty cap on the fuel tank had permitted fuel oil to leak onto the hot exhaust manifold where it ignited.

On July 7, because of a broken brake-line, a Chevrolet 4 x 4 truck was unable to stop on a downgrade until it ran into a gate, where minor collision damage occurred. The driver had neglected to apply the parking brake.

On July 8, while descending the main haulage ramp, the engine of a 100-ton truck stalled and the driver forgot to engage the emergency steering system. The vehicle was almost stopped with the service brake, but with the driver being unable to steer, the truck continued to the road edge where it slid over the edge and rolled down a 39-foot embankment, landing upside down. It could not be determined what caused the engine to stall.

On July 12 a fire occurred at an electrical distribution switch on the outside of an office building. It is believed the fire resulted from a short circuit due to an insulation fault and probably an accumulation of limestone dust which assisted in producing a flash over.

On July 13 an unusual incident was recorded concerning a fire on a scooptram brake drum. At the end of afternoon shift the vehicle was being parked when the driver noticed and extinguished a small fire on the brake drum. It was determined that the driveline emergency brake had been set up too tight, thus causing the heels of both brake shoes to rub the brake drum. The area became hot enough to cause residual oil and grease in the area to ignite.

On July 17 an explosion occurred when the operator of a drilling jumbo drilled into the socket of a lifter. It was determined the miner had not properly washed and examined the face for missed holes.

On July 28 the brakes on a pickup truck failed as it was descending a ramp and in endeavouring to avoid running over the dump the driver turned the vehicle

so sharply that it rolled onto its side. On investigation it was found the front brake-line was torn off but that the rear brakes were functional. As the driver only applied the brakes once it is possible the brake-fluid level was low, but the brakes should have responded to pedal pumping.

On July 30 a pickup truck was run into and damaged by a 100-ton truck in front of which it had been parked. The large vehicle was moved ahead by its driver who was unaware of the small vehicle being in front of his truck.

On July 30 an unusual incident occurred to two workmen while greasing the south compartment cable in a shaft. The two men were standing on a work platform held into position in the shaft by a cable attached to a tugger which was used to raise and lower the platform. This cable had been improperly led from the tugger hoist across the north compartment and to the platform in the south compartment. As the north and south cages were in counterbalance position, the north cage rose and struck the tugger cable as the lubricating was being done on the sinking south cable. As the north cage struck the cable the platform was suddenly raised and one man was thrown off into the shaft station while the other man was trapped behind the door. The tugger cable then snapped and released the man behind the door.

On July 31 a workman was severely injured when a bolt fired from an explosives-actuated gun entered his chest and passed through his body. The gun had been returned to the tool crib after use and was apparently left loaded. The tool-crib operator, rather than opening the breach to determine if the gun was loaded, pushed the muzzle against a ⅜-inch plyboard wall and pulled the trigger. The bolt with which the gun had been loaded passed through the wall and struck a workman on the other side of the wall. Instructions were issued that the use of explosive-actuated tools must be done in compliance with the pertinent Workmen's Compensation Board Regulations.

On August 2 an inexperienced and unauthorized driver drove the garbage truck off the garbage dump road. The truck ran down the steep hillside and overturned on the flat below. The authorized driver who was seated on the passenger side sustained two crushed vertebræ. Seat belts were not being worn.

On August 8 the driver of a haulage contractor's truck drove off the road and in so doing received multiple lacerations and a broken left ankle as the truck rolled over and down the hillside. The driver reported the engine had stopped and steering ability was lost. The investigation completed indicated the engine was stopped, the gear shift in neutral, and the brakes were overheated. The vehicle recorder indicated the possibility that the truck was being operated at a speed in excess of that posted for the road.

On August 10 a small fire occurred underground in the air filter and connecting hoses of a scooptram while it was in operation. The cause of the fire was considered to have been heat generated by the compressor igniting a build-up of fine carbonaceous dust in the air filter. It was decided to service that part of the equipment at more frequent intervals.

On August 15 a miner was carrying a case of explosives past the top of a raise when he released his hold on the guard rope to readjust his hold on the box of explosives. While doing this he lost his footing and fell down a distance of 50 feet on his stomach into water that had accumulated in the 45-degree inclined raise. The workman had untied his safety rope before picking up the explosives.

On August 15 the driver of an underground scooptram lost control of the vehicle and rammed a drift wall without damage to the vehicle. About three hours later he was about to pass through a ventilation door and stated he had pulled the door control cord but that the scooptram commenced to creep forward. He also

said he put the vehicle in reverse gear and dropped the bucket, but the scooptram continued downgrade, striking the door and damaging the door frame. The investigation of the incident revealed that the brakes were "red hot" at the time of the incident and that no other faulty condition existed about the vehicle. It would appear the incident was attributable to driver error.

On August 20 an electrician suffered second-degree burns to his face, arms, and body from an arc flash in the main circut-breaker cubicle when, contrary to safe operating procedures, he endeavoured to check the voltage across the main contacts with a hand-held meter. In order to do this he blocked open the mechanical disconnect shutters which would normally shield the 13,800-volt power supply. The powerhouse superintendent also received second-degree burns to his hands while assisting in removing the electrician from the cubicle, which was extensively damaged.

On August 22 the driver of a 100-ton truck fell asleep while driving. The vehicle left the haulage road and struck a rock embankment, thus causing considerable damage to the left front suspension and steering assembly.

On August 23 as the bucket of a large power shovel was being swung around for servicing it struck a 100-ton truck parked in an area near the shovel where the operator's vision was interrupted.

On August 24 an underground scooptram being driven down ramp in second gear ran out of control when the operator thought the engine had stalled. The vehicle continued down ramp until it struck a truck en route up the ramp. The scooptram stopped but the truck then ran back and struck a wall. The investigation completed indicated the scooptram was travelling down too fast and in an incorrect gear. It also revealed a low level of transmission fluid, which resulted in inadequate clutch braking through the transmission. The recommendations of the investigating committee were for improved driver training and for the installation of a block signal system to regulate vehicular traffic.

On August 24, considerable damage was done to a pit drill by a boulder of approximately 10 tons mass which fell from the pit face during a rainstorm. The boulder rolled about 64 feet across the berm width before striking the drill.

On August 27 a 120-ton truck left the road while backing into a dumping position. The truck rolled down a 16-foot bank and came to rest upside down. The driver, who had not fastened his seat belt, was thrown from the cab and suffered a fractured vertebra and a cut on the back of the head. The accident was attributed to endeavouring to manœuvre the truck in confined circumstances on unstable fill which slumped under the truck wheels.

On September 1 a supervisor parked a pickup truck too close to a 120-ton truck where the driver of the latter could not see it. The driver of the pickup endeavoured to move it when he saw the large truck backing. He was unable to do so as the pickup became stuck in the mud and was backed into by the large vehicle.

On September 6 an inexperienced operator of a D-6 tractor was taking it downstream on a river bank when he began driving it on a sidehill too steep to maintain control. The tractor backed down hill until it ran over a stump, when it rolled over and down the hillside a distance of 350 feet where it stopped on its side. The cab of the tractor was equipped with roll-over bar protection and withstood at least three and a half rolls onto the structure. The driver sustained multiple abrasions, lacerations, and bruises when he remained at the controls. These may have been avoided if he had used the seat belt in the tractor.

On September 6 the driver of a Michigan 175A front-end loader sustained a fractured left femur and an injured left hand when he lost control of the vehicle as it was being driven down the road. The vehicle ran off the road on a curve where the road grade is 16 per cent. The investigation indicated the driver was unaware of the use of the travelling braking pedal rather than the operating pedal, which automatically put the engine out of gear when used.

On September 11 the driver of a 100-ton truck suffered minor facial and shoulder injuries when the truck he was driving capsized while unloading. The investigation indicated the stockpile dump had been undercut by a loader feeding the crusher. When the loaded truck approached the berm edge the berm collapsed. It was recommended care be exercised to ensure no dumping be done at the berm when the slope is unstable. In such cases the unloading should be done away from the edge and then be bulldozed over it.

On September 18 the wall of an emergency storage pond at an open-pit operation failed while filled with thickener concentrate sludge, thus permitting the escape of concentrate, sands, and water into the nearby river.

On September 19 a miner was cleaning off a raise bulkhead subsequent to a blast when the plank on which he was standing broke. The miner dropped about 4 feet before his safety rope stopped his fall.

On September 19 at an open-pit mine the driver of a 50-ton truck, when leaving the pit and while making a left turn onto the haul road, swung wide and hit a soft shoulder. The truck toppled off the road and rolled about 50 feet down the road embankment. As it was raining at the time it is possible the haulage road was slippery.

On September 21 a fire occurred involving the centre laminated "wind post" support beam at the south end of the clean coal storage building. It is believed the fire was started by sparks or hot slag from acetylene burning operations while installing a ventilation pipe. The fire was quickly extinguished.

On September 25 at an open-pit mine the driver of a pickup truck while driving at night drove off a drill road and over a knoll which he had not seen. The truck stopped when it hit another road about 20 feet below. The driver suffered rib fractures and the passenger was bruised.

On September 26 on an exploration property a diamond driller received injuries when struck in the back by a chuck wrench in the drill chuck when the machine was accidentally put into gear.

On September 27 a Dart loader, while pushing coal into the storage area, dropped into a cavity formed in the pile where it had been undermined from below by the loading of railway cars. The operator was not injured.

On September 27 a 100-ton truck, while backing at an angle to the dump berm, drove the right rear wheels through the berm. The driver got off the truck to investigate and while so doing the dump edge settled and the truck rolled over and down the dump. The incident occurred at the beginning of a shift and the driver had not waited for the dump attendant to arrive to direct dumping procedures.

On September 27 a fully loaded 120-ton truck left the road when steering failed after a high-pressure hydraulic hose ruptured. Emergency steering was selected and brakes applied, but a power pole was struck and snapped before the vehicle was stopped. It was found that the hose had come free from its bracket and rubbed on a filter housing until it wore the hose thin enough to rupture. As the truck was ascending a 2-per-cent grade, and travelled 120 feet after the hose ruptured, it would appear that driver reaction time in switching to emergency

steering or applying brakes was somewhat slower than anticipated. However, as the accident occurred at 6.27 a.m. on graveyard shift, the delay might be attributable to driver fatigue.

On October 3 a motorman was assisting another cleaning a muck car, and when finished he attempted to climb back into the rear locomotive. While doing this he directed the operating motorman to move the front motor, but as he was not completely within the cab his left heel became jammed between the locomotive frame and the dump guide rollers, and he then fell to the ground. His heel was so severely crushed that his foot was amputated at the ankle.

On October 8 in the sample feed section of the thermal dryer of a coal processing plant a labourer received first- and second-degree burns to the face and head when a flash fire occurred. It is believed the fire was caused by a particle of smoldering coal issuing from the rotary valve of the discharge of the thermal dryer gate igniting a cloud of dry coal dust issuing from the valves at the base of the cyclones. The procedures adopted to minimize the possibility of recurrence of this type of incident during shutdown or standby operations are to open the hot coal gate, lock out the rotary valves, inspect the drying chamber for any burning before restarting, and endeavour to prevent a build-up of coal dust.

On October 9 a scooptram tipped into an underground transfer raise when about to dump a load of ore. An investigation indicated the accident may have been attributed to slippery road conditions and driver error. The brakes were found to be in satisfactory working condition.

On October 9 a crusherman's helper suffered bruised muscles on his left arm when it was caught between the impact idlers on a conveyer-belt and a chute as he was attempting to clean spilled muck off the table under the belt.

On October 12 the driver of an empty 50-ton truck lost control while descending a steep, icy mine road having several switchbacks. As the truck reached the bottom switchback it began to slide forward, indicating its velocity was greater than the transmission speed. When the driver endeavoured to correct the skidding, the rear end slued forward and caused the truck to slide off the road. The truck travelled about 250 feet down the hillside and was extensively damaged, but the driver was uninjured. The accident was attributed to the icy road conditions and to driver inexperience.

On October 15 at an open-pit mine the mast of a 45-R drill failed and twisted. No person was injured and the cause of the accident was attributed to the fracturing of the right-hand hinge pin of the mast.

On October 16 at an open-pit mining operation a repairman had his left heel run over by the pickup truck he had been driving. He was unaware the truck had a broken parking brake cable, but had placed a rock behind one of the front wheels when he stopped. On leaving he noticed the truck was moving backward so attempted to jump back in to stop it but was knocked off when the truck struck a conveyer gallery. The left rear wheel rode up onto his left heel.

On October 16 at an open-pit coal mining operation the newly trained driver of a caterpillar tractor was slightly injured when he rolled the tractor over when the vehicle rode up on some hard rock while making a final clean-up on a coal seam.

On October 17 an industrial garbage collector's truck overturned at the garbage dump at an underground mining operation. The truck overturned as it was backing down a slight grade and being turned at the same time. An unbalanced load on an uneven road surface, coupled with the turning action, swung the centre of gravity outside the wheel line, thus causing the truck to slowly roll over without damage to the truck or injury to the driver.

On October 17 at an open-pit mining operation the tower of a 40-R drill fell while being raised to a vertical position. The accident was attributed to the failure of the hoisting cable, which, on examination, showed signs of considerable abuse, which no doubt caused its failure.

On October 24 a power outage occurred at an open-pit mining operation. While the cause of the outage was not determined it was believed to have been as a result of a short circuit developed by an elevated truck dump box in an area where road construction was in progress adjacent to a transmission-line.

On October 27 a loaded 50-ton truck ascending a slight grade lost traction and stopped on the icy, snow-covered road between the open pit and the crusher. The driver tried to ascend again but the truck commenced sliding backward down the road. He endeavoured to back into the bank to stop the vehicle, but while he was doing this the front end slued across the narrow road and dropped over the road edge. The driver jumped out but the co-driver remained in the cab when the vehicle capsized into the deep snow. The co-driver was bruised but no damage was done to the truck, which was cushioned in the snow. It was believed that improved driver instruction in assessing driving conditions would avoid repetition of similar incidents.

On October 27 a crew bus at an open-pit mining operation was damaged by a loader which backed into it. The driver of the loader was unaware the bus was stopped behind his vehicle and had not checked to see if the area was clear.

On October 29 a pickup truck overturned on the tailings dam road of an open-pit operation after the driver struck a crusher mantle protecting a valve at the side of the road. The driver said the accident occurred as a result of him momentarily taking his eyes off the road along which he was driving.

On October 31 an empty 13-ton dump truck drove off the road to an underground mining operation as the truck was descending a narrow road to the mine plant. The truck passed an automobile parked at the side of the road, but failed to pull to the left at a narrow section, went off the road, and rolled over.

On November 4, two workmen at an open-pit mining operation sustained first-, second-, and third-degree frost burns from liquid propane escaping from a tank from which they had inadvertently removed a check valve while endeavouring to install another valve.

On November 4, two loaded 50-ton haulage trucks collided head on on an open-pit road. The extensive damage done to the vehicles was due to carelessness and inattention, because one vehcile was being driven on the wrong side of the road, but visibility was good.

On November 7 a concentrate truck and trailer slid off a mine haulage road during a heavy snowstorm. No one was injured and the incident was attributed to slippery road conditions.

On November 9 an empty 30-ton Euclid truck being driven down an 18-per-cent grade at an open-pit mining operation lost traction in fresh snow, turned sideways, and upset without injury to the driver. The accident was attributed to slippery road conditions.

On November 13 a loaded 30-ton Euclid truck being driven down an 18-per-cent grade at an open-pit mining operation drove off the road. The truck rolled over and down a 20-foot embankment, and landed upright on its wheels. The road had been covered with from 3 to 6 inches of loose gravel. The accident was attributed to the road being unsatisfactory for winter use.

On November 14 a fall of approximately 350 tons of rock occurred in part at the side of a ramp in an inactive area at an underground mining operation. The fall occurred in an area of known shearing weakness.

On November 15 an empty 65-ton haulage truck skidded on a freshly snow-covered icy road surface on entering the mine haulage road. The truck slid over the road edge and down a 16-foot embankment. No injuries were received by the two men in the truck and only minor equipment damage resulted. The accident cause was believed to have been through driver error in travelling too fast on an icy road that should have been sanded.

On November 15 the headache ball of a 40-ton mobile crane swung into an energized overhead power-line. The grounding shut off the power through protective circuitry without damage to equipment or injuries to anyone. The incident was attributed to operator inexperience, because he was booming up while the unit driver was moving the vehicle.

On November 18 an unusual occurrence was recorded at an open-pit mining operation when a small spill of tailings occurred from an emergency spill pond. The spill was attributed to drainage seepage reopening two inadequately blocked culverts used during the construction of the impoundment.

On November 19 at an open-pit mining operation the bottom boom section of a 25-ton mobile crane failed while raising a load of approximately 15 tons. The investigation made indicated the crane was not level and that the load being lifted was not immediately under the boom, thus giving rise to a side loading on the crane.

On November 21 a Marion large-diameter-hole drill at an open-pit mining operation was extensively damaged by fire. It was believed the fire was caused by the ignition of methanol fumes in the drill cabin. It is believed the thermostat on the house-heater relay ignited the fumes.

On November 23 at an open-pit mining operation, a blaster suffered contusion to his right thigh when struck by a flying rock when he failed to take adequate cover after initiating a blast. He was about 500 feet from the scene of the blast.

On November 24 a portion of the main waste dump at an open-pit mining operation sloughed. The sloughing, which extended over a length of 50 feet and a depth of 25 feet, was attributed to a foundation failure in an old gully containing soft surface gravels. Consulting soil mechanics engineers were called to investigate the stability of this dump.

On November 25 a fire destroyed two bunkhouses at the camp of an open-pit mining operation. The cause of the fire was not known but its extent was no doubt attributable to delayed and inadequate fire-fighting services which have since been improved.

On November 26 a ¾-ton truck parked close behind a tractor which was bull-dozing snow from the side of a building. The tractor operator, being unaware of the truck being behind him, backed into it and caused extensive damage to the front end of the truck.

On November 28, subsequent to a gas leak being detected at the main shut-off valve at the guard house at an open-pit mine and gas bubbling up through sewer water, a rupture was found in the main gas supply-line to the mine. The line was excavated and repaired without incident.

On November 28, and again on December 1, fires occurred in the fan chamber of an underground mine air-heating plant. Repairs were made after the initial fire, and on restarting the fan a second fire occurred. It was determined to have been caused by overheating in the uptakes of the induced draft fan of one of the boilers where a section of baffle plate had corroded away or burned out. The high tem-

perature gases of combustion passed directly to the stack gas system and ignited soot in the immediate area of the opening.

On November 29 a workman received multiple bruises when pinched between a railway car of concentrates and the cover of the winch he was using to move the car. He was attempting to climb onto the car to set the brakes while the car was moving. The winch cover is being redesigned to reduce its hazard potential and railway cars will be delivered with the brakes at the rear of the cars.

On December 1 at an underground mine the driver of a supervisor's crummy lost control of the vehicle when it struck a rock or lump of ice when passing a crew bus. The crummy broke through the snow bank at the road edge and plunged about 10 feet down the mountain side. The cause of the accident was believed due to the driver's lack of familiarity with winter driving conditions.

On December 1 a workman suffered first- and second-degree burns when his hand came into contact with the energized terminals of a power cable male connector. The incident was attributed to incorrect work procedures and an improper connector being used.

On December 1 the operator of a backhoe capsized his vehicle into the sump he was cleaning because the forward propel foot pedal stuck to the floor and would not release. The extended loading bucked prevented the vehicle from submerging, but the operator was flipped out into the sump water. It is believed a small stone may have jammed the pedal.

On December 1, while dumping fill on an open-pit access road, a truck backed over the road edge. The truck rolled down about 10 feet and capsized. The driver was not injured and the accident was attributed to a slump failure of the unconsolidated material on which the truck operated.

On December 2, about 10 tons of mono-methyl-amine nitrate solution was spilled on an open-pit waste dump. The leak occurred from the holding tank after its supporting base failed. The chemical was to be used for manufacturing water-gel explosives. The ground around the tank was immediately flushed with water, which was diverted into the main tailings pond. The chemical is nontoxic but may encourage algæ growth. It is believed the rate of drainage to the pond will be slow inasmuch as the chemical is in a solid state at temperatures below 85°F. Continuous monitoring of the pond water will be maintained to determine if any further action will be necessary.

On December 3 an electrical short circuit resulting in an explosion occurred in a distribution system at a 4,160-volt outdoor switchhouse of an open-pit mine. The investigation made indicated the possibility of a loose pothead connection, which caused the pothead compound to overheat and blow upward into the switchhouse. This resulted in a short circuit and explosion.

On December 6 an underground load-haul-dump unit went out of control while descending a ramp. In endeavouring to halt the vehicle, the operator found the hydraulic brakes did not function and the emergency brake lever broke off in his hand. He finally stopped the vehicle by steering it into the ramp wall. The driver received neck injuries and it was found that a broken hydraulic fitting under the inspection plate under the main control cylinder was the cause of the initial brake failure. It was believed a loose rock under the cylinder had forced the inspection plate far enough down to break the fitting.

On December 7, two workmen employed at an underground mining operation took, without authorization, a ¾-ton pickup truck and proceeded to drive from the mine camp to the nearest settlement. En route the truck was driven off the road, rolled over several times in the snow, and came to rest about 250 feet below

the road. The two men, both of whom were under the influence of alcohol, sustained only minor injuries, but the truck was extensively damaged.

On December 11 a slump occurred at the edge of an open-pit waste dump while a truck was dumping its load. The slumping material dropped the rear wheels about 22 feet below the road level. This left the truck sitting on the wheels and the end of the upraised box.

On December 12, two 120-ton trucks collided during a snowstorm on an open-pit mine dump when the empty vehicle travelling downgrade was unable to stop on the icy road. The empty truck slid sideways into the loaded stationary truck. The accident was believed to have been caused by restricted vision due to the snowstorm and icy road conditions.

On December 12 a crew-cab truck and a Kenworth truck collided on a curve on the main road to an underground mining operation. Lack of winter driving experience and the failure to maintain good radio contact were instrumental in causing this accident.

On December 13 the driver of a truck at an open-pit mining operation sustained crushed muscle injuries when pinned by another vehicle against her truck as she was making service checks. The proper use of brakes and wheel chocks by the service-truck operator could have avoided this incident.

On December 13 a miner at an underground mine received bruises to his body when a rock of approximately 500 pounds mass rolled over him after he dislodged the rock, using a bulldoze stick at a drawpoint. The accident was attributed to improper work procedures as the hang-up should have been dislodged with an explosive concussion shot.

On December 16 at the concentrator of an underground mining operation an 8-inch fluid discharge-line separated at a coupling. The escaping liquid spilled over switchgear installed below and caused the short circuiting at two switch boxes. Arcing and some burning developed before the current in them was interrupted. Simultaneously, short circuiting occurred in the main bus bar section.

On December 19 at an underground mining operation a miner was found to be using a drill steel to tamp explosives in a drill hole. He received a two-day work suspension and a two-week suspension of his blasting certificate.

On December 22 at an open-pit mining operation, an empty 100-ton truck failed to negotiate a small turn and slid into a loaded 100-ton truck approaching from the opposite direction. Minor damage was done to both vehicles. The cause of the accident was believed attributable to a slippery road surface, poor visibility because of fog, and to driver error.

The underground fire which commenced in November 1972 in broken sulphide ore in a metal mine continued to burn throughout 1973. The fire was confined to an isolated pillar surrounded by waste backfill and collapsed hangingwall rock. Ore was drawn from the area until the high temperatures and clinkering of the ore rendered it impossible to continue. At that time most of the drawpoints were sealed with concrete seals to cut off the oxygen being supplied and thereby reduce the sulphur dioxide gas being produced. The fire was believed to have been spontaneous in origin, but the physical conditions which created it are not clearly understood, although it has been indicated free sulphur may be a principal agent.

## PROSECUTIONS

Three prosecutions were instituted under the *Mines Regulation Act* and none under the *Coal Mines Regulation Act*.

On October 18 the superintendent of the Spillimacheen operation of Baroid of Canada Ltd. was charged with failure to comply with section 23, Rule 265 (*e*) (i) of the *Mines Regulation Act* in that he permitted a Euclid R-30 truck to be used at the mine when the vehicle was not equipped with an adequate emergency braking system capable of stopping and holding the fully loaded vehicle on the maximum operating grades present. At the Court hearing on November 19 a plea of guilty was made, and a fine of $500 was imposed.

On November 13, two shiftbosses at an underground mining operation were charged with failure to comply with section 23, Rule 93 (*b*) (1) (D) of the *Mines Regulation Act* for unlawfully permitting a diesel engine to be operated underground without a fan being in use to assist the natural ventilation in supplying air to that area. The hearing was heard on December 18 when the case was dismissed when the prosecution was unable to demonstrate that natural ventilation was indeed being supplied, while it was accepted that the main fans were giving some assistance to the ventilation.

On November 19, Driftwood Mines Ltd. was charged with failure to comply with sections 10 (1) and 11 (2) of the *Mines Regulation Act* in that they respectively failed to give notice to the Inspector of their commencement and cessation of activity on their Harvey Mountain property, and that they failed to submit a report of reclamation as required. On request of the defendant the case was adjourned until January 22, 1974; however, prior to that date, they entered pleas of guilty on both charges, and were assessed fines of $100 on each charge.

## BLASTING CERTIFICATE SUSPENSIONS

One blasting certificate suspension was awarded for a violation of a blasting procedure provision as contained in the *Mines Regulation Act*.

On December 19 a miner was found using a piece of drill steel to load explosives into a drill hole. The miner was disciplined by being awarded a two-day work suspension, and a two-week suspension from blasting duties.

## ELECTRICAL-MECHANICAL

An Electrical Inspector has directed the inspection of electrical equipment since 1946 in the mining industry and since 1954 in the oil industry. Since 1966, a Mechanical Inspector has assisted in the inspection of all mechanical equipment installed in any type of mine or quarry.

Electrical and mechanical reports, as presented by V. E. Dawson, Senior Inspector, Electrical-Mechanical, follow:

### ELECTRICAL

During 1973, electrical power usage continued to show increase, mainly due to such recent operations as Gibraltar, Lornex, Similkameen, and Island Copper, all of which are now in production. The Silver Queen mine of Bradina Joint Venture, and the Mount Copeland mine of King Resources Company suspended operations.

Two major fires occurred during January 3 and 4, 1974, at two Canadian mining properties, one of which was in British Columbia, the suspected cause receiving considerable attention throughout industry.

Investigations revealed that in both incidences the attribution to fire spread was the burning of the outer polyvinyl chloride (P.V.C.) jacket of the Teck power cable.

The outer P.V.C. jacket is rated fire retardent and self-extinguishing by Canadian Standard Association C22.2, No. 131; however, it has been found that this material will sustain combustion under certain conditions when laid in cable trays or confined spaces.

In addition to burning, the P.V.C. material will produce dense smoke and toxic gases, which greatly add to difficulties of fire-fighting.

Recommendations suggesting practical steps to be taken to avoid future occurrence of fires of this type were circulated by the Department of Mines and Petroleum Resources to the operating mines in this Province.

Recently studies have been undertaken and reports received from various authorities concerning the subject of induced voltages in the grounding conductors of mining trailing cables of the shielded (SHD-GC) and nonshielded (G-GC) constructions. In both types of cable the insulated pilot wire ground check for the continuous ground monitoring circuit replaces one of the ground conductors in the cable interstice, with a consequent increase in the size of the remaining two grounding conductors.

This change in construction has caused an electrical imbalance which results in an induced voltage on the grounding conductors. In cases where this voltage is sufficiently high and solid contact is made with other equipment at or closer to reference ground, sparking can occur if the energy released in this type of open sparking reaches a high enough level. This could produce a hazard in a gaseous atmosphere.

This phenomena has raised cause for concern, particularly with regard to the common use of mobile electrical equipment, such as continuous miners used in conjunction with rubber-tired shuttle cars in underground coal mines, where only certified permissible explosion-proof electrical equipment may be used.

Laboratory tests using cable inductances and a PTB cadmium disk apparatus with an 8.3 per cent $\pm$ 0.2 per cent mixture of methane and air, have found that incendive sparks have been produced at current levels varying from 1.2 to 1.5 amperes or 1.0 volt induced on the machine being sufficient to produce such an incendive spark. The Department of Mines and Petroleum Resources has therefore restricted the use of trailing cable of the imbalance type for the use in underground coal mines, unless modified in accordance with the Department's recommendations.

The following table gives the kilovolt-ampere capacity of mining-company-owned plants at metalliferous mines and the approximate amount of power generated in 1973:

| Prime Mover | Generator Kva. Capacity | Kilowatt-hours Generated |
|---|---|---|
| Diesel engines | 34,427 | 46,347,100 |
| Hydro | 8,290 | 41,502,488 |
| Steam | 30,000 | 97,088,520 |
| Totals | 72,717 | 184,938,108 |

The electric power purchased from public utilities and from the generating division of Cominco Ltd. amounted to 2,079,844,604 kilowatt-hours. This amount, added to that produced by privately owned plants, totalled 2,264,782,712 kilowatt-hours.

A general analysis of the connected load at operating mines during 1973 was as follows:

| Equipment | Horsepower |
|---|---|
| Hoists and overhead trams | 7,067 |
| Scraper hoists | 7,205 |
| Electric shovels | 20,548 |
| Electric rock drills | 5,525 |
| Electric mucking-machines | |
| Mine fans | 14,070 |
| Mine pumps | 7,231 |
| Rectifiers and M.G. sets | 10,144 |
| Air compressors | 27,207 |
| Sink-float plant | 1,744 |
| Crushing plant | 32,328 |
| Grinding equipment | 215,805 |
| Concentrating equipment | 51,901 |
| Magnetic separators | 204 |
| Conveyers | 22,145 |
| Mill pumps | 44,388 |
| Fresh-water pumps | 36,459 |
| Reclaim-water pumps | 19,350 |
| Workshops | 7,150 |
| Miscellaneous | 19,758 |
| Total | 550,229 |

One battery locomotive was used for underground haulage at an industrial-mineral operation.

Track haulage systems used 62 battery, 96 trolley, and 15 diesel locomotives.

In 1973, electric power was used at 60 structural-material and industrial-mineral mines and quarries. Power was produced by company-owned plants at nine of these operations. The kva. capacity of company-owned plants and the amount of power generated and purchased was as follows:

| | Kilowatt-hours |
|---|---|
| Diesel-driven generators, kva. capacity, 13,352 | |
| Generated | 35,068,714 |
| Purchased | 26,712,500 |
| Total | 61,781,214 |

A general anaylsis of the connected load is as follows:

| Equipment | Horsepower |
|---|---|
| Hoists and aerial trams | 288 |
| Scraper hoists | 170 |
| Fans | 640 |
| Pumps | 289 |
| Rectifiers and M.G. sets | 13 |
| Air compressors | 418 |
| Electric shovels | 520 |
| Electric drills | 140 |
| Washing plant | 521 |
| Drying plant | 2,189 |

| Equipment | Horsepower |
|---|---|
| Crushing plant | 11,721 |
| Conveyers | 6,833 |
| Milling | 9,115 |
| Screens | 1,849 |
| Pumps | 2,415 |
| Workshops | 571 |
| Miscellaneous | 3,570 |
| Total | 41,262 |

At coal-mining properties, electric power was used in two open pits, two underground mines, and three coal-processing plants. Also, continued underground feasibility operations were conducted at the Sukunka Coal Project, Chetwynd.

The distribution of the connected load at collieries in 1973 was as follows:

| Equipment | Horsepower | |
|---|---|---|
| Surface— | | |
| Air compressors | 4,230 | |
| Draglines | 7,700 | |
| Electric shovels | 19,680 | |
| Electric drills | 4,225 | |
| Conveyers | 9,566 | |
| Hoists | 270 | |
| Haulage | | |
| Coal breakers | 880 | |
| Coal washing | 3,208 | |
| Coal screening | 3,075 | |
| Pumping | 23,776 | |
| Coke production | | |
| Ventilation | 2,515 | |
| Miscellaneous | 12,946 | |
| Total | | 92,071 |
| Underground— | | |
| Ventilation | 280 | |
| Pumping | 220 | |
| Air compressors | 200 | |
| Continuous miners | 2,200 | |
| Shuttle cars | 1,010 | |
| Loaders | 270 | |
| Conveyers | 1,025 | |
| Hoists | 50 | |
| Miscellaneous | 99 | |
| Total | | 5,354 |
| Total surface underground | | 97,425 |

The following graph and table show the power consumption in kilowatt-hours in mining operations since 1962:

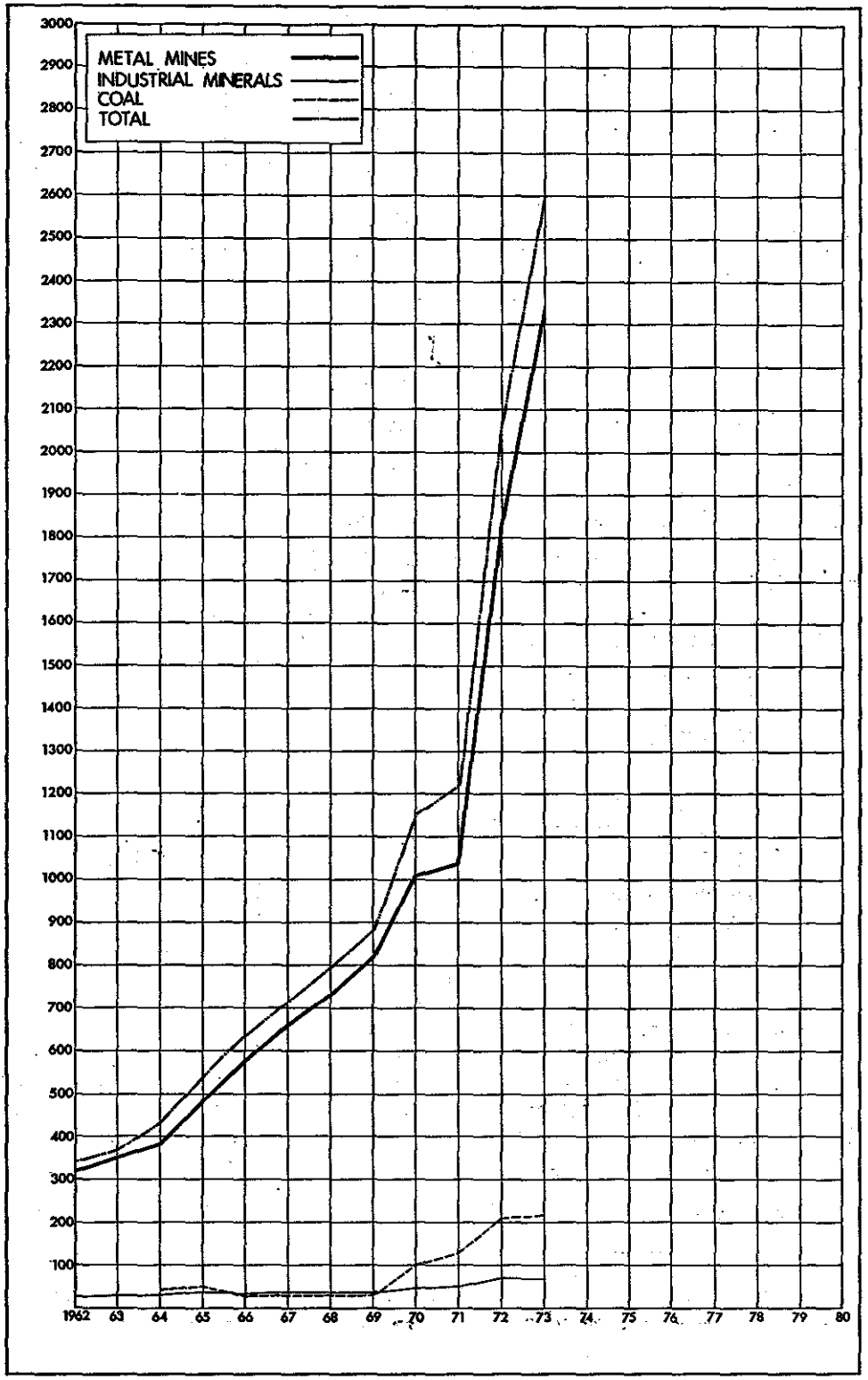



Figure 7. Annual consumption of power in kilowatt-hours, 1962–73.

*Annual Consumption of Power (in Kilowatt-hours)*

| Year | Metal Mines | Industrial Minerals | Total | Coal | Grand Total |
|---|---|---|---|---|---|
| 1962 | 324,638,348 | 23,262,091 | ——— | ——— | 347,900,439 |
| 1963 | 345,296,000 | 23,321,875 | ——— | ——— | 368,677,875 |
| 1964 | 373,279,423 | 26,460,100 | 399,739,523 | 31,160,152 | 430,899,675 |
| 1965 | 467,654,500 | 32,010,923 | 499,665,423 | 40,915,890 | 540,581,313 |
| 1966 | 573,345,458 | 35,081,797 | 608,427,255 | 22,503,551 | 630,930,806 |
| 1967 | 660,924,689 | 31,719,975 | 692,644,664 | 22,730,640 | 715,375,304 |
| 1968 | 730,193,710 | 37,978,960 | 768,172,670 | 26,690,100 | 794,862,770 |
| 1969 | 809,729,000 | 37,675,440 | 847,404,440 | 36,658,450 | 884,062,890 |
| 1970 | 1,010,755,603 | 47,274,704 | 1,058,030,307 | 96,430,894 | 1,154,461,201 |
| 1971 | 1,037,369,400 | 49,458,734 | 1,086,828,134 | 132,404,380 | 1,219,232,514 |
| 1972 | 1,824,145,302 | 67,882,738 | 1,892,028,040* | 205,104,600 | 2,097,132,640 |
| 1973 | 2,264,782,712 | 61,781,214 | 2,326,563,926 | 219,886,220 | 2,546,450,146 |

* Corrected.

## MECHANICAL

### *Underground Diesel Equipment*

During 1973, 61 new diesel permits were issued to cover the underground operation of diesel-powered equipment. At the end of the year a total of 572 permits had been issued since the introduction of individual permits in 1968.

A summary of the diesel-powered equipment put into use during the year is as follows:

| Diesel Equipment | Number of Permits Issued | Total Horsepower |
|---|---|---|
| Locomotives | 6 | 289 |
| Load-haul-dump vehicles | 24 | 2,570 |
| Front-end loaders | 2 | 650 |
| Ore carriers | 6 | 425 |
| Tractors | 5 | 942 |
| Drilling jumbos | 10 | 577 |
| Service and personnel vehicles | 3 | 272 |
| Graders | 2 | 121 |
| Diamond drills | 2 | 68 |
| Water pumps | 1 | 7 |
| Total | 61 | 5,921 |

Only one approval was issued by the Department of Mines and Petroleum Resources during the year for a diesel engine not having been previously approved for underground use by any other recognized authority. The approval was based on the chemical analyses of exhaust-gas samples collected while the engine was being operated under varying conditions of load and speed on a dynamometer.

| Approval Number | Date Approved | Engine Identification | Brake Horse-power | Minimum Ventilation Requirement |
|---|---|---|---|---|
| B.C. Dept. of Mines 1973–1 | June 15, 1973 | Hatz E79. 402 cc | 7 | (Cfm) 1,000 |

Several amendments, affecting the use of diesel-powered equipment underground, were made to the *Mines Regulation Act* and the *Coal Mines Regulation Act* during 1973. One of the new General Rules requires all hydraulic fluids used in underground equipment after January 1, 1975, to be of an accepted fire-resistant type. Although the use of fire-resistant fluids has been strongly recommended for many years by our Department, there has not been any voluntary use of these safety fluids by either users or manufacturers.

The majority of the load-haul-dump vehicles used in underground operations contain between 50 and 100 gallons of hydraulic fluid which currently is flammable mineral oil. The potential hazard with the continued use of standard hydraulic fluids was again vividly demonstrated in February when a falling rock in an underground mine simultaneously ruptured a hydraulic hose and a headlight of a load-haul-dump machine and the escaping spray of fluid ignited.

Another amendment to the *Mines Regulation Act* and the *Coal Mines Regulation Act* required the installation of automatic fire-suppression equipment in all underground fuel-storage depots. These new rules should result in a significant improvement in mine fire-prevention programmes.

An Australian flameproof diesel-powered tractor, with the trade name "Rhins Mark IV," was put into service underground at the Sukunka Number 1 Colliery of Coalition Mining Limited. This vehicle was issued a coal mine approval certificate, Number 235DA, dated March 2, 1973, by the certification officer of the Federal Department of Energy, Mines and Resources. This certification was granted, partly on the basis of an earlier New South Wales approval, Number MDA-DE414, and partly as a result of inspection and testing carried out on the vehicle in Vancouver by the certification officer and members of his staff.

The original condition of the vehicle when first tested was most disappointing. The exhaust temperature safety probe could not function correctly because it was surrounded by an excessive amount of metal which acted as a "heat sink." The safety shut-down for low water in the scrubber reservoir failed to function even when the reservoir and the scrubber were both drained empty. The reason for this failure was that the float chamber was installed too low in relation to the water reservoir. There was no exhaust flame trap fitted originally to this machine, and yet the engine could be started without any water in the scrubber.

All of these weak points were corrected, including the installation of a flame trap in the exhaust, before the vehicle was certified for use underground.

A symposium on diesel-powered equipment in underground mining, sponsored by the United States Bureau of Mines, was attended on January 30 and 31, 1973, in Pittsburgh. Over 600 delegates from the United States, Great Britain, Canada, Sweden, and France attended this meeting where 20 papers were presented on the design, construction, and operation of diesel equipment in underground workings.

The United States Bureau of Mines personnel believe that a large-scale replacement of electrically powered face equipment in underground coal mines by diesel-powered equipment could result in increased safety.

A private meeting was arranged after the symposium for the Canadian delegates to meet with the United States Bureau of Mines' engineers. A great deal of interest was shown in Canadian experience with diesel equipment and a very useful exchange of ideas took place.

The following is a summary of all diesel-powered equipment operated underground during 1973:

| Equipment | Number of Units Operated | Total Brake Horsepower |
|---|---|---|
| Locomotives | 23 | 1,002 |
| Load-haul-dump vehicles (Wagner scoop-trams, Eimco loaders, Joy transloaders, etc.) | 85 | 9,386 |
| Standard front-end loaders | 7 | 1,513 |
| Ore and waste carriers (scootcretes, dump trucks, etc.) | 31 | 4,453 |
| Tractors | 11 | 1,343 |
| Drilling jumbos | 33 | 1,860 |
| Graders | 8 | 692 |
| Service and personnel vehicles | 47 | 2,377 |
| Air compressors | 1 | 197 |
| Diamond drills | 2 | 68 |
| Scaling equipment | 1 | 109 |
| Concrete placing equipment | 1 | 47 |
| Welder | 1 | 49 |
| Mobile crane | 1 | 75 |
| Mobile slusher | 1 | 109 |
| Pump | 1 | 7 |
| Totals | 254 | 23,287 |

The minimum total ventilation required for all the listed equipment was 2,914,000 cubic feet per minute, which results in an average ventilation requirement of 125 cubic feet per minute per brake horsepower.

### *Hoisting*

A Denver Engineering Works, 50-horsepower, 36-inch diameter, single-drum hoist, with a maximum allowable rope pull of 3,500 pounds, was used to sink a 250-foot deep shaft at the Denero Grande property of Colt Resources Ltd.

The Crown shaft, Canadian Ingersoll Rand, 300-horsepower, 72 by 54-inch, double-drum hoist at the Bralorne mine was reactivated during 1973 as part of a rehabilitation programme.

A Bertram-Nordberg, 250-horsepower, 60 by 72-inch, double-drum hoist at the Boss Mountain mine of Noranda Mines, Limited was put back into regular service during the year.

A Canadian Ingersoll Rand, 53 by 36-inch, single-drum, 100-horsepower hoist was put back into service when the HB mine of Cominco Ltd. was reopened early in 1973.

Mining operations at the Mount Copeland mine of King Resources Company ceased during the year, resulting in the removal from service of a Vulcan Denver, 150-horsepower, 48-inch diameter, single-drum hoist.

Revisions made to the *Mines Regulation Act* and the *Coal Mines Regulation Act*, during 1973, require that the safety catches on every shaft conveyance used for the transport of persons be subjected to a "free-fall" test before being put into service. This test consists of a sudden release of the shaft conveyance, carrying a load equal to the designed maximum man-load, in such a manner that the safety catches engage the shaft guides when the conveyance is descending at a speed equal to the maximum hoisting speed. These tests, which have been mandatory for many

years in other parts of Canada, are essential in order that the effectiveness of the safety catches under actual emergency conditions can be realistically predicted.

Another amendment to the *Mines Regulation Act* and the *Coal Mines Regulation Act* ensures that, in general, provisions of the Acts referring to hoisting ropes also apply to tail or balance ropes. This clarification was necessary because the safe operation of a tail rope at a modern friction hoist installation is of equal importance to that of a hoisting rope. A failure, in service, of a tail rope could, for example, result in a serious shaft accident, either by altering the ratio of the rope tensions on the friction drive pulley and causing rope slip or by falling down the shaft and becoming entangled with other ropes or the conveyances.

During 1973, 54 breaking test reports were received for samples of rope tested to destruction in accordance with Rule 164 of the *Mines Regulation Act*, and 90 nondestructive test reports were also received during this same period. Sixty-one of these nondestructive tests were carried out by Wire Rope Industries of Canada, Limited, using a DC Defectograph, and 29 were carried out by Rotesco of Canada, Limited, using their AC Electromagnetic Rope Tester. As a result of the continued use of nondestructive rope testing, 33 separate four-month rope-life extensions were granted enabling hoisting ropes to remain in service beyond the normal two-year statutory limit.

### *Off-highway Trucks and Mobile Equipment*

There were no major construction projects undertaken during 1973, and all changes in the size and number of trucks, shovels, and front-end loaders in use were the result of expansions or reappraisals of existing facilities.

Of the total of 584 dump trucks in use, 196, or over 33 per cent, had box capacities in excess of 60 tons, and 179, or over 30 per cent, carried pay loads of over 80 tons.

The trend in the use of rubber-tired front-end loaders can be seen from a comparison between 1969 and 1973. In 1969, 197 front-end loaders were used of which 94, or almost 48 per cent, had buckets with a capacity of 2 cubic yards or less and only six machines, or approximately 3 per cent, had a bucket capacity in excess of 6 cubic yards.

In 1973, 285 front-end loaders were used, of which 90, or over 31 per cent, had buckets of 2 cubic-yard capacity or less, and 29, or approximately 10 per cent, had a bucket capacity in excess of 6 cubic yards.

In the case of pit shovels, there were 77 in use in 1969, of which 28, or over 36 per cent, had a dipper capacity in excess of 4 cubic yards, whereas in 1973, out of 87 shovels in use, 55, or over 63 per cent, had a dipper capacity of over 4 cubic yards.

A Wabco Haulpak 3200, 200-ton truck was put into service in the open pit of Lornex Mining Corporation Ltd. during the month of July. This vehicle, the second make of 200-ton truck to be used in British Columbia, has an empty weight of 348,500 pounds, and measures 50 feet 6 inches in over-all length, 22 feet 7 inches in over-all width, and 17 feet 5 inches in over-all height. When the box is fully raised for dumping, the over-all height is 44 feet 6 inches.

At this Department's request, the manufacturer sent a team of test engineers to the mine to prove the adequacy of the service braking system. A portable scale was set up and the truck weighed, both empty and loaded. A full series of dynamic brake tests were carried out, initially on a level roadway and finally on an 8-per-cent downgrade. Over-all stopping distances were measured from initial speeds of between 5 and 22 miles per hour, using only the service brakes.

The vehicle speed was measured with a recording oscillograph and a speed-sensing panel. The brake application time was also recorded on the oscillograph by using the voltage from the brake "stop" light as an indicator. This same voltage signal was also used to fire a brake reaction detonator mounted at the rear of the truck and which ejected a dye marker onto the road surface at the moment of brake pedal actuation. The maximum temperature attained by the brake drum after each test was also recorded. The oscillograph records show an approximate 0.75-second delay from the initial movement of the brake pedal to the first observable deceleration of the vehicle. The distance travelled during this system delay time, which would be about 22 feet from an initial speed of 20 miles per hour, is included in the measured stopping distance.

The following is a summary of the results obtained from these tests:

| Gross Vehicle Weight (Lb.) | Approximate Initial Speed (M.p.h.) | Stopping Distance (Ft.) | Maximum Temperature of Brake Drum (°F) |
|---|---|---|---|
| 348,500 | 7 | 17 | 98 |
| | 12 | 34 | 103 |
| | 17 | 60 | 115 |
| | 22 | 91 | 130 |
| 720,000 | 6 | 25 | 210 |
| | 11 | 56 | 215 |
| | 16 | 135 | 180 |
| | 22 | 195 | 195 |

All the above tests were conducted on a downgrade, dry, compact, gravel roadway with a slope of 8 per cent. The service brakes alone were used to stop the vehicle (no retarder used).

These results were most satisfactory for this class of vehicle and prove that the service brakes can safely stop a fully loaded truck under all normal operating conditions. It should be noted, however, that if a graph is constructed showing the variation of stopping distance with initial speed, then the predicted stopping distances from initial speeds in excess of 25 miles per hour increase alarmingly. For example, a stopping distance of around 400 feet may be required from 30 miles per hour, and a distance of over 700 feet from 40 miles per hour. These figures show clearly the need for prompt action by a driver in the event of a failure in the dynamic braking system when travelling downgrade with a full load.

Several amendments to the *Mines Regulation Act* and the *Coal Mines Regulation Act,* affecting the design and use of motor-vehicles in mines, were enacted during 1973, and some of these are as follows: All trucks with dump boxes are now required to have a permanently attached support, capable of securing and locking the box in its raised position; every truck or loader with a manufacturer's gross vehicle weight rating of over 100,000 pounds shall, when newly put into service, have a manufacturer's nameplate fixed in the cab showing the vehicle serial number, the maximum rated load capacity, and the maximum grade on which the vehicle may safely operate; any modifications made to a truck or loader, affecting the steering or braking system or designed to increase weight-carrying capacity, have to be approved by the manufacturer, and accepted by the Chief Inspector of Mines. The manager of every mine has to submit an over-all traffic control scheme for his operation, and this has to be accepted by the Inspector of Mines.

Every vehicle fitted with hydraulically actuated service brakes shall, when newly put into use, have the hydraulic system split into two or more separate and independently operated circuits, each of which is capable of safely stopping and holding the vehicle under any operating condition of load, grade, and speed.

Emergency run-off lanes or impact barriers are required on all roadways used for the transport of persons, or for haulage purposes, where the grade exceeds 5 per cent. No vehicle, other than a vehicle used directly for production, shall be allowed into any operating open pit unless it is carrying adequate means of indicating its presence to the operators of vehicles having restricted vision.

Every loader, grader, scraper, tractor, and bulldozer shall, when newly put into service, be equipped with a roll-over protective structure meeting the requirements of an appropriate Recommended Practice of the Society of Automotive Engineers or such other requirements as may be acceptable to the Chief Inspector of Mines.

The following is a summary of the heavy open-pit and quarry equipment in use during 1973:

*Dump Trucks (Off-highway)*

| Capacity of Vehicle (Tons) | Number in Use |
|---|---|
| 0–20 | 198 |
| 21–40 | 140 |
| 41–60 | 50 |
| 61–80 | 17 |
| 81–100 | 90 |
| 120 | 67 |
| 150 | 1 |
| 200 | 21 |
| Total | 584 |

*Pit Shovels*

| Size of Shovel Bucket (Cu. Yds.) | Number in Use |
|---|---|
| 0–2 | 16 |
| 2¼–4 | 16 |
| 4¼–6 | 15 |
| 6¼–8 | 6 |
| 9–11 | 7 |
| 13–14 | 5 |
| 15–16 | 16 |
| 25 | 4 |
| 54–64 (draglines) | 2 |
| Total | 87 |

*Front-end Loaders*

| Size of Bucket (Cu. Yds.) | Number in Use |
|---|---|
| 0–2 | 90 |
| 2¼–4 | 109 |
| 4¼–6 | 57 |
| 8¼–10 | 14 |
| 10¼–12 | 5 |
| 15 | 5 |
| 20–25 | 5 |
| Total | 285 |

*General*

In January 1973 a meeting of representatives from the Department of Mines and Petroleum Resources; the Department of Commercial Transport; the Department of Lands, Forests, and Water Resources; the British Columbia Hydro and Power Authority; and the Workmen's Compensation Board was arranged under the chairmanship of F. MacLean, Deputy Minister of Commercial Transport, in order to discuss common problems involving the design, use, and regulation of mobile equipment in British Columbia. As a result of this meeting, an inter-Departmental Joint Standing Committee on Mobile Equipment was formed, comprising two members of the Workmen's Compensation Board, a member of the Department of Commercial Transport, a member of the Department of Mines and Petroleum Resources, and a member of the Motor-vehicle Branch. This group met on 14 occasions during the year and considered over 250 separate requests from manufacturers and distributors for joint acceptance of their equipment for use in British Columbia. The work of this committee has been extremely useful in correlating the standards adopted by different Government agencies in British Columbia, and also by a pooling of ideas and experiences of the many inspectors employed by the different authorities. In general, manufacturers and users have welcomed the formation of this committee and have benefited from its efforts to establish a more uniform policy in British Columbia.

As a result of a resolution agreed to by the Canadian Provincial and Territorial Chief Inspectors of Mines at their annual meeting, a set of guidelines for the design, construction, and testing of mobile and other mining equipment was compiled and presented to manufacturers and distributors at the first Canadian Mining and Aggregate Equipment Exhibition held in Toronto on November 20, 21, and 22, 1973. The Chief Inspectors had found that many manufacturers were reluctant to meet individual Provincial safety standards because of the relatively small market involved and they believed that a concerted approach by all inspection authorities would carry more weight. With considerable help from other Provincial mine inspectors, the proposed guidelines, as finally presented, covered many aspects of motor-vehicles, personnel carriers, mobile cranes, raise climbers, and personnel hoists, pit shovels and drills, monorail transporters, conveyers, and shop cranes.

It was explained to the manufacturers and distributors that the proposed guidelines were not intended as proposed rules or regulations but were simply ideas for further discussion by all interested parties. It is hoped that sufficient comments and criticism will be received from manufacturers and others, to enable a revised set of guidelines to be presented to the Chief Inspectors of Mines at their next annual meeting, and that this presentation can be used as a basis for future legislation.

## ENVIRONMENTAL CONTROL

The following is the summary of the environmental control report submitted by S. Elias, Senior Inspector, Environmental Control.

Sixty-three surveys of dust and ventilation conditions were made at 58 operations during 1973. The surveys were made at lode mines, both underground and open pit, rock quarries, gravel-crushing plants, and at open-pit and underground coal-mining operations. Measurements of the ventilation and observations of the condition of exhaust systems and other measures relative to the prevention, suppression, and elimination of dust and health hazards were made. Recommendations and advice were given for improvements which it was considered would help to lower the health hazard in general.

Three different instruments are used for sampling the various types of dust. The Konimeter is used to sample rock dust at the underground and open-pit mines and plants, at the rock and limestone quarries, and at crushing operations. The midget impinger and gravimetric sampler are used to sample asbestos dust and fibre in the asbestos industry, and the gravimetric sampler is used to assess the health hazard in the coal mines.

Fifty per cent of the surveys at drilling operations at underground mining operations gave averages of less than 300 particles per cubic centimetre of air. Drilling in development raises is the most hazardous due to higher than average dust concentrations.

Ninety per cent of the surveys at the "all others underground" category gave averages below the 300 particles per cubic centimetre of air standard. Industry must be aware that the cost of additive contamination of mine air by mechanization with diesel-powered equipment must be considered when planning mining methods to ensure that the distribution of adequate ventilation receives the priority necessary to avoid adverse health hazards.

In the crushing plants at underground mines category, 69 per cent of the surveys gave averages that were less than 300 particles per cubic centimetres of air. Careful maintenance of the dust-control systems and good housekeeping is required to maintain dust concentrations within the desired standard.

There are still dust-control systems in the assay grinding-rooms that will not maintain satisfactory conditions. The hazard is well defined and the control measures are available; these must be utilized in the future. Sixty-three per cent of the surveys gave averages that were below 300 particles per cubic centimetre of air.

Methods to control dust at open-pit drilling operations are installed at all drills; the effectiveness of control is directly proportional to the workman's attitude toward dust control—instruction may be the answer. Fifty-six per cent of the surveys gave concentrations that are within the 300 particles per cubic centimetre of air standard.

At "all other operations" in open-pit mining the caterpillar operator is receiving the highest dust concentration. This is due to reversing the engine cooling fan so that the heat from the engine is utilized to keep the operator warm during the winter months. The installation of cabs with heaters is overcoming this adverse condition. Ninety-one per cent of the surveys gave averages that were less than 300 particles per cubic centimetre of air.

Crushing plants at open pits are still experiencing problems with dust control due to a number of factors, e.g., large tonnages, improper maintenance of dust-control equipment, lack of workmen for housekeeping, etc. Forty-one per cent of the surveys were under the 300 particles per cubic centimetre of air.

At rock and limestone quarries the results of the dust surveys showed the following: At drilling operations 83 per cent of the surveys were less than 300 particles per cubic centimetre of air; at "all others" operations 100 per cent were within the standard; at crushing operations 47 per cent were below the 300 particles per cubic centimetre of air; at bagging operations one survey was taken that was above the allowable standard. An intensified programme is under way to ensure better dust control is practised at crushing operations of the structural-materials and industrial-minerals operations.

In the coal mines 63 per cent of the gravimetric samples were below the 3.0 milligrams per cubic metre standard, and 75 per cent of the Konimeter surveys were below the 300 particles per cubic centimetre of air. A change in the method of auxiliary ventilation is necessary to reduce the dust hazard at continuous miners.

Forty-three noise surveys were made at various mining operations. Eighty-three per cent of all workmen in the mining industry that are exposed to excessive noise levels were wearing ear protection. Ninety-five per cent of the drills used underground were equipped with acceptable muffling devices. Audiometric testing for hearing acuity is receiving excellent attention from the mining industry.

Certificates of fitness were checked at the mining operations with the following results:

Lode mining—98 per cent had the required certificates of fitness.

Coal mining—96 per cent had the required certificates of fitness.

The following graphs show the median of all averages in the various operations in the lode mines obtained each year since 1937.

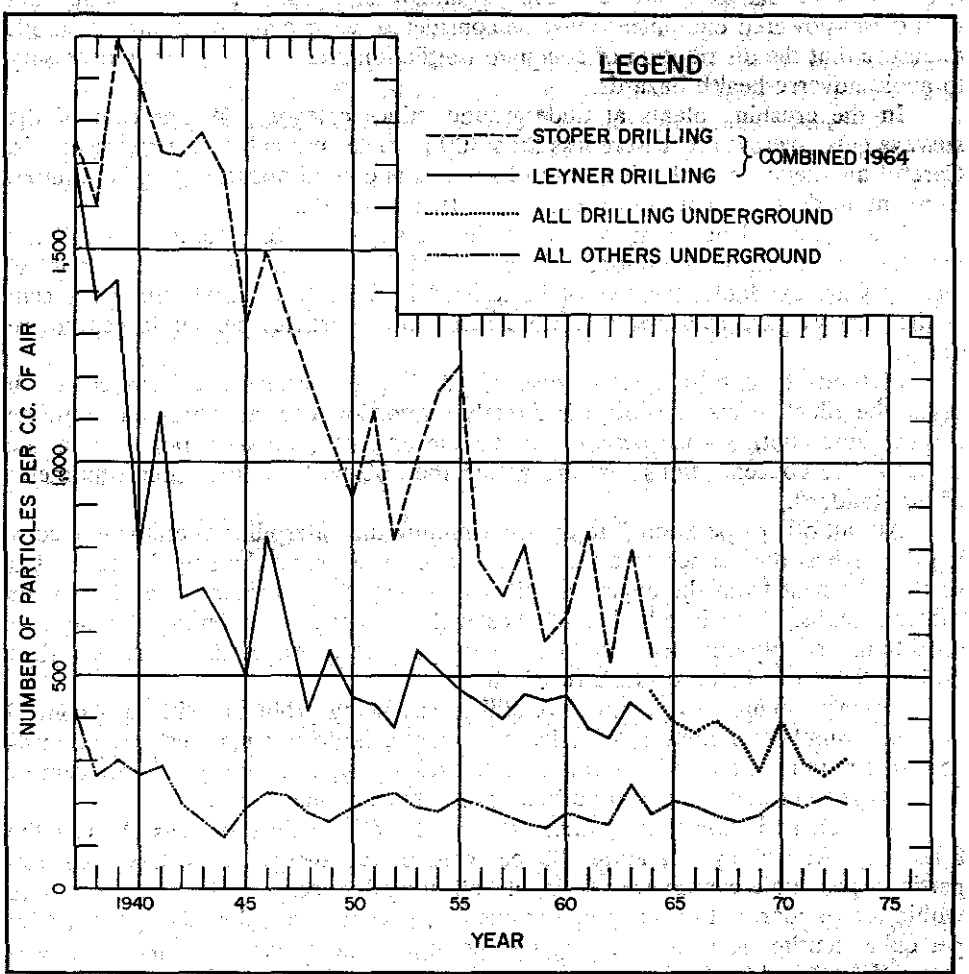



Figure 8. Average underground dust counts.

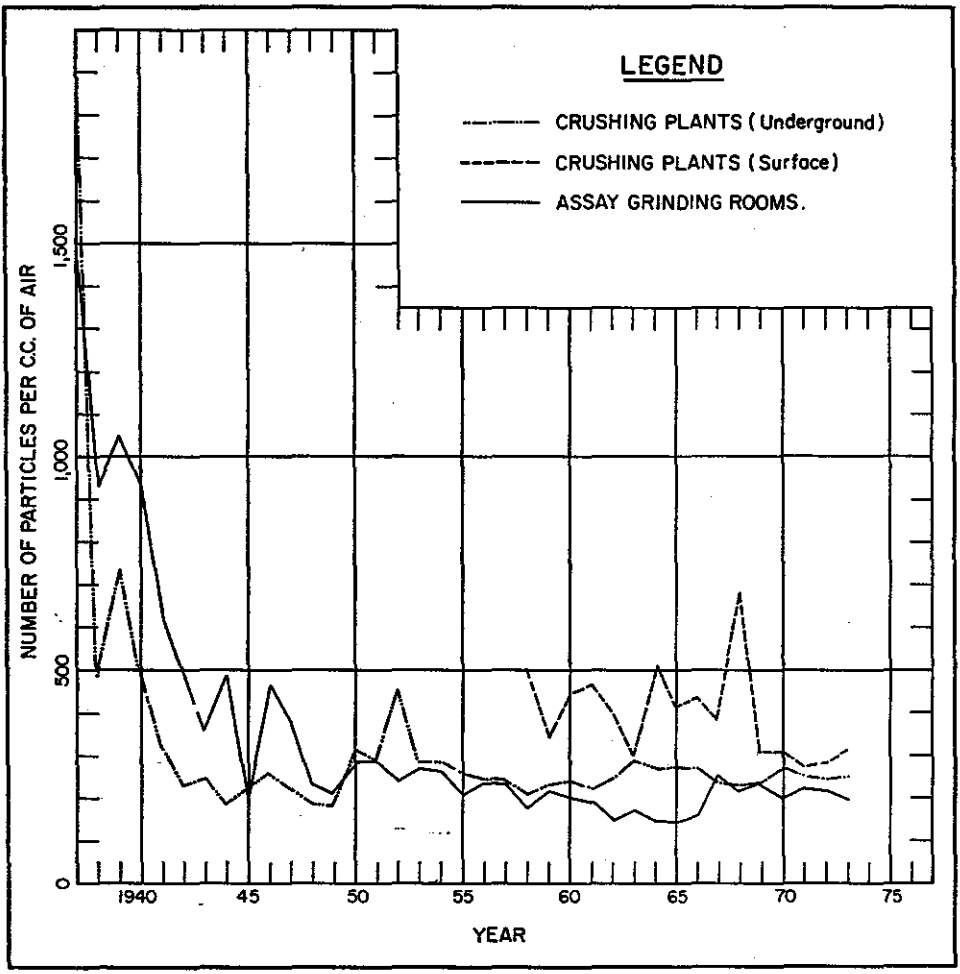



Figure 9. Average crushing and grinding dust counts.

## SHIFTBOSS CERTIFICATES

Section 21 of the *Mines Regulation Act* requires that every person employed underground or in open-pit working must be under the daily supervision of an official who is the holder of a shiftboss certificate issued under the Act. In addition, section 23 of the *Coal Mines Regulation Act* requires that every person employed in open-pit workings at a coal mine shall be under the daily supervision of a shiftboss or other official who is the holder of an open-pit shiftboss certificate issued under the Act.

An applicant for a shiftboss certificate must hold a mine-rescue certificate (surface or underground as requisite), a currently valid first aid certificate, and is required to pass an examination on the regulations and rules as contained in the respective Acts. Three different certificates are issued—one for underground metal-mining operations; one that is valid in both coal- and metal-mining open-pit operations; and a third for sand-, gravel-, and clay-removal operations. A fee of $5 is charged for the examination. There were 165 applications for examinations filed during 1973.

The Board of Examiners may grant provisional certificates under such conditions as it considers advisable. During 1973, 110 provisional certificates were issued.

Examinations were held at various places throughout the Province, and, of the 117 examinations written, 94 candidates passed. There were 107 shiftboss certificates issued, 33 to underground shiftbosses, 68 to those employed in open-pit mining, and six to those employed in gravel pits. The recipients are listed in the accompanying tables.

*Underground Shiftboss Certificates, 1973*

| Cert. No. | Name | Date | Cert. No. | Name | Date |
|---|---|---|---|---|---|
| 715 | James E. A. Lovestrom | 3/1/73 | 732 | William J. Hope | 26/4/73 |
| 716 | Jack M. Lambert | 8/1/73 | 733 | Peter I. Morrison | 2/5/73 |
| 717 | Archie C. Anstey | 9/1/73 | 734 | James A. McCormack | 2/5/73 |
| 718 | William J. Zenuik | 9/1/73 | 735 | John B. Hancock | 2/5/73 |
| 719 | Bertram Johns | 5/2/73 | 736 | Kenneth Adams | 3/5/73 |
| 720 | Thomas G. C. Richards | 16/2/73 | 737 | Andrew J. Pothier | 23/5/73 |
| 721 | Albert J. Gartner | 21/2/73 | 738 | Josef Hoffman | 23/5/73 |
| 722 | Kent E. Card | 22/2/73 | 739 | Donald F. Stanley | 23/5/73 |
| 723 | Lyle R. Flint | 22/2/73 | 740 | Michael A. Lalonde | 25/5/73 |
| 724 | Donald K. McBain | 19/3/73 | 741 | Ronald F. Brow | 8/6/73 |
| 725 | Daniel A. Danielson | 20/3/73 | 742 | Gerald T. Bullock | 19/7/73 |
| 726 | Kenneth L. Saje | 28/3/73 | 743 | Kenneth E. Farran | 19/7/73 |
| 727 | William G. Clarke | 2/4/73 | 744 | George B. Nickerson | 19/7/73 |
| 728 | A. Daniel Tidsbury | 4/4/73 | 745 | Robert E. Kirschman | 13/8/73 |
| 729 | William H. LaCroix | 6/4/73 | 746 | Robert J. Dowdall | 13/8/73 |
| 730 | Spencer G. Turley | 25/4/73 | 747 | George Braun | 25/9/73 |
| 731 | James D. Pringle | 26/4/73 | | | |

*Gravel-pit Shiftboss Certificates, 1973*

| Cert. No. | Name | Date | Cert. No. | Name | Date |
|---|---|---|---|---|---|
| GP-32 | Peter J. Mitchell | 5/1/73 | GP-35 | John Sarnowski | 27/2/73 |
| GP-33 | John P. Carlson | 27/2/73 | GP-36 | Richard G. Ball | 9/5/73 |
| GP-34 | Peter Nassichuk | 27/2/73 | GP-37 | Brian H. Butler | 4/9/73 |

*Open-pit Shiftboss Certificates, 1973*

| Cert. No. | Name | Date | Cert. No. | Name | Date |
|---|---|---|---|---|---|
| OP-186 | Douglas W. Flynn | 5/1/73 | OP-220 | Clarence E. Bouthillier | 26/3/73 |
| OP-187 | Norman H. Merke | 5/1/73 | OP-221 | L. Gordon Clarke | 27/3/73 |
| OP-188 | Frank M. Paparich | 5/1/73 | OP-222 | William G. Clarke | 2/4/73 |
| OP-189 | Thomas E. Daley | 8/1/73 | OP-223 | Bernard F. Hartinger | 3/4/73 |
| OP-190 | Stanley G. Hill | 8/1/73 | OP-224 | A. Daniel Tidsbury | 4/4/73 |
| OP-191 | Joseph M. Pasich | 8/1/73 | OP-225 | Barry H. Sherman | 8/5/73 |
| OP-192 | C. W. Robert Slater | 8/1/73 | OP-226 | Ernest S. Hogg | 8/5/73 |
| OP-193 | Marc Lemieux | 12/1/73 | OP-227 | Vernon W. Shuttleworth | 9/5/73 |
| OP-194 | Eric R. Ernst | 24/1/73 | OP-228 | Peter L. Ogryzio | 9/5/73 |
| OP-195 | Juhan J. Kalmet | 1/2/73 | OP-229 | Gerald H. Grosky | 9/5/73 |
| OP-196 | Frank B. Firomski | 1/2/73 | OP-230 | Frank Kovacs | 13/6/73 |
| OP-197 | Kurt Rosger | 1/2/73 | OP-231 | Horst Schoenhoff | 15/6/73 |
| OP-198 | William A. Lyons | 1/2/73 | OP-232 | Leonard F. Vaness | 26/6/73 |
| OP-199 | Milton J. Prokopetz | 1/2/73 | OP-233 | James W. Allin | 28/6/73 |
| OP-200 | Brian Whitehead | 1/2/73 | OP-234 | Dino A. Basso | 28/6/73 |
| OP-201 | George E. Hatch | 5/2/73 | OP-235 | Thomas E. Milner | 28/6/73 |
| OP-202 | William D. Diment | 5/2/73 | OP-236 | R. Norman Myhre | 28/6/73 |
| OP-203 | Keith P. Koppert | 5/2/73 | OP-237 | Lyle E. Paulhus | 17/7/73 |
| OP-204 | Agnar Hamarsnes | 12/2/73 | OP-238 | Andy H. Johnson | 18/7/73 |
| OP-205 | Donald A. Greenwood | 12/2/73 | OP-239 | William H. Myckatyn | 27/8/73 |
| OP-206 | Thomas G. C. Richards | 16/2/73 | OP-240 | Julian R. J. Gagnon | 1/10/73 |
| OP-207 | Richard A. McKay | 27/2/73 | OP-241 | Meno Bianchini | 11/10/73 |
| OP-208 | Thomas W. James | 7/3/73 | OP-242 | Thomas C. Geske | 11/10/73 |
| OP-209 | George MacQueen | 15/3/73 | OP-243 | Orval C. Walmsley | 11/10/73 |
| OP-210 | Edward P. Bodnar | 19/3/73 | OP-244 | Edward A. Tibble | 11/10/73 |
| OP-211 | David Humes | 19/3/73 | OP-245 | Donald J. Barker | 17/10/73 |
| OP-212 | Russel E. Larson | 19/3/73 | OP-246 | Jay K. Taylor | 24/10/73 |
| OP-213 | Charles O. Eddy | 19/3/73 | OP-247 | Ken W. Pickering | 14/11/73 |
| OP-214 | George L. McNaughton | 23/3/73 | OP-248 | Jack H. Tyrrell | 14/11/73 |
| OP-215 | Warren H. Draper | 23/3/73 | OP-249 | Richard E. Rodger | 19/11/73 |
| OP-216 | Richard M. Young | 23/3/73 | OP-250 | Gene G. Lant | 4/12/73 |
| OP-217 | William G. Kinzel | 23/3/73 | OP-251 | Bradley G. Thiele | 17/12/73 |
| OP-218 | Wallace R. Kerr | 23/3/73 | OP-252 | Ronald Stard | 17/12/73 |
| OP-219 | Donald E. Auger | 26/3/73 | OP-253 | John D. M. Byer | 21/12/73 |

## CERTIFICATES OF COMPETENCY

Sections 23 and 24 of the *Coal Mines Regulation Act* require that managers and certain other supervisory officials of underground coal mines shall be the holders of certificates of competency issued under this Act. A Board of Examiners is responsible for setting examinations from time to time for these certificates, for considering applications for interchange certificates, and for advising the Minister in accordance with section 26 (3) of the Act. In 1973 only one candidate presented himself for examination (for a second-class certificate), but was unsuccessful. Six candidates applied for interchange certificates, all of whom were granted certificates by the Minister on the Board's recommendation. These included two applicants for first-class certificates, one for a second-class certificate, one for a third-class certificate, and two for mine surveyor's certificates. One of the applicants for a first-class certificate was required by the Board to sit for a written examination on the *Coal Mines Regulation Act*, which he passed successfully. Three of the applicants for interchange certificates held equivalent qualifications from the United Kingdom, one from the State of Western Australia, and two from the Province of Alberta. All candidates were interviewed by members of the Board.

The following certificates were issued in 1973:

*First-class Certificates of Competency*

| Certificate No. | Name | Date |
|---|---|---|
| A237 | P. J. Appleby | February 19. |
| A238 | J. W. Cowan | April 10. |

*Second-class Certificate of Competency*

| | | |
|---|---|---|
| B339 | M. Bianchini | July 30. |

*Third-class Certificate of Competency*

| | | |
|---|---|---|
| C1057 | R. Brewer | June 14. |

*Surveyor's Certificates*

| | | |
|---|---|---|
| 114 | R. J. Postlethwaite | May 31. |
| 115 | P. J. Shedden | August 9. |

## MINE RESCUE, SAFETY, AND FIRST AID

Five fully equipped mine-rescue stations are maintained throughout the Province. These are at Fernie, Kamloops, Nanaimo, Nelson, and Prince George, and, with the exception of Fernie, each station is established as a mobile unit to transport equipment anywhere in that area to be available for either rescue or training purposes. The mine-rescue co-ordinator at each station is fully qualified to instruct in first aid and mine-rescue training.

Each station is equipped with sufficient self-contained oxygen-supplying apparatus to maintain two mine-rescue teams of six men each should any emergency arise in the nearby mines. In addition, varying amounts of similar equipment are maintained at the different mines throughout the Province. This equipment is either wholly owned by the mine or is on loan from the Department. In 1973 the mine-rescue equipment owned by this Department totalled 57 Aerorlox two-hour liquid-oxygen breathing-machines, 9 Dräeger BG-174 and 44 McCaa two-hour high-pressure gaseous-oxygen breathing-machines, and 51 Chemox one-hour chemical oxygen-producing machines. The equipment owned by industry totalled 30 Aerorlox, 24 BG-174, 50 McCaa, and 67 Chemox machines. Each station, as well as most mines, have additional auxiliary equipment such as Type N gas masks, self-rescuers, gas detectors, oxygen therapy units, and first aid equipment.

The district co-ordinators of rescue training make periodic visits to the mines to give rescue training to open-pit and underground employees and to check the rescue equipment to insure it is being maintained satisfactorily.

Courses in both underground and surface mine-rescue training as well as first aid are presented by the district co-ordinators and are detailed herewith.

In the Fernie district, underground mine-rescue training was given to 56 men employed by Kaiser Resources Ltd. at Michel and surface mine-rescue training was given to a total of 154 persons working in various open-pit and miscellaneous other operations in the East Kootenay area. Assistance was also given in the examination of 95 St. John Ambulance first aid candidates and to 31 Industrial first aid candidates.

The Kamloops mobile unit provided mine-rescue training at Bethlehem, Brenda, Craigmont, Gibraltar, and Ingerbelle (Similkameen) mines, and at Mica Creek Dam with 50 men obtaining surface mine-rescue certificates, and 27 men obtaining the underground mine-rescue certificates. Assistance in training and examinations were given to 150 candidates for their St. John Ambulance first aid certification.

In October two instructors' training classes were given at Kamloops at which all co-ordinators assisted 22 candidates for survival rescue instructors' certificates, and 25 candidates for surface mine-rescue instructors' certificates. The survival rescue training is an innovation in our rescue-training programme and is designed for all men working underground to become acquainted with the basic rudiments of self-protection and preservation should they be exposed to any fire hazard underground.

The Nanaimo mobile unit provided underground mine-rescue training for a total of 51 persons at the mines at Britannia and Tasu, for the Diamond Drilling Association in Vancouver, and the British Columbia Institute of Technology in Burnaby. In addition, 48 persons were given surface mine-rescue training at the Tasu and Island Copper mines and Pitt River quarry. Nineteen persons in the Nanaimo and Powell River areas were given the rescue training course provided for individuals endeavouring to qualify for the shiftboss certificates required to be held by gravel pit supervisors. This unit also provided first aid training for 13 persons qualifying for their first aid certificates.

The Nelson mobile unit provided surface mine-rescue training to a total of 48 persons at the Rossland Mining School, in Salmo, and in Nelson. In addition, 147 persons were trained for and received their first aid certificates. Assistance in examining was also given to 12 mine-rescue candidates and 34 first aid certificate candidates in Kimberley.

The Prince George mobile unit provided surface mine-rescue training for a total of 73 persons employed at Bell (Newman), Cassiar, Endako, Gibraltar, and Granisle open-pit mines. Underground mine-rescue training was provided for 31 persons employed at Coalition Coal, Granduc, Pinchi Lake, and the Silver Queen (Nadina) mines. Additionally, nine men were provided gravel-pit-rescue training at Kitimat, and four were trained for their St. John Ambulance First Aid Certificate in Prince George.

In summary, Department Rescue Co-ordinators conducted rescue-training classes for the certification of 128 men in underground mine rescue, 240 men in surface mine rescue, and 29 men in gravel-pit rescue. In addition, training was given either fully or in part to 365 individuals who qualified for either the St. John Ambulance or Industrial first aid certification. The names of the persons completing the rescue courses and awarded Department certificates are contained in the following lists:

*Underground Mine-rescue Certificates, 1973*

| Cert. No. | Name | Where Trained | Cert. No. | Name | Where Trained |
|---|---|---|---|---|---|
| 5161 | Gerald F. Allain | Britannia Beach. | 5176 | John Alexander McIntosh | Tasu. |
| 5162 | Roger Boucher[1] | Britannia Beach. | 5177 | Charles L. Stafford | Tasu. |
| 5163 | Jose Gomez Diaz | Britannia Beach. | 5178 | Steven A. Wulf | Tasu. |
| 5164 | Jules U. Pellerin | Britannia Beach. | 5179 | David Ian Ross Henderson | Vancouver. |
| 5165 | Spencer J. Turley | Britannia Beach. | 5180 | Roger Barry Elliott | Vancouver. |
| 5166 | William Joseph Hope | Britannia Beach. | 5181 | Brian Prochnicki | Vancouver. |
| 5167 | Bertram Johns | Britannia Beach. | 5182 | N. Douglas Birkenhead | Vancouver. |
| 5168 | Kenneth A. MacKenzie | Britannia Beach. | 5183 | Kenneth Walter Lukawesky | Vancouver. |
| 5169 | Helmut Koch | Britannia Beach. | 5184 | Richard George Turner | Vancouver. |
| 5170 | Clark A. Fortin | Britannia Beach. | 5185 | Rick I. Conte | Vancouver. |
| 5171 | Jack Palfy | Chetwynd. | 5186 | J. Scott Murray | Vancouver. |
| 5172 | Norman H. Bennett | Tasu. | 5187 | Douglas A. Wright | Vancouver. |
| 5173 | Larry Campanas | Tasu. | 5188 | Edward Leonard Hardy | Vancouver. |
| 5174 | Gerald Henry Heigh | Tasu. | 5189 | David Stanley Beal | Vancouver. |
| 5175 | Frank Kovacs | Tasu. | 5190 | David Vincent Cummings | Vancouver. |

[1] Supervision only.

## *Underground Mine-rescue Certificates, 1973*—Continued

| Cert. No. | Name | Where Trained | Cert. No. | Name | Where Trained |
|---|---|---|---|---|---|
| 5191 | Paul Guiguet | Vancouver. | 5240 | Clarance Kenneth Martin | Kimberley. |
| 5192 | Ernest Leo Eagles | Vancouver. | 5241 | William Wallace McNiel | Kimberley. |
| 5193 | Elmer E. Hoeppner | Vancouver. | 5242 | William Robert Roberts | Kimberley. |
| 5194 | R. Paul Middleton | Vancouver. | 5243 | James M. Thorrougood | Kimberley. |
| 5195 | Arthur William Grimley | Fernie. | 5244 | Kenneth Edwin Farran | Kimberley. |
| 5196 | Barry Lee Buchan | Merritt. | 5245 | Theodore H. P. Roseman | Kimberley. |
| 5197 | Rodney L. Draper | Merritt. | 5246 | Daniel Irwin Joseph Baker | Kimberley. |
| 5198 | Gerald W. Miller | Merritt. | 5247 | Kenneth Wayne Porter | Kimberley. |
| 5199 | Frederick H. Blair | Merritt. | 5248 | Richard Stewart Worden | Britannia Beach. |
| 5200 | Alex Monroe Stocks | Merritt. | 5249 | Reginald M. Nordman | Britannia Beach. |
| 5201 | Charles J. Petit | Merritt. | 5250 | Bogdan (Bob) Tutush | Britannia Beach. |
| 5202 | Leonard K. Post | Merritt. | 5251 | Harold Joseph Rannells | Britannia Beach. |
| 5203 | Searle R. Malanych | Merritt. | 5252 | Alan Graham Boon | Britannia Beach. |
| 5204 | Paul R. Clairmont | Merritt. | 5253 | Neil A. Pacey | Britannia Beach. |
| 5205 | Evert John Houtstra | Merritt. | 5254 | Frederic Nell Ramseier | Britannia Beach. |
| 5206 | Frank Foederer | Chetwynd. | 5255 | Barton George Stone | Britannia Beach. |
| 5207 | Roger E. Shields | Chetwynd. | 5256 | Lester R. Erickson | Mica Creek. |
| 5208 | Brian Dingreville | Chetwynd. | 5257 | Leonard D. Kochylema | Mica Creek. |
| 5209 | Frank Salt | Chetwynd. | 5258 | Jim W. Seminoff | Mica Creek. |
| 5210 | Archie Emblau | Chetwynd. | 5259 | Lionel G. Heuscher | Mica Creek. |
| 5211 | Raymond William Watt | Chetwynd. | 5260 | Kryl E. Faulk | Mica Creek. |
| 5212 | Roman William Balko | Stewart. | 5261 | William M. Taylor | Mica Creek. |
| 5213 | John B. Hancock | Stewart. | 5262 | John D. Willett[1] | Mica Creek. |
| 5214 | James A. McCormack | Stewart. | 5263 | James D. McDonald | Mica Creek. |
| 5215 | Kenneth Adams | Vancouver. | 5264 | Robert C. Vaughan | Mica Creek. |
| 5216 | Emile Kuzyk | Vancouver. | 5265 | Thomas J. Dodge | Mica Creek. |
| 5217 | Andrew John Pothier | Vancouver. | 5266 | Daniel Golnich | Mica Creek. |
| 5218 | Kenneth E. Erdman | Vancouver. | 5267 | James E. Chambers | Mica Creek. |
| 5219 | John W. Cowan | Fernie. | 5268 | Ronald J. Witham | Mica Creek. |
| 5220 | Louis Veress | Houston. | 5269 | Sebastian M. Schmidt | Mica Creek. |
| 5221 | George R. Buys | Houston. | 5270 | J. Douglas McIntosh | Mica Creek. |
| 5222 | Walter Yasinowski | Houston. | 5271 | Daniel Grady | Mica Creek. |
| 5223 | George Barton | Houston. | 5272 | Henry Warner | Mica Creek. |
| 5224 | Walter F. Judge | Stewart. | 5273 | Nelson E. Allan | Stewart. |
| 5225 | Michael Anthony Lalonde | Stewart. | 5274 | Alex G. Boyle | Stewart. |
| 5226 | James W. MacKenzie | Stewart. | 5275 | Michael W. Delich | Stewart. |
| 5227 | Vladimir Chramosta | Fernie. | 5276 | Ronald Gerald Devin | Stewart. |
| 5228 | Ernie A. Klassen | Fernie. | 5277 | William Alan Glover | Stewart. |
| 5229 | Henry John David Toews | Fernie. | 5278 | Charles Donald Marshall | Stewart. |
| 5230 | Wayne H. Tessman | Fernie. | 5279 | Pentti A. Pajala | Stewart. |
| 5231 | Elio E. Feragotti | Fernie. | 5280 | Richard Scott Parker | Stewart. |
| 5232 | Kenneth S. Petras | Fernie. | 5281 | Pierre Rancourt | Stewart. |
| 5233 | Gerald Tinley Bullock | Kimberley. | 5282 | Edward Franklin Skoda | Stewart. |
| 5234 | James Allen Dales | Kimberley. | 5283 | Joseph John Shlemkevich | Stewart. |
| 5235 | Maxwell Earl Donaldson | Kimberley. | 5284 | Douglas Anthony Booth | Tasu. |
| 5236 | Bruce Norman Dudley | Kimberley. | 5285 | William N. Fegan | Tasu. |
| 5237 | Douglas John Fraser | Kimberley. | 5286 | Milan Kohout | Tasu. |
| 5238 | Robert Archibald Horie | Kimberley. | 5287 | Wayne David Rains | Tasu. |
| 5239 | Robert James Johnston | Kimberley. | 5288 | Leo Vienneau | Tasu. |

## *Surface Mine-rescue Certificates, 1973*

| | | | | | |
|---|---|---|---|---|---|
| O-649 | Rodney Keith Audia | Rossland. | O-665 | Guy Oliver Winstanley | Rossland. |
| O-650 | Devinder Singh Aulakh | Rossland. | O-666 | Richard Nelles Young | Rossland. |
| O-651 | Alfred James Bergkvist | Rossland. | O-667 | Eric R. Ernst | Kamloops. |
| O-652 | Walter Grassie Colk | Rossland. | O-668 | Thomas M. Waterland | Kamloops. |
| O-653 | Martin Richard Edgington | Rossland. | O-669 | Gordon Ross Pritchard | Fernie. |
| O-654 | Major Singh Gill | Rossland. | O-670 | Roderick Douglas Nelson | Fernie. |
| O-655 | Richard Hobman | Rossland. | O-671 | Herbert S. Forsyth | Fernie. |
| O-656 | Jerry Hunter | Rossland. | O-672 | Andrew Denton Prendergast | Fernie. |
| O-657 | Leonard Thomas Joslin | Rossland. | O-673 | Jack Beard | Fernie. |
| O-658 | Alistair Weber Metcalf | Rossland. | O-674 | William F. Hurst | Fernie. |
| O-659 | Donald Moroz | Rossland. | O-675 | Gilbert Grocutt | Fernie. |
| O-660 | Adrian Carder Parkinson | Rossland. | O-676 | Anthony W. Freeman | Fernie. |
| O-661 | Patrick Owen Rozek | Rossland. | O-677 | Wallace R. Kerr | Fernie. |
| O-662 | Tom Simm | Rossland. | O-678 | Donald Auger | Fernie. |
| O-663 | Leonard Francis Vaness | Rossland. | O-679 | Gerrit W. Van Andel | Fernie. |
| O-664 | Gary Victor Weippert | Rossland. | O-680 | John Lyotier | Granisle. |

[1] Supervision only.

## *Surface Mine-rescue Certificate, 1973*—Continued

| Cert. No. | Name | Where Trained | Cert. No. | Name | Where Trained |
|---|---|---|---|---|---|
| O-681 | Frank Bernard Firomski | Granisle. | O-752 | William C. Zepik | Port Hardy. |
| O-682 | Doug W. Mearns | Granisle. | O-753 | Richard E. Rodger | Port Hardy. |
| O-683 | Gerald H. Grosky | Granisle. | O-754 | Allan Morrison | Burns Lake. |
| O-684 | Kurt Rosger | Granisle. | O-755 | Robert Charles Coupal | Port Hardy. |
| O-685 | William Allen Lyons | Granisle. | O-756 | David E. Hoefling | Port Hardy. |
| O-686 | Milton John Prokopetz | Granisle. | O-757 | Glen D. Marshall | Port Hardy. |
| O-687 | Keith Kasper | Granisle. | O-758 | Frank Bates | Fernie. |
| O-688 | Peter L. Ogryzlo | Granisle. | O-759 | Gary Borgen | Fernie. |
| O-689 | Lyle Morin | Granisle. | O-760 | Raymond D. Cameron | Fernie. |
| O-690 | V. W. (Bill) Shuttleworth | Granisle. | O-761 | Vince Colucci | Fernie. |
| O-691 | Thomas Gordon C. Richards | Granisle. | O-762 | Ray Corcoran | Fernie. |
| O-692 | Brian Whitehead | Granisle. | O-763 | Wytze Kingma | Fernie. |
| O-693 | Cyril Squires | Granisle. | O-764 | Yves Laborderie | Fernie. |
| O-694 | Juhan John Kalmet | Granisle. | O-765 | Auguste P. Mercereau | Fernie. |
| O-695 | Murray Bruce Wilson | Cassiar. | O-766 | Ole Robert Rothel | Fernie. |
| O-696 | Wayne Woodrow Anderson | Cassiar. | O-767 | Terrence Rowlinson | Fernie. |
| O-697 | Paul Anders | Cassiar. | O-768 | Keith Watson | Fernie. |
| O-698 | Donald Campbell | Cassiar. | O-769 | Redvers M. Krause | Princeton. |
| O-699 | Joginder Singh Thandi | Cassiar. | O-770 | A. Wayne Morrison | Princeton. |
| O-700 | Edward A. Tibble | Elkford. | O-771 | R. Bruce Giggey | Princeton. |
| O-701 | Thomas Carl Geske | Elkford. | O-772 | Alan K. Van Dusen | Princeton. |
| O-702 | Lloyd Frank Antypowich | Elkford. | O-773 | John Leiding | Princeton. |
| O-703 | Norman R. Axtell | Elkford. | O-774 | Angus J. McInnis | Princeton. |
| O-704 | Ronald James Mason | Elkford. | O-775 | Neil A. Murdoch | Princeton. |
| O-705 | Lyle E. Paulhus | Elkford. | O-776 | James G. Fiske | Princeton. |
| O-706 | James D. Wrigley | Elkford. | O-777 | Donald J. Barker | Princeton. |
| O-707 | Douglas F. Wolfe | Elkford. | O-778 | Gerd Antpoehler | Princeton. |
| O-708 | Robert Keith Williams | Elkford. | O-779 | James W. Allin | Princeton. |
| O-709 | John C. Crombie | Elkford. | O-780 | Ernest S. Hogg | Princeton. |
| O-710 | John R. Miller | Elkford. | O-781 | Roderick K. Folick | Princeton. |
| O-711 | Allan B. Clarke | Elkford. | O-782 | Delmar D. Dyck | Princeton. |
| O-712 | Philip L. Robinson | Logan Lake. | O-783 | John D. Martens | Princeton. |
| O-713 | Richard E. Eckery | Logan Lake. | O-784 | Leno Carlo Benetton | Elkford. |
| O-714 | John Horvath | Logan Lake. | O-785 | Barry Sherman | Elkford. |
| O-715 | Albert B. Ryde | Logan Lake. | O-786 | Richard P. Grieve | Elkford. |
| O-716 | Jacob Bratiuk | Logan Lake. | O-787 | George Edward Jackson | Elkford. |
| O-717 | Ivan Collins | Logan Lake. | O-788 | Benjamin Cyril Ramage | Elkford. |
| O-718 | Graham J. Smith | Logan Lake. | O-789 | Daniel R. Wilson | Elkford. |
| O-719 | Henry Soviskov | Logan Lake. | O-790 | Walter James Broadfoot | Athalmer. |
| O-720 | Marcel P. Levesque | Logan Lake. | O-791 | John R. Hemmelgarn | Athalmer. |
| O-721 | Alan M. Rigden | Logan Lake. | O-792 | Harold James Harreson | Athalmer. |
| O-722 | Salvador B. Brouwer | Tasu. | O-793 | Robert F. Kimm | Athalmer. |
| O-723 | George Farsang | Tasu. | O-794 | Allen McElderry | Athalmer. |
| O-724 | William N. Fegan | Tasu. | O-795 | Nolan Rad | Athalmer. |
| O-725 | David Eric Haigh | Tasu. | O-796 | David Alexander Taylor | Endako. |
| O-726 | Milan Kohout | Tasu. | O-797 | Brian L. McHugh | Endako. |
| O-727 | Kauko O. Laspa | Tasu. | O-798 | Thomas E. Bloomquist | Endako. |
| O-728 | Arnold Glen Martinson | Tasu. | O-799 | Jay Kent Taylor | Endako. |
| O-729 | S. Wayne Moseanko | Tasu. | O-800 | Garry Alan Bugg | Endako. |
| O-730 | Terry A. Sampson | Tasu. | O-801 | Kenneth L. Meger | Endako. |
| O-731 | Horst G. Schoenhoff | Tasu. | O-802 | Mark Alfred Lacerte | Endako. |
| O-732 | Alvin George Amundson | Fernie. | O-803 | Allen J. Hachey | Endako. |
| O-733 | Fred Robert Betker | Fernie. | O-804 | Kenneth George Harvey | Endako. |
| O-734 | Richard Abraham Blankman | Fernie. | O-805 | William C. Pratt | Granisle. |
| O-735 | Derek Ian Crawford | Fernie. | O-806 | David W. Campbell | Granisle. |
| O-736 | David Michael DeLuca | Fernie. | O-807 | Gary L. Bye | Granisle. |
| O-737 | Nicholas Bernard George | Fernie. | O-808 | William Francis Barry Tripp | Granisle. |
| O-738 | Trevor John Gill | Fernie. | O-809 | Stephen Cadman Simcox | Granisle. |
| O-739 | Wayne Frederick Osborne | Fernie. | O-810 | Bunnie Merrill Godin | Granisle. |
| O-740 | Orval Claude Walmsley | Fernie. | O-811 | Thomas Patrick Miller | Granisle. |
| O-741 | Andrew Louis Zuffa | Fernie. | O-812 | Michael Caruk[1] | McLeese Lake. |
| O-742 | Archie Lesiuk | Port Hardy. | O-813 | William Drake | McLeese Lake. |
| O-743 | Harry B. Gould | Port Hardy. | O-814 | David Roughley | McLeese Lake. |
| O-744 | Ronald J. Hillis | Port Hardy. | O-815 | Gunter Mierse | McLeese Lake. |
| O-745 | Ken A. Sandberg | Port Hardy. | O-816 | Wesley Harrie | McLeese Lake. |
| O-746 | Gregory Kenneth Thompson | Port Hardy. | O-817 | Donald Charles Finter | McLeese Lake. |
| O-747 | Donald N. Ihlen | Port Hardy. | O-818 | Earnest R. Adams | McLeese Lake. |
| O-748 | John S. Pressdee | Port Hardy. | O-819 | William Nelson | McLeese Lake. |
| O-749 | Marvin S. Orosz | Port Hardy. | O-820 | David Adrian Oliver | McLeese Lake. |
| O-750 | Abel James Hindle | Port Hardy. | O-821 | Taeke Vanderkup | McLeese Lake. |
| O-751 | Martin Philip Blackmore | Port Hardy. | O-822 | Robert John Young | McLeese Lake. |

[1] Supervision only.

*Surface Mine-rescue Certificates, 1973*—Continued

| Cert. No. | Name | Where Trained | Cert. No. | Name | Where Trained |
|---|---|---|---|---|---|
| O-823 | Gerry Charette | McLeese Lake. | O-856 | Keith MacKenzie | Fernie. |
| O-824 | Harlan Dennis Wheaton | McLeese Lake. | O-857 | Frank W. Poch | Fernie. |
| O-825 | John Nelis | McLeese Lake. | O-858 | Larry John Torok | Fernie. |
| O-826 | Harvey Stanley Rielly | McLeese Lake. | O-859 | Ian L. Dufour | Fernie. |
| O-827 | Peter D. Paterson | Port Hardy. | O-860 | Allen L. Bucht | Fernie. |
| O-828 | Larry R. Foreman | Port Hardy. | O-861 | Krishnamurthy Pendala | Tasu. |
| O-829 | Ronald R. Callihoo | Port Hardy. | O-862 | Mary Catharine Bennett | Tasu. |
| O-830 | Richard Leo Starr | Port Hardy. | O-863 | Kenneth M. Dickinson | Tasu. |
| O-831 | Varge W. Murray | Port Hardy. | O-864 | Philip Donald Graham | Tasu. |
| O-832 | Jack H. Tyrrell | Port Hardy. | O-865 | Gordon A. Heide | Tasu. |
| O-833 | Peter R. Dussome | Port Hardy. | O-866 | Gerald H. Heigh | Tasu. |
| O-834 | Jack E. Kraehling | Port Hardy. | O-867 | Douglas W. Scheving | Tasu. |
| O-835 | Richard Allen Love | Port Hardy. | O-868 | Donald George Irwin[1] | Granisle. |
| O-836 | Hayward M. MacDonald | Port Hardy. | O-869 | Eric Dennis Sells | Endako. |
| O-837 | Adelard J. Denis | Port Hardy. | O-870 | Ron Stard | Endako. |
| O-838 | Ken William Pickering | Port Hardy. | O-871 | William M. Takashita | Endako. |
| O-839 | Gerald Jones | Ashcroft. | O-872 | Bruce J. MacNeill | Endako. |
| O-840 | Ronald P. Bohn | Ashcroft. | O-873 | Hans Geertsema | Endako. |
| O-841 | Rodney R. Cragg | Ashcroft. | O-874 | Lawrence A. Cadden | Endako. |
| O-842 | Robert H. Rodford | Ashcroft. | O-875 | Reay Garayt | Endako. |
| O-843 | Gordon G. Black | Ashcroft. | O-876 | Ronald David Newton | Endako. |
| O-844 | Robert Vye | Ashcroft. | O-877 | Allan Wallace Service | Endako. |
| O-845 | John D. Beyer | Ashcroft. | O-878 | Bradley Glenn Thiele | Endako. |
| O-846 | Hitoshi Negoro | Ashcroft. | O-879 | William Evelyn Phillipps | Granisle. |
| O-847 | Morley R. Zant | Ashcroft. | O-880 | Peter John Appleby | Granisle. |
| O-848 | Malcolm R. Brown | Ashcroft. | O-881 | Otto Dale Stanvick | Granisle. |
| O-849 | Roderick G. Lowe | Ashcroft. | O-882 | Robert Alexander McClure | Granisle. |
| O-850 | Malcolm Laycock | Fernie. | O-883 | Daniel Oscar Thompson | Granisle. |
| O-851 | Gordon Tanner | Fernie. | O-884 | Risto R. Rasku | Granisle. |
| O-852 | Gene Lant | Fernie. | O-885 | Ernest Rene Bond | Granisle. |
| O-853 | Kenneth E. Durant | Fernie. | O-886 | Gary D. Webster | Granisle. |
| O-854 | Thomas H. Travis | Fernie. | O-887 | Alan E. Lloyd | Granisle. |
| O-855 | Norman M. Hanson | Fernie. | O-888 | William Bertram Rutherford | Granisle. |

*Gravel Pit Mine-rescue Certificates, 1973*

| | | | | | |
|---|---|---|---|---|---|
| G-84 | Brian Reid Merrick | Powell River. | G-99 | Dennis Dribnenki | Kitimat. |
| G-85 | Franciscus Spreeuw | Powell River. | G-100 | Clarence Denton | Kitimat. |
| G-86 | Hank Vander Mast | Nanaimo. | G-101 | Victor H. Pealo | Kitimat. |
| G-87 | Alan E. Beckerley | Victoria. | G-102 | Les Weibe | Kitimat. |
| G-88 | Mela Singh Sangha | Victoria. | G-103 | Richard M. Bates | Terrace. |
| G-89 | Gary Louis Scott | Nanaimo. | G-104 | Daniel G. Bristow | Nanaimo. |
| G-90 | Charles William Boyles | Cobble Hill. | G-105 | Merlyn L. Clark | Nanaimo. |
| G-91 | Kenneth John Laity | Lantzville. | G-106 | Gordon Sinclair Murcheson | Nanaimo. |
| G-92 | Brian Harold Butler | Sooke. | G-107 | Abraham Leroy Richardson | Nanaimo. |
| G-93 | Jack Milner | Nanaimo. | G-108 | Kenneth S. Robinson | Nanaimo. |
| G-94 | Walter James Broadfoot | Invermere. | G-109 | Gerald A. Shires | Nanaimo. |
| G-95 | Joseph Banyay | Kitimat. | G-110 | Borge G. Soros | Nanaimo. |
| G-96 | Merdo N. Bosiak | Kitimat. | G-111 | Frederic McRae Willing | Nanaimo. |
| G-97 | Lorne J. Darby | Kitimat. | G-112 | Gary W. Woods | Nanaimo. |
| G-98 | Jerry Chayba | Kitimat. | | | |

[1] Supervision only.

Four mine-safety associations operate in different areas of the Province. They are sponsored by the Department of Mines and Petroleum Resources and the Workmen's Compensation Board and are aided by mining company officials, safety supervisors, Inspectors of Mines, mine-rescue co-ordinators, and, in some areas, local industry. These organizations promote mine-rescue and first aid training as well as safety education in their various districts.

The Vancouver Island Mine Safety Association held its 59th annual competition in Nanaimo on May 26. The four teams competing for the mine-rescue trophy were from Britannia, Sunro, Texada, and Lynx mines. The winning team was that of Texada Mines Ltd., and was captained by Harold Diggin.

The West Kootenay Mine Safety Association held a surface mine-rescue competition on May 26 at the Phoenix mine of The Granby Mining Company Limited. The six teams that participated were from the Kaiser Resources Ltd.'s open pit on Harmer Ridge, Fording Coal mine, Brenda mine, Phoenix mine, Western Gypsum mine, and Ingerbelle mine at Similkameen Mining Company Limited. The Fording Coal mine team of Cominco Ltd., captained by Ben Ramage, won the trophy.

The West Kootenay Mine Safety Association held its 27th annual competition in Nelson on June 2. The three teams that competed in the mine-rescue event came from the Reeves MacDonald, Highland Bell, and Silmonac (Kam Kotia-Burkam Joint Venture) mines. The Reeves MacDonald Mines Limited's team, captained by George Fecyk, won the district trophy.

The Central British Columbia Mine Safety Association held its 25th annual competition in Kamloops on June 2. Six teams entered the competition and represented the Silver Queen (Nadina) mine of Bradina Joint Venture, Craigmont Mines Limited, Giant Mascot Mines Limited, Granduc Operating Company, and the Pinchi Lake mine of Cominco Ltd. The winning team was from the Pinchi Lake mine of Cominco Ltd., and was captained by Peter Jones.

The Central British Columbia Mine Safety Association held its second north section surface mine-rescue competition at Prince George on June 9. The seven teams that competed were from the Bethlehem, Island Copper, Bell (Newman), Granisle, Endako, Tasu, and Cassiar asbestos mines. The winning team, captained by Lawrence Stout, was from the Highland Valley operation of Bethlehem Copper Corporation Ltd.

The East Kootenay Mine Safety Association held its 52nd annual competition on June 9 at Fernie with four teams competing in the mine-rescue event. Two teams were from the Sullivan mine of Cominco Ltd., and two from the Michel underground operations of Kaiser Resources Ltd. The Kaiser team, captained by Peter Zeith, won the East Kootenay trophy.

The winners of the district underground mine-rescue competitions competed in Kamloops on June 16 for the Provincial trophy which was won by the Kaiser Resources Ltd. team, captained by Peter Zeith. This team represented British Columbia at Glace Bay on June 23 when the 7th Canadian Mine-rescue Championships were held. Competing teams were from Alberta, British Columbia, Nova Scotia, and the Northwest and Yukon Territories. The winning team was from Nova Scotia.

## BRAVERY AWARDS

There were two instances recorded where individuals performed notable acts of bravery in 1973 in British Columbia. These are herewith recorded:

On May 25, 1973, Jim Mellon, a miner employed by Kam Kotia-Burkam Joint Venture at the Silmonac mine near Sandon, arrived at a working place where he knew another miner intended to blast several holes. As he neared the scene a shot detonated, and although he knew more shots were to go he quickly ran to the miner, whom he found suffering from the effects of the blast (later determined as a broken leg and arm, a damaged knee, and several cuts). Mr. Mellon took the injured man across his shoulders and retreated to a safe area before the next shot went off.

Mr. Mellon was awarded the Medal for Bravery of the Canadian Institute of Mining and Metallurgy at the Annual Meeting of the Institute in Montreal in April 1974. He also received a bravery cash award of $1,000 from the Workmen's Compensation Board in Nelson in March 1974.

On September 28, 1973, a miner fell approximately 136 feet down a 52-degree raise at the Pride of Emory mine of Giant Mascot Mines Limited. Mark Cawston, foreman, and Harry Skoglund, superintendent, were soon on the scene, and while they knew there was hung-up ore above which could come down on them, Mr. Cawston and then Mr. Skoglund lowered themselves on ropes and recovered the miner, who unfortunately was dead.

At the end of the year the commission of the Workmen's Compensation Board were investigating the incident to determine if awards should be granted.

## JOHN T. RYAN TROPHIES

The John T. Ryan safety trophies were established in 1941 by the Mine Safety Appliances Company of Canada Limited to promote safety in coal and metal mines in Canada. Three Canadian and six regional trophies were established and their administration was given to the Canadian Institute of Mining and Metallurgy.

British Columbia metal mines compete for the British Columbia and Yukon Regional District award as well as for the national metal-mines trophy. The trophies are awarded to the metal-mining company or companies having the least number of compensable accidents per million man-hours of employment recorded. If the million hours cannot be achieved in one year, they may be accumulated over a longer continuous time interval; however, no portion of that period may be used in another application for the same award but can be utilized in application for a higher award. In 1973 the British Columbia and Yukon Regional District award for metal mines was won by the Myra mine of Western Mines Limited, with an accident frequency of 32.3.

Special mention should be made of the continuing excellent low accident frequency at Texada Mines Ltd., which was 5.4 in 1972, and 1.6 in 1973. This mine won the regional award in 1969, and the Canadian award in 1971. Having won these two awards, this mine's accident statistical period did not recommence until January 1, 1972, and although these low frequencies have been obtained, there is still an insufficient total number of hours worked to requalify for competition.

The Britannia mine of Anaconda Britannia Mines Division of Anaconda Canada Limited, which won the British Columbia and Yukon Regional District award for metal mines in 1973 with an accident frequency of 15.3 per million man-hours, reduced this frequency to 12.7 in 1973, but was unable to qualify for entry similar to Texada Mines Ltd.

The coal-mine award is presented to the coal-mining company having worked a minimum of 120,000 man-hours with the least number of compensable accidents. The coal mines of British Columbia are grouped with those of Alberta to form a Western Region. In 1973 the Western Regional Award trophy was won by Kaiser Resources Ltd. with an accident frequency of 79.71 per million man-hours.

## WEST KOOTENAY MINE SAFETY ASSOCIATION TROPHY

In 1951 the West Kootenay Mine Safety Association donated a safety trophy for annual competition in order to encourage and promote safety in small mines. Entrants were originally restricted to the West Kootenay area, but in 1956 this restriction was removed and entries are accepted from any qualifying mine in the Province.

The award is made to the metal mine having the lowest accident rate and having worked a total of from 2,500 to 30,000 shifts per year, at least one-third of which having been worked underground.

In 1973 the award was won by the Highland-Bell mine of Teck Corporation Ltd. with an accident frequency of 0.103 per thousand man-shifts.

## SAFETY COMPETITION, OPEN-PIT MINES AND QUARRIES

In 1961 the Department of Mines and Petroleum Resources organized a safety competition for the open-pit and quarry industry and instituted awards and donated a trophy for annual competition for operations having the least number of compensable accidents during the year. In 1965, in order to provide a more equitable competition basis, it was decided to donate a second trophy and to divide the entrants having a large number of man-hours into two groups—the A group, for those operations having from 35,000 to 200,000 man-hours per year; and the B group, for those having in excess of 200,000 man-hours per year. A certificate of achievement is awarded to operations amassing 15,000 man-hours without accidents over any continuous time interval.

In 1973 the A trophy was won jointly by two operations each having no compensable or lost-time accidents. The number of accident-free man-hours is indicated in parentheses after the names of the following list of companies winning this award: The Cobble Hill quarry of British Columbia Cement Company Ltd. (61,203), and the Texada Island quarry of Canada Cement Lafarge Ltd. (47,500).

The Phoenix Copper Division of The Granby Mining Company Limited won the B trophy with an accident frequency of 9.06 per million man-hours.

In addition to the foregoing operations, certificates of achievement were won by the following and their number of accident-free man-hours listed: Canadian Refractories Division, Dresser Industries Canada, Ltd. (22,809), the Coquitlam Gravel pit of Lafarge Concrete Ltd. (19,682), the Kitimat Division of Ocean Construction Supplies Northern Limited (17,961), L.H. & K. pit of L. G. Scott Construction, Kitimat (24,161), the Langley pit of Construction Aggregates Ltd. (21,275), and the Kamloops Lafarge quarry operations of Plateau Construction Ltd. (15,102).

## RECLAMATION

Under the authority of subsection (18) of section 11 of the *Mines Regulation Act,* Order in Council 1532 was approved on May 7, 1973, making mineral exploration, where there is significant disturbance of land by mechanical means, subject to section 11 of the *Mines Regulation Act.*

During the calendar year 1973, 34 reclamation permits were issued and 38 reclamation permits were approved for renewal by the Minister of Mines and Petroleum Resources under authority of section 8 of the *Coal Mines Regulation Act* or section 11 of the *Mines Regulation Act.*

*Summary of Reclamation Permits Issued to December 31, 1973*

| Type of Mine | Number of Permits | Disturbed Land | Bonding |
|---|---|---|---|
| | | Acres | $ |
| Metal mines | 46 | 18,366 | 2,581,500 |
| Quarries and gravel | 18 | 811 | 69,800 |
| Coal mines | 3 | 3,175 | 500,000 |
| Coal exploration | 20 | 2,857 | 258,500 |
| Mineral exploration | 25 | 500 | 61,700 |
| Totals | 112 | 25,709 | 3,471,500 |

## AID TO THE SECURITIES COMMISSION

A. R. C. James, Senior Inspector of Mines, continued to act as mining engineer adviser to the British Columbia Securities Commission. His duties are mainly to advise the Commission in regard to engineering reports submitted in support of prospectuses by mining companies as required by Regulation 17 under the *Securities Act*. Engineering advice is also required from time to time by the Commission on certain other matters, such as in connection with programmes financed by rights offerings to shareholders, on the assessment of reports of work done on mining properties, on changes in programmes or property holdings after a prospectus has been issued, on prices paid for mining properties, conditions of option agreements and in the approval of company press releases.

In 1973 a total of 159 engineering reports was examined and the Commission advised on their contents. The reports were submitted by 121 companies, mainly in support of prospectuses. One or two days a week, depending on the amount of work on hand, are normally spent at the Commission offices. Valued assistance to the Commission in the evaluation of reports on petroleum and natural gas properties was given by W. M. Young, senior geologist with the Petroleum and Natural Gas Division.

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