Minister of Mines and Petroleum Resources

PROVINCE OF BRITISH COLUMBIA

ANNUAL REPORT

for the Year Ended December 31

1972

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1973

BRITISH COLUMBIA DEPARTMENT OF MINES AND PETROLEUM RESOURCES

VICTORIA, BRITISH COLUMBIA

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Colonel the Honourable J. R. NICHOLSON,
P.C., O.B.E., 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 1972 is herewith respectfully submitted.

LEO T. NIMSICK
Minister of Mines and Petroleum Resources

Minister of Mines and Petroleum Resources Office,
June 1, 1973

Dewi Richard Morgan died suddenly in Prince George on August 16, 1972, while in the employ of the Department as engineer in charge of the Department's Omineca Road programme. He was born on June 10, 1905, in South Wales and received his engineering education at the Monmouthshire School of Mines. After serving for 23 years in various official and managerial positions in coal mines in South Wales, he emigrated to Canada in 1947. He spent two years with West Canadian Collieries Limited at Blairmore, Alta., before joining the Department at Fernie as Inspector and Resident Engineer of the East Kootenay District. In 1967 he was transferred to Victoria as Senior Inspector of Mines in charge of administering the Department's road and trail programme and the grubstaking of prospectors. He retired in June 1970 and was then employed every summer as the engineer of the Omineca Road in north central British Columbia. Dewi Morgan was highly respected throughout the coal-mining industry for his knowledge of the hazards of that industry. He was a member of the Association of Professional Engineers of British Columbia and the Canadian Institute of Mining and Metallurgy. He is survived by his wife, a son, and a daughter.

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ANNUAL REPORT OF THE MINISTER OF MINES AND PETROLEUM RESOURCES, 1972

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—The value of the 1972 production of British Columbia's mineral industry amounted to $637,168,940. A new record was established for the 11th successive year, for the second time the annual production has exceeded half a billion dollars, the previous year's total was exceeded by $109,205,795 or 20.7 per cent, and the cumulative value to date has now reached $8,814,069,403.

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

	1971 $	1972 $	Change (Per Cent)
Metals	301,059,951	372,995,661	+23.9
Industrial minerals	21,909,767	25,752,393	+17.5
Structural materials	59,940,333	66,745,698	+11.4
Fuels	145,053,094	171,675,940	+18.4

The outstanding feature of the year was the enormous gain in quantity of copper produced. There were also significant increases in amounts of coal and natural gas and important gains in amounts of molybdenum, asbestos, and sand and gravel. On the other hand there were significant decreases in the quantities produced of iron concentrates, lead, zinc, and crude oil.

The increase in value of total metal production of $71,835,710 or 23.9 per cent was largely due to the increased value of production of copper (despite a further decline in the price of copper) and to a lesser degree to the increased value of gold and molybdenum production. There were significant decreases in value of production of iron concentrates, lead, zinc, tungsten, and mercury.

The increase in total value of industrial minerals of $3,842,626 or 17.5 per cent resulted from gains in all commodities except fluxes. The most significant gain was that of asbestos.

The value of structural materials increased by $6,805,365 or 11.4 per cent very largely as a result of the increase in value of sand and gravel.

The value of fuels produced increased by $26,622,846 or 18.4 per cent as a result of large gains in coal and natural gas production. Both quantity and value of crude oil declined in 1972.

Total value of production will increase further in 1973. It is estimated that the copper production will increase by 30 to 40 per cent in quantity and by 100 per cent in value and that molybdenum production will increase further. The increased copper production will result from a full year's production from the Bell (Newman), Bull River, Gibraltar, Lornex, Similkameen (Ingerbelle), and Sunro mines, and of molybdenum by the resumption of maximum production at Endako mine. Increased prices for gold, silver, and zinc should enhance production of those metals in 1973 and production of coal and natural gas should continue to increase.

Provincial revenue—Direct revenue to the Provincial Government derived from the entire mineral industry in 1972 was as follows:

	$
Free miners' certificates, recording fees, lease rentals, assessment payments, etc.	1,758,526.49
Royalties on iron concentrates	145,225.35

Rentals and royalties on industrial minerals and structural materials	520,446.90
Fifteen-per-cent mining tax	5,686,845.43
Coal licences and annual rentals	184,444.95
Petroleum and natural gas rentals, fees, etc.	8,813,383.00
Sale of Crown reserves	20,495,662.00
Royalties on oil, gas, and processed products	15,469,938.00
Miscellaneous petroleum and natural gas fees	42,775.00
Total	53,117,247.12

Expenditure by the industry—The total expenditures in 1972 by the mineral industry for exploration, development, and production were $631,054,837. Companies involved in the exploration, development, and production of metals, minerals, and coal spent $490,658,837 and companies involved in the exploration and production of petroleum and natural gas spent $140,396,000.

Metal mining—In 1972, 41 mines produced more than 62.52 million tons of ore. Thirteen produced more than one million tons each, of which nine were open-pit mines, and 12 mines produced between 100,000 and one million tons each, of which six were open-pit mines. The 15 open-pit mines produced 53.078 million tons of ore or almost 85 per cent of the total tonnage of ore mined.

Concentrators having a total daily capacity of 95,200 tons were completed at the following seven mines: OK (Alwin), Bell (Newman), Gibraltar, Lornex, Silver Queen (Nadina), Similkameen (Ingerbelle), and Sunro.

During the year, mining operations were terminated by British Columbia Molybdenum Limited at their mine at Alice Arm, OK Syndicate, at their OK (Alwin) mine in the Highland Valley, and by Coast Copper Company Limited at their Old Sport mine at Benson Lake, Vancouver Island.

The Trail smelter treated 1,116 tons of crude ore and 324,906 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 2,088,303 tons of concentrates was shipped to foreign smelters. Of the total metal production of the Province, concentrates representing 56.7 per cent of the total value were shipped to Japanese smelters and 5.7 per cent of the total value was shipped to smelters in the United States.

DESTINATION OF BRITISH COLUMBIA CONCENTRATES IN 1972

Smelters	Lead	Zinc	Copper	Nickel-Copper	Iron	Tungsten
	Tons	Tons	Tons	Tons	Tons	Tons
Trail	142,048	182,848	10	—	—	—
Other Canadian	—	—	28,409	—	83,474	29
United States	2,966	43,141	33,964	—	169,191	511
Japan	—	12,159	761,284	18,994	985,533	202
Other foreign	—	—	42,064	—	18,110	184
Totals	145,014	238,148	865,731	18,994	1,256,308	926

Molybdenum as molybdenite concentrate, molybdic oxide, and ferromolybdenum was shipped mainly to buyers in Europe and Japan.

Exploration and development—The rate of prospecting, mineral exploration, and mine development activities in 1972 is displayed by the following statistics. In

general, claim recordings increased but expenditures on exploration were lower and expenditures on mine development were very much lower in 1972 than in 1971.

Locating of mineral claims was most active in the Kamloops, Liard, and Omineca Mining Divisions. The discovery of zinc-lead mineralization at Robb Lake led to the locating of a large number of claims along the eastern margin of the Rocky Mountains in the Omineca and Liard Mining Divisions. Similarly, intense locating activity resulted from the discovery of copper mineralization in volcanic rocks at the head of the Sustut River, and renewed interest in the area of the Iron Mask batholith east of Kamloops resulted from the favourable exploration of the Afton orebody.

The number of mineral claims recorded in 1972 was 78,901, a 36.5-per-cent increase over 1971. Footage of surface and underground diamond drilling was 413,344 feet, a decrease of 48,447 feet or 10.5 per cent, and of percussion drilling was 164,795 feet, a gain of 82,861 feet or 101.5 per cent.

About 576 geological, geochemical, and geophysical reports were accepted in 1972 by the Department of assessment work credit. They represent approximately $4,100,000 in 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, 1972

	Number of Mines Reporting	Physical Work and Surveys	Administration, Overhead, Land Costs, Etc.	Total
		$	$	$
A. Prospecting and exploration on undeclared mines—				
1. Metal mines	389	28,684,131	9,530,614	38,214,745
2. Coal mines	9	280,972	123,014	403,986
3. Others	5	327,230	120,837	448,067
Totals	403	29,292,333	9,774,465	39,066,798
B. Exploration on declared or operating mines—				
1. Metal mines	17	1,796,535	646,916	2,443,451
2. Coal mines	2	195,395	65,740	261,135
3. Others	—	—	—	—
Totals	19	1,991,930	712,656	2,704,586
C. Development on declared mines—				
1. Metal mines	10	62,281,197	3,435,052	65,716,249
2. Coal mines	3	4,419,879	134,532	4,554,411
3. Others	—	—	—	—
Totals	13	66,701,076	3,569,584	70,270,660
D. Development on operating mines—				
1. Metal mines	26	33,124,424	3,110,672	36,235,096
2. Coal mines	2	15,481,000	—	15,481,000
3. Others	5	5,548,903	25,572	5,574,475
Totals	33	54,154,327	3,136,244	57,290,571
E. Total expenditures on exploration and development—				
1. Metal mines—A(1) + B(1) + C(1) + D(1)	—	125,886,287	16,723,254	142,609,541
2. Coal mines—A(2) + B(2) + C(2) + D(2)	—	20,377,246	323,286	20,700,532
3. Others—A(3) + B(3) + C(3) + D(3)	—	5,876,133	146,409	6,022,542
Grand totals	—	152,139,666	17,192,949	169,332,615

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 1972 by companies involved in the exploration, development, and mining of metals, minerals, and coal were as follows:

		$
Mining operations (metals, minerals, coal)		240,667,327
Mining operations (structural materials)		19,581,875
Repairs expenditures		61,087,020
	$	
Capital expenditures	100,757,109	
Exploration and development	68,565,506	
		169,322,615
		490,658,837

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.

Structural materials and industrial minerals—Exploration work was done on the following industrial mineral showings in British Columbia during 1972: The J asbestos prospect southwest of Letain Lake, barite properties near Mile 548 and Muncho Lake on the Alaska highway and near Atan Lake, the Liard Hot Springs fluorite deposits and another fluorite showing at Muncho Lake. An examination and some drilling were done at the Rexspar fluorite property. Further testing of the diatomite-pozzolan mill at Quesnel resulted in some production. Increasing interest was shown in gravel deposits near Vancouver, and one deposit on the east side of Texada Island was drilled. Further investigation was done on the large magnesite property east of Radium, more diamond-drill holes were drilled to test phosphate beds south of Corbin, and silica was investigated near Golden and Greenwood.

Production continued about normal at established pits and quarries. A new lime-burning kiln went into production at a plant near Port Kells.

Production of asbestos at Cassiar was slightly in excess of 105,000 tons, reflecting a full year's run by their enlarged mill.

Coal mining—The amount of coal mined (clean coal) in British Columbia in 1972 was 6,564,731 short tons. The basis of production statistics was changed in 1972 from "gross production" to "clean coal," and so precise comparison with previous years is not possible. However, the production of "raw coal" in 1972, which is broadly equivalent to gross production, was 9,053,357 tons, that is to say approximately double the previous year's production, and by far the greatest amount of coal ever produced in one year in the Province.

Total shipment of coking coal to Japan during the year was 5,695,028 tons.

Five companies produced coal during the year, and their production was as follows: Kaiser Resources Ltd., 5,352,590 tons; Fording Coal Limited, 1,141,452 tons; Coleman Collieries Limited, 58,213 tons; Coalition Mining Limited, 12,000 tons; Bulkley Valley Coal Sales Ltd., 476 tons.

The largest coal-producing company is Kaiser Resources Ltd. This company conducts large open-pit operations on Harmer Ridge, near Sparwood, and two underground mines in the same vicinity. Production of raw coal was as follows:

Underground, 1,029,608 tons; open pit, 5,277,677 tons; total, 6,307,285 tons. After processing through the Elkview coal-preparation plant, this yielded 5,352,590 tons of clean coal. A total of 4,536,499 tons was shipped to Japan during the year. The company continued its exploration activities in various parts of the Crowsnest coal lands.

In 1972 a second major coal company, Fording Coal Limited, came into production. The company, a subsidiary of Cominco Ltd., operates a large open-pit mine in the Fording River valley, 30 miles north of Sparwood. The first production was recorded in February, and by the year-end a total of 2,659,418 tons of raw coal had been mined. After processing through the coal-preparation plant, this yielded 1,141,452 tons of clean coal. A total of 1,100,316 tons was shipped to Japan during the year. When in full production this company is committed to ship 3,000,000 long tons of coal per year to Japan.

Coleman Collieries Ltd. was a relatively minor producer in British Columbia. The production of 58,213 tons came from a portion of the Tent Mountain open-pit mine which straddles the British Columbia-Alberta border.

Except for a few hundred thousand tons sold to domestic, United States, and a few other foreign customers, all the above coal production was shipped to Japan as part of long-term contracts. The coal was hauled to the Coast in unit trains of 10,000 tons capacity and loaded into ships at Roberts Bank.

The 12,000 tons of coal produced by Coalition Mining Limited was for testing purposes.

There was a somewhat lessened interest in coal exploration in 1972. Only 77 new coal licences were taken out in the year, whereas 331 were forfeited. However, 1,759 licences were maintained in good standing covering 1,004,183 acres, a reduction 16.6 per cent on the acreage held at the end of 1971.

Exploration work in the East Kootenay coalfield was limited to Kaiser Resources Ltd. and to Rio Tinto Canadian Exploration Limited, who have been exploring in the Dally Hill-Cabin Creek area in the Flathead district.

There has been considerable exploration activity, principally by Utah Mines Ltd., Coalition Mining Limited, Teck Corporation Ltd., and Denison Mines Limited in the northeastern coalfield, extending along the eastern foothills of the Rocky Mountains from the Alberta border south of Narraway River for over 200 miles to north of Halfway River. The property most advanced in exploration is the Sunkunka, where Coalition Mining Limited initiated a trial mining and development programme and drove a series of entries into the Chamberlain seam. This project, which continued into 1973, is extended to provide direct information on mining conditions prior to making a final production decision. A reserve of at least 65,000,000 tons of high-grade coking coal is indicated by fairly close drilling and outcrop tracing of the Chamberlain seam between Chamberlain and Skeeter Creeks.

Denison Mines Limited continued to drive test adits and diamond-drill holes on Babcock Mountain south of Murray River.

Utah Mines Ltd. for the third successive season carried out exploration work imediately south of Williston Lake and the Peace River in the Carbon Creek and east Mount Gething areas.

Petroleum and natural gas—The value of production of the petroleum industry in 1972 amounted to $105,644,978, up 6 per cent from 1971. Crude-oil production was 23,831,444 barrels, down 5 per cent. The major oil-producing fields, all under active water-flood programmes, were Boundary Lake, Peejay, Inga, and Milligan Creek.

Natural gas delivered to pipe-lines was 379,969,499 MSCF, an increase of 30 per cent, and the value to gas producers was $41,616,824. The major gas-producing fields were Clarke Lake, Yoyo, and Beaver River, all located in the northern part of the productive area.

Footage drilled increased to 1,142,950 feet, an increase of 15 per cent over 1971. All the drilling operations were conducted in the northeastern corner of the Province, except one abandonment near Prince George and a wildcat venture in the Bowser Basin which was still drilling at year-end.

Interesting gas exploration was being undertaken in the Grizzly Valley area about 60 miles south of Dawson Creek. Two wells indicated important gas finds and three were actively drilling at the end of 1972.

Additional production and transportation facilities were completed in the Fort Nelson area to provide increased throughput of gas from this area.

Expenditures in 1972 by companies involved in the exploration and production of petroleum and natural gas were:

	$
Exploration, land acquisition, and drilling	74,337,000
Development drilling	9,260,000
Capital expenditures	15,066,000
Natural gas plant operations	5,211,000
Field, well, and pipe-line operations	14,938,000
General (excluding income tax)	21,584,000
Total	140,396,000

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.

METHOD 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 1972 this was $57.517 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, concentrate, 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, 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* Tables 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 as 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 Merritt 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 1972 was 467.0 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 1972, oil was produced from 33 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. One plant to process the material locally was built in Quesnel in 1969 and a new one to replace it was completed in 1970. *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 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 Granite Creek in the Tulameen in 1886. 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 has declined under conditions of steadily rising costs and a fixed price for gold. 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 Westminster 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 tribu-

taries, 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 85 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 Tusequah, 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 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 them 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, and 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 950,000,000 cubic feet. In 1972 there were 42 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.

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 1972 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 allotted 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.

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 or 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 „	12.890 „	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 „	50.022 „	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 „	58.6982	16.336 „	16.006 „	7.40
1971	26.25	35.34	155.965 „	46.6962	13.950 „	16.286 „	10.03
1972	38.94	57.52	166.324 „	44.8392	14.876 „	15.579 „	10.96

[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, 1971	Value, 1971	Quantity, 1972	Value, 1972
Metals		$		$		$
Antimony lb.	53,569,508	17,543,869	323,525	243,614	679,601	419,042
Bismuth lb.	6,922,796	14,463,399	82,521	388,674	93,820	324,617
Cadium lb.	41,153,874	76,098,687	1,036,713	2,011,223	695,650	1,759,995
Chromite tons	796	32,295				
Cobalt lb.	271,014	259,258	113,545	103,099	155,739	155,739
Copper lb.	5,007,309,980	1,452,549,267	280,619,150	131,037,918	467,012,694	209,403,822
Gold—placer oz.	5,236,276	96,988,949	177	4,647	691	26,905
—lode, fine oz.	17,233,886	513,842,781	85,781	3,031,844	121,624	6,995,448
Iron concentrates tons	29,492,096	269,525,985	1,929,868	18,153,612	1,256,308	12,604,409
Lead lb.	16,271,392,718	1,411,548,450	248,827,301	34,711,408	194,249,571	28,896,566
Magnesium lb.	204,632	88,184				
Manganese tons	1,724	32,668				
Mercury[2] lb.	4,171,110	10,447,358				
Molybdenum lb.	169,561,242	284,617,746	21,884,729	36,954,846	28,041,603	43,261,210
Nickel lb.	47,465,767	45,572,116	2,543,578	3,497,420	3,240,483	4,601,486
Palladium oz.	749	30,462				
Platinum oz.	1,407	135,008				
Selenium lb.	731	1,389				
Silver oz.	499,861,801	376,662,453	7,673,546	11,968,046	6,926,036	11,519,660
Tin lb.	18,855,025	17,094,227	318,999	421,079	351,043	473,908
Tungsten (WO_3) lb.	18,628,328	43,843,954	1,335,808	3,012,540	1,273,196	2,167,663
Zinc lb.	14,994,858,109	1,486,803,434	305,451,243	49,745,789	268,347,996	47,172,894
Others		42,861,359		5,774,192		3,212,297
Totals		6,161,043,298		301,059,951		372,995,661
Industrial Minerals						
Arsenious oxide lb.	22,019,420	273,201				
Asbestos tons	1,118,132	218,102,692	87,118	17,800,406	105,807	20,870,241
Barite tons	439,158	4,489,307	21,267	179,455	44,237	395,289
Bentonite tons	791	16,858				
Diatomite tons	11,143	280,068	1,550	37,830	875	40,346
Fluorspar tons	35,682	795,950				
Fluxes tons	4,142,671	7,733,576	26,740	98,426	31,600	59,246
Granules tons	456,014	7,286,241	29,238	519,192	37,158	757,924
Gypsum and gypsite tons	4,818,401	16,443,448	344,795	930,348	388,315	1,087,196
Hydromagnesite tons	2,253	27,536				
Iron oxide and ochre tons	18,108	155,050				
Jade lb.	1,007,879	963,220	167,760	196,332	243,725	235,218
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	7,881,634	99,988,030	288,467	2,147,778	297,707	2,306,933
Talc tons	1,805	34,871				
Others		5,213				
Totals		357,191,826		21,909,767		25,752,393
Structural Materials						
Cement tons	14,751,453	256,451,810	906,467	21,629,385	890,926	21,014,112
Clay products		88,937,117		5,981,785		5,263,749
Lime and limestone tons		60,101,459	1,819,549	3,037,222	2,026,309	3,357,927
Rubble, riprap, crushed rock tons		57,614,433	3,668,244	3,670,583	3,321,764	4,032,548
Sand and gravel tons		312,104,198	29,320,104	25,612,396	34,826,518	33,076,196
Building-stone tons	1,164,515	9,216,931	2,267	8,962	194	1,166
Not assigned		5,972,171				
Totals		790,398,119		59,940,333		66,745,698
Fuels						
Coal tons	155,680,542	748,115,691	4,565,242	45,801,936	6,026,198	66,030,210
Crude oil bbl.	208,246,758	480,219,321	25,154,122	66,471,856	23,831,144	63,166,717
Field condensate bbl.	614,844	1,501,047	109,008	287,781	104,531	277,069
Plant condensate bbl.	12,935,848	6,285,149	1,114,139	293,287	1,018,012	327,820
Nat'l gas to pipe-line MSCF	2,563,398,508	266,131,706	291,188,481	31,946,372	379,969,499	41,616,824
Butane bbl.	5,642,046	1,802,897	318,195	101,822	340,904	106,533
Propane bbl.	4,324,851	1,380,349	468,876	150,040	480,047	150,015
Totals		1,505,436,160		145,053,094		171,675,188
Grand totals		8,814,069,403		527,963,145		637,168,940

[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, 1836–1972

Year	Metals	Industrial Minerals	Structural Materials	Fuels	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	2,275,872	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, 1836–1972—*Continued*

Year	Metals	Industrial Minerals	Structural Materials	Fuels	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	13,585,038	9,528,279	152,841,695
1954	123,834,286	5,504,114	14,395,174	9,161,089	152,894,663
1955	142,609,585	6,939,490	15,299,264	9,005,111	173,853,360
1956	149,441,246	9,172,792	20,573,631	9,665,983	188,853,652
1957	125,353,920	11,474,050	25,626,939	8,537,920	170,992,829
1958	104,251,112	9,958,768	19,999,576	10,744,093	144,953,549
1959	105,076,530	12,110,286	19,025,209	11,439,192	147,651,217
1960	130,304,373	13,762,102	18,829,989	14,468,869	177,365,333
1961	128,565,774	12,948,308	19,878,921	18,414,318	179,807,321
1962	159,627,293	14,304,214	21,366,265	34,073,712	229,371,484
1963	172,852,866	16,510,898	23,882,190	42,617,633	255,863,587
1964	180,926,329	16,989,469	26,428,939	42,794,431	267,139,168
1965	177,101,733	20,409,649	32,325,714	50,815,252	280,652,348
1966	208,664,003	22,865,324	43,780,272	60,470,406	335,780,005
1967	235,865,318	29,364,065	44,011,488	74,141,627	383,382,498
1968	250,912,026	26,056,782	45,189,476	82,870,204	405,028,488
1969	294,881,114	20,492,943	55,441,528	93,573,164	464,388,749
1970	309,981,470	22,020,359	46,104,071	110,534,136	488,640,036
1971	301,059,951	21,909,767	59,940,333	145,053,094	527,963,145
1972	372,995,661	25,752,393	66,745,698	171,675,188	637,168,940
Totals	6,161,043,298	357,191,826	790,398,119	1,505,436,160	8,814,069,403

TABLE 3—MINERAL PRODUCTION FOR THE 10 YEARS, 1963–1972

Description	1963		1964		1965		1966		1967	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Metals										
Antimony lb.	1,601,253	$ 624,489	1,591,523	$ 700,270	1,301,787	$ 689,947	1,405,681	$ 745,011	1,267,686	$ 671,874
Bismuth lb.	157,099	348,760	213,428	480,213	144,630	446,907	47,435	198,848	142,507	572,878
Cadmium lb.	1,981,004	4,754,410	1,864,255	6,040,186	466,586	1,297,110	1,169,570	3,017,491	994,365	2,784,222
Copper lb.	118,247,104	36,238,007	115,554,700	38,609,136	85,197,073	32,696,081	105,800,568	36,438,255	172,739,548	88,135,172
Gold—placer oz.	4,620	135,411	1,842	55,191	866	25,053	1,535	44,632	891	25,632
" —lode, fine oz.	154,979	5,850,458	138,487	5,227,884	117,124	4,419,089	119,508	4,506,646	126,157	4,763,688
Iron concentrates tons	2,060,241	20,746,424	2,002,562	20,419,487	2,165,403	21,498,581	2,151,804	20,778,934	2,154,443	20,820,765
Lead lb.	314,974,310	37,834,714	268,737,503	39,402,293	250,183,633	43,149,171	211,490,107	34,436,934	208,131,894	31,432,079
Mercury lb.			5,548	22,848	1,520	12,301			380	2,600
Molybdenum lb.			28,245	47,063	7,289,125	12,405,344	17,094,927	27,606,061	17,517,543	31,183,064
Nickel lb.	3,699,402	3,107,498	3,398,560	2,854,790	3,322,000	2,790,480	3,187,712	2,731,869	4,180,842	3,946,715
Platinum oz.	2	150								
Silver oz.	6,422,680	8,861,050	5,269,642	7,348,938	4,972,084	6,929,793	5,549,131	7,729,939	6,180,739	10,328,695
Tin lb.	927,062	648,943	352,350	535,572	377,207	735,554	710,752	1,130,096	437,804	621,682
Zinc lb.	402,863,154	53,069,163	400,796,562	58,648,561	311,249,250	48,666,933	305,124,440	47,666,540	262,830,908	39,248,539
Others		633,389		533,897		1,339,389		1,632,747		1,327,713
Totals		172,852,866		180,926,329		177,101,733		208,664,003		235,865,318
Industrial Minerals										
Asbestos tons	63,215	11,681,337	67,460	11,714,494	85,851	14,491,195	88,771	15,718,741	92,192	18,273,220
Barite tons	8,207	69,588	10,588	119,370	17,466	182,931	21,888	176,240	23,466	176,882
Diatomite tons	458	16,030	1,143	64,555	82	4,420	70	3,755	2,819	14,096
Fluorspar tons					70	2,419	152	4,986	80	2,464
Fluxes (quartz, limestone) tons	60,490	223,012	73,021	237,298	59,231	240,076	23,913	112,314	48,052	221,212
Granules (quartz, limestone, granite) tons	19,444	348,543	19,289	397,639	29,033	447,954	23,956	424,667	31,283	305,655
Gypsum and gypsite tons	160,954	482,862	188,303	581,873	207,858	602,788	206,026	576,873	230,044	691,592
Jade lb.	16,000	15,529	11,537	13,804	7,129	9,249	11,633	13,225	20,160	24,341
Sulphur tons	254,197	3,673,997	278,385	3,860,436	341,873	4,428,617	342,478	5,834,523	314,490	9,654,603
Totals		16,510,898		16,989,469		20,409,649		22,865,324		29,364,065
Structural Materials										
Cement tons	476,071	8,546,768	537,396	10,040,776	601,878	11,199,607	707,519	12,918,301	709,977	13,581,850
Clay products		2,824,583		3,008,158		3,899,634		4,100,192		3,945,207
Lime and limestone tons	907,203	1,723,796	1,211,320	2,055,195	1,420,085	2,482,451	1,483,949	2,696,011	1,645,253	2,822,138
Rubble, riprap, crushed rock tons	1,913,906	1,259,002	1,449,449	1,285,318	2,715,411	1,938,088	1,590,189	1,890,992	2,287,407	2,967,195
Sand and gravel tons	17,387,026	9,514,095	17,708,225	10,013,970	20,936,994	12,686,959	24,320,013	21,959,733	23,210,746	20,643,673
Building-stone tons	1,827	13,946	846	25,522	2,252	118,975	76,720	215,043	3,577	51,425
Totals		23,882,190		26,428,939		32,325,714		43,780,272		44,011,488
Fuels										
Coal—sold and used tons	850,541	6,237,997	911,326	6,327,678	950,763	6,713,590	850,821	6,196,219	908,790	7,045,341
Crude oil bbl.	12,515,137	24,900,381	11,525,476	23,396,716	13,470,757	28,693,662	16,638,181	36,268,683	19,656,799	44,748,477
Field condensate bbl.	13,671	27,205	26,367	63,436	31,782	70,874	39,571	86,265	40,570	92,357
Plant condensate bbl.	841,740	536,193	922,211	587,685	947,429	576,107	974,564	312,360	1,016,045	267,941
Natural gas delivered to pipe-line MSCF	105,525,373	10,719,298	118,959,880	12,192,816	138,814,144	14,493,255	161,264,334	17,339,587	198,626,177	21,667,136
Butane bbl.	409,087	130,908	461,759	147,763	477,990	152,956	500,973	160,312	588,118	188,197
Propane bbl.	205,162	65,651	244,804	78,337	358,776	114,808	334,315	106,980	413,058	132,178
Totals		42,617,633		42,794,431		50,815,252		60,470,406		74,141,627
Grand totals		255,863,587		267,139,168		280,652,348		335,780,005		383,382,498

Description	1968		1969		1970		1971		1972	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Metals		$		$		$		$		$
Antimony lb.	1,159,960	614,779	820,122	508,476	726,474	1,104,040	323,525	243,614	679,601	419,042
Bismuth lb.	207,783	868,533	62,488	288,070	132,135	828,486	82,521	388,674	93,820	324,617
Cadmium lb.	1,341,437	3,823,095	1,141,133	4,016,788	939,310	3,343,944	1,036,713	2,011,223	695,650	1,759,995
Cobalt lb.							113,545	103,099	155,739	155,739
Copper lb.	160,993,338	87,284,148	167,415,411	111,592,416	212,371,731	124,657,958	280,619,150	131,037,918	467,012,694	209,403,822
Gold—placer oz.	670	19,571	399	11,720	491	14,185	177	4,647	691	26,905
„ —lode, fine oz.	123,896	4,672,242	117,481	4,427,506	100,809	3,685,476	85,781	3,031,844	121,624	6,995,448
Iron concentrates tons	2,094,745	21,437,569	2,074,854	19,787,845	1,879,065	17,391,883	1,929,868	18,153,612	1,256,308	12,604,409
Lead lb.	231,627,618	32,782,257	210,072,565	33,693,539	214,838,525	35,096,021	248,827,301	34,711,408	194,249,571	28,896,566
Molybdenum lb.	19,799,793	32,552,722	26,597,477	47,999,442	31,276,497	52,561,796	21,884,729	36,954,846	28,041,603	43,261,210
Nickel lb.	3,317,160	3,372,225	2,979,130	3,396,208	3,408,203	4,703,320	2,543,578	3,497,420	3,240,483	4,601,486
Silver oz.	7,130,866	16,475,795	5,760,534	11,100,491	6,511,316	12,041,181	7,673,546	11,968,046	6,926,036	11,519,660
Tin lb.	358,191	497,885	288,427	470,136	263,716	421,946	318,999	421,079	351,043	473,908
Tungsten (WO_3) lb.							1,335,808	3,012,540	1,273,196	2,167,663
Zinc lb.	299,396,264	43,550,181	296,667,033	46,639,024	275,590,749	44,111,055	305,451,243	49,745,789	268,347,996	47,172,894
Others		2,961,024		10,949,453		10,020,179		5,774,192		3,212,297
Totals		250,912,026		294,881,114		309,981,470		301,059,951		372,995,661
Industrial Minerals										
Asbestos tons	74,667	14,833,891	80,388	14,871,334	86,730	16,033,827	87,118	17,800,406	105,807	20,870,241
Barite tons	21,968	164,206	30,624	248,818	45,320	382,508	21,267	179,455	44,237	395,289
Diatomite tons	856	17,159			1,276	26,567	1,550	37,830	875	40,346
Fluorspar tons	39	1,117								
Fluxes (quartz, limestone) tons	42,259	157,679	22,342	81,917	31,626	106,533	26,740	98,426	31,600	59,246
Granules (quartz, limestone, granite) tons	30,237	436,928	34,746	654,701	22,349	526,491	29,238	519,192	37,158	757,924
Gypsum and gypsite tons	246,374	689,847	280,894	764,032	270,266	736,635	344,795	930,348	388,315	1,087,196
Jade lb.	49,015	105,670	26,332	42,635	262,602	250,256	167,760	196,332	243,725	235,218
Sulphur tons	320,521	9,650,285	349,122	3,824,593	336,420	3,957,542	288,467	2,147,778	297,707	2,306,933
Others				4,913						
Totals		26,056,782		20,492,943		22,020,359		21,909,767		25,752,393
Structural Materials										
Cement tons	656,363	13,634,166	795,591	16,604,688	601,893	13,485,549	906,467	21,629,385	890,926	21,014,112
Clay products		4,388,505		4,550,546		4,714,368		5,981,785		5,263,749
Lime and limestone tons	2,016,892	3,337,277	1,911,881	3,237,032	1,867,586	3,204,076	1,819,549	3,037,222	2,026,309	3,357,927
Rubble, riprap, crushed rock tons	3,385,712	3,524,439	3,756,559	4,456,211	2,692,282	3,018,242	3,668,244	3,670,583	3,321,764	4,032,548
Sand and gravel tons	22,665,961	20,271,723	29,132,560	26,553,699	23,155,989	21,679,387	29,320,104	25,612,396	34,826,518	33,076,196
Building-stone tons	1,654	33,366	2,177	39,352	175	2,449	2,267	8,962	194	1,166
Totals		45,189,476		55,441,528		46,104,071		59,940,333		66,745,698
Fuels										
Coal—sold and used tons	959,214	7,588,989	852,340	6,817,155	2,644,056	19,559,669	4,565,242	45,801,936	6,026,198	66,030,210
Crude oil bbl.	22,151,353	50,082,837	25,309,036	58,176,213	25,333,550	60,405,941	25,154,122	66,471,856	23,831,144	63,166,717
Field condensate bbl.	54,163	122,408	78,147	180,520	107,254	277,829	109,008	287,781	104,531	277,069
Plant condensate bbl.	960,252	247,455	944,111	263,278	1,003,138	253,009	1,144,139	293,287	1,018,012	327,820
Natural gas delivered to pipe-line MSCF	224,233,203	24,531,445	256,223,244	27,897,585	272,554,221	29,804,411	291,188,481	31,946,372	379,969,499	41,616,824
Butane bbl.	527,546	168,814	417,540	133,613	308,664	98,772	318,195	101,822	340,904	106,533
Propane bbl.	400,800	128,256	327,501	104,800	420,327	134,505	468,876	150,040	480,047	150,015
Totals		82,870,204		93,573,164		110,534,136		145,053,094		171,675,188
Grand totals		405,028,488		464,388,749		488,640,036		527,963,145		637,168,940

TABLE 4—MINERAL PRODUCTION, GRAPH OF VALUE, 1887–1972

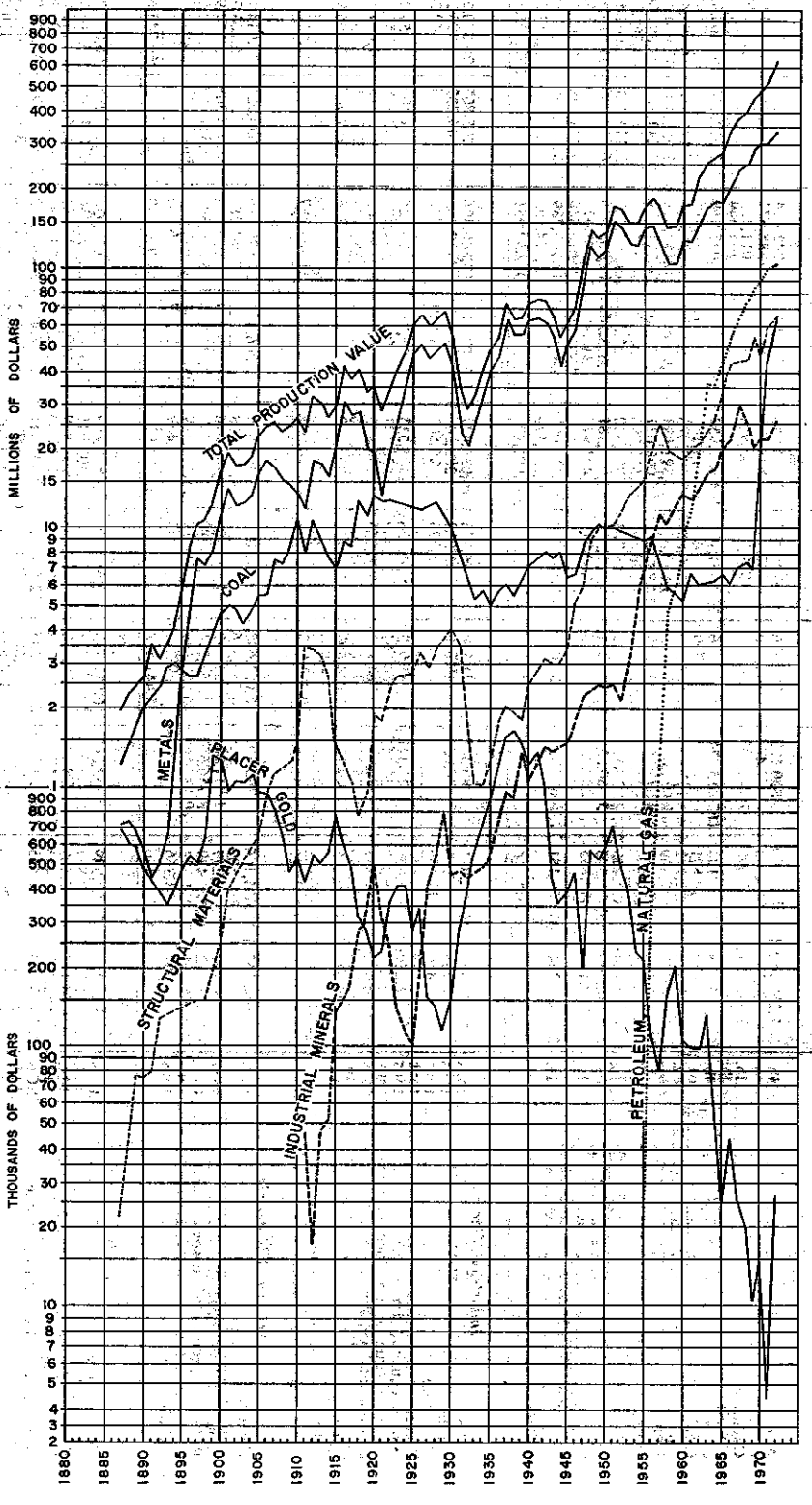


TABLE 5—PRODUCTION OF GOLD, SILVER, COPPER, LEAD, ZINC, AND MOLYBDENUM, GRAPH OF QUANTITIES, 1893–1972

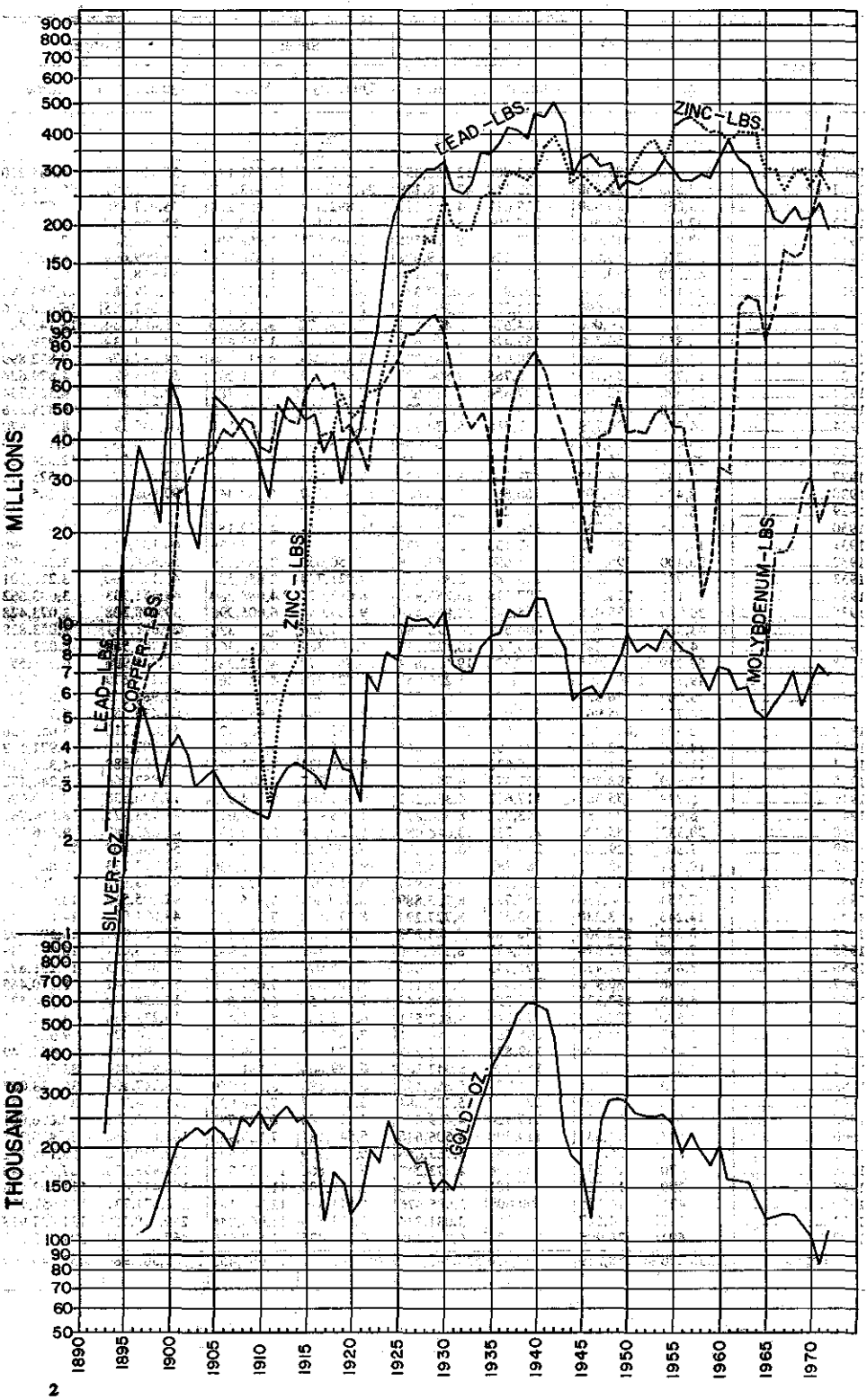


TABLE 6—PRODUCTION OF GOLD, SILVER, COPPER, LEAD, ZINC, MOLYBDENUM, AND IRON CONCENTRATES, 1858–1972

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
Totals	5,236,276	96,988,949	17,233,886	513,842,781	499,861,801	376,662,453	5,007,309,980	1,452,549,267

TABLE 6—PRODUCTION OF GOLD, SILVER, COPPER, LEAD, ZINC, MOLYBDENUM, AND IRON CONCENTRATES, 1858-1972—*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	9,017,005				
1931	261,902,228	7,097,812	202,071,702	5,160,911				
1932	252,007,574	5,326,432	192,120,091	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	45,482,505	334,124,560	34,805,755			535,746	3,733,891
1955	302,567,640	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	1,879,065	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	43,261,210	1,256,308	12,604,409
Totals	16,271,392,718	1,411,548,450	14,994,858,109	1,486,803,434	169,561,242	284,617,746	29,492,096	269,525,985

TABLE 7A—MINERAL PRODUCTION BY MINING

Division	Period	Placer Gold		Metals	Industrial Minerals	Structural Materials
		Quantity	Value			
		Oz.	$	$	$	$
Alberni	1971			13,592,004		432,472
	1972			13,346,043		253,026
	To date	1,617	33,253	144,505,222	9,398	4,288,706
Atlin	1971	4	141			3,375
	1972	66	1,848	15		
	To date	735,880	17,390,960	38,047,207	20,325	338,241
Cariboo	1971	148	3,781	2,734,101	37,880	3,150,193
	1972	505	21,066	33,965,284	40,346	3,511,618
	To date	2,611,006	54,187,492	105,983,897	423,548	23,711,064
Clinton	1971					270,282
	1972					773,614
	To date	10,171	243,069	848,377	162,427	3,575,486
Fort Steele	1971			64,189,929	609,564	581,641
	1972			65,467,594	676,439	610,689
	To date	20,531	468,450	2,290,605,183	19,478,684	9,166,933
Golden	1971			1,017,942	1,109,803	246,673
	1972				1,482,435	163,141
	To date	469	11,268	63,472,679	14,306,575	3,564,286
Greenwood	1971			7,765,475		175,325
	1972			6,605,215		250,704
	To date	5,074	115,662	194,913,340	2,327,897	2,186,658
Kamloops	1971			25,096,722		4,476,797
	1972			38,791,982		5,166,348
	To date	27,595	604,785	213,502,296	6,540,538	28,574,775
Liard	1971			6,183,725	18,224,832	1,375,835
	1972	112	3,732	15	21,182,310	1,289,689
	To date	50,296	1,251,883	11,236,439	234,054,854	11,764,196
Lillooet	1971			713,090	102,900	164,244
	1972				142,800	62,059
	To date	92,946	1,925,688	148,167,256	465,895	3,248,863
Nanaimo	1971			16,997,484	168,196	4,109,496
	1972			43,998,994	141,336	4,252,048
	To date	866	19,300	256,433,175	1,815,352	68,508,074
Nelson	1971			8,685,162	281,843	550,212
	1972			7,076,391	506,465	642,908
	To date	3,586	89,026	354,334,512	2,218,428	7,476,417
New Westminster	1971			4,512,143	52,330	14,107,989
	1972			5,752,173	80,000	14,849,901
	To date	31,355	595,910	55,455,930	1,611,625	174,940,412
Nicola	1971			18,768,216		293,023
	1972			21,296,589		266,451
	To date	234	4,764	224,959,502	10,050	1,914,414
Omineca	1971	25	725	27,441,963	85,660	1,158,738
	1972			34,330,377	88,729	1,096,719
	To date	56,431	1,503,680	288,045,572	448,907	12,821,968
Osoyoos	1971			25,225,679	73,019	447,910
	1972			33,895,391	89,159	718,952
	To date	240	5,466	141,169,838	6,512,982	3,818,598
Revelstoke	1971			1,615,109		194,583
	1972			1,029,821		153,939
	To date	7,582	164,477	14,961,357		2,908,317
Similkameen	1971					121,785
	1972			9,975,651		81,535
	To date	45,507	878,204	130,173,851	18,558	4,231,918
Skeena	1971			42,949,118		1,738,301
	1972			33,266,658		1,867,340
	To date	4,603	105,569	394,332,981	1,240,215	17,001,410
Slocan	1971			10,054,179		106,916
	1972			1,798,497		80,129
	To date	366	9,397	274,791,277		2,019,418
Trail Creek	1971			950,304		139,259
	1972			524,403		270,434
	To date	851	24,260	96,286,718		3,595,621
Vancouver	1971			8,042,080		10,132,873
	1972			8,838,521		10,010,701
	To date	182	5,306	276,454,663	7,066,964	133,782,806
Vernon	1971			3,482	42,000	805,641
	1972					1,140,785
	To date	2,732	72,885	335,113	55,478	7,860,985
Victoria	1971				230	13,492,425
	1972			321,993	210	14,477,864
	To date	628	15,680	17,069,526	189,871	214,585,799
Not assigned	1971			14,716,797	1,121,560	1,664,340
	1972	8	259	12,628,099	1,322,114	4,755,129
	To date	1,525,528	17,262,515	933,968,438	58,218,255	44,512,704
Totals	1971	177	4,647	301,055,304	21,909,767	59,940,333
	1972	691	26,905	372,968,756	25,752,393	66,745,698
	To date	5,236,276	96,988,949	6,064,054,349	357,191,826	790,398,119

DIVISIONS, 1971 AND 1972, AND TOTAL TO DATE

Fuels								Division Total
Coal		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.	$	$
								14,024,476
								13,599,069
								148,836,579
								3,516
								1,393
								55,796,733
								5,925,905
								37,538,314
290	1,100							184,307,101
								270,282
								773,614
								4,829,359
4,565,242	45,801,936							111,183,070
6,014,035	65,909,040							132,663,762
73,179,454	412,037,498							2,731,756,798
								2,374,423
								1,645,628
								81,354,808
								7,940,860
								6,856,019
								199,543,557
								29,573,519
								43,958,330
15,087	59,765							249,282,159
		26,377,269	67,052,924	291,188,481	31,946,372	787,071	251,862	125,035,550
11,687	116,870	24,953,687	63,771,606	379,969,499	41,616,824	820,951	256,548	128,237,594
111,120	816,391	221,797,450	488,005,517	2,563,398,508	266,131,706	9,966,897	3,183,246	1,016,444,232
								980,234
								204,859
								153,807,702
								21,275,176
								48,392,378
74,824,471	301,144,744							627,920,645
								9,517,217
								8,224,759
								364,118,383
								18,472,462
								20,682,074
								232,603,877
								19,061,289
								21,562,990
2,929,584	11,080,836							237,969,566
								28,687,086
476	4,300							35,520,125
501,936	3,416,508							306,236,635
								25,746,608
								34,703,502
1,122	5,008							151,511,892
								1,809,692
								1,183,760
								18,034,151
								121,785
								10,057,186
4,617,442	19,553,725							154,856,256
								44,687,419
								35,133,998
36	116							412,680,291
								10,161,095
								1,878,626
								276,820,092
								1,090,168
								794,837
								93,906,599
								18,174,953
								13,849,222
								417,309,739
								851,123
								1,140,765
								8,324,461
								13,492,655
								14,860,067
								231,860,876
								17,502,697
								13,705,601
								453,956,912
4,565,242	45,801,936	26,377,269	67,052,924	291,188,481	31,946,372	787,071	251,862	527,963,145
6,026,198	66,030,210	24,953,687	63,771,606	379,969,499	41,616,824	820,951	256,548	637,168,940
155,680,542	748,115,691	221,797,450	488,005,517	2,563,398,508	266,131,706	9,966,897	3,183,246	8,814,069,403

TABLE 7B—PRODUCTION OF LODE GOLD, SILVER, COPPER, LEAD, AND ZINC BY MINING DIVISIONS, 1971 AND 1972, 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	1971	12,422	439,044	488,130	761,812	12,191,571	5,692,976	2,270,943	316,797	37,539,227	6,118,639	13,328,768
	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**
	To date	379,411	14,416,323	2,951,377	5,200,710	70,955,102	37,177,914	9,157,327	1,348,743	218,032,128	34,438,166	92,581,856
Atlin	1971											
	1972			**9**	**15**							**15**
	To date	344,197	12,126,782	3,877,136	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	1971			14	22							22
	1972			**62**	**103**	**73,184,560**	**32,815,225**					**32,815,328**
	To date	1,202,251	43,347,296	146,975	109,369	73,186,912	32,816,145	24,855	3,772	505	19	76,276,601
Clinton	1971											
	1972											
	To date	23,390	827,328	31,586	14,237	57,548	5,905	193	7			847,477
Fort Steele	1971	181	6,597	3,476,343	5,421,879			199,424,170	27,819,671	178,171,400	29,016,995	62,264,942
	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**
	To date	8,901	310,661	248,357,416	177,225,289	4,298,258	1,920,666	13,642,935,612	1,143,314,887	10,244,790,165	928,023,681	2,250,795,184
Golden	1971	92	3,252	69,576	108,514			506,431	70,647	5,130,354	835,529	1,017,942
	1972											
	To date	311	9,925	4,324,709	3,867,103	1,171,455	367,261	256,101,194	25,618,248	331,821,592	32,454,327	62,311,864
Greenwood	1971	15,005	530,337	758,898	1,183,615	12,661,387	5,912,361	500,986	69,888	400,976	65,303	7,761,504
	1972	**15,847**	**911,472**	**761,240**	**1,266,125**	**9,513,777**	**4,265,882**	**520,873**	**77,485**	**442,438**	**77,776**	**6,598,740**
	To date	1,337,737	32,246,265	42,309,097	34,013,297	560,455,734	123,768,438	24,196,852	2,444,781	23,838,295	2,249,810	194,722,586
Kamloops	1971			150,920	235,382	53,240,834	24,861,340					25,096,722
	1972	**1,776**	**102,150**	**309,449**	**514,688**	**85,136,686**	**38,174,439**	**2,968**	**442**	**736**	**129**	**38,791,848**
	To date	66,501	2,343,873	1,840,820	2,811,261	423,295,742	208,031,476	541,065	45,472	438,759	29,955	213,262,037
Liard	1971			50	78	13,241,813	6,183,397	498	69	1,114	181	6,183,725
	1972			**9**	**15**							**15**
	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	1971	20,021	707,622	3,506	5,468							713,090
	1972											
	To date	4,185,568	147,358,931	987,967	719,635	400	41	62,513	2,548	15	2	148,081,157
Nanaimo	1971	9,825	347,255	110,270	171,983	21,279,304	9,936,584					10,455,822
	1972	**44,458**	**2,557,091**	**268,327**	**446,291**	**76,965,707**	**34,510,654**					**37,514,036**
	To date	278,632	10,090,376	2,056,995	2,663,441	241,567,819	104,437,855					117,191,672
Nelson	1971	411	14,526	359,163	560,169			2,932,613	409,100	25,980,218	4,231,188	5,214,933
	1972			**279,126**	**464,254**			**1,532,786**	**228,017**	**21,192,454**	**3,725,421**	**4,417,692**
	To date	1,341,282	41,999,127	10,099,721	7,986,143	14,915,405	1,689,196	499,858,051	63,580,135	1,366,417,995	182,366,539	297,621,140
New Westminster	1971	6	212	2	3	1,523,490	711,409					711,624
	1972					**2,218,935**	**994,948**					**994,948**
	To date	4,472	114,376	15,119	7,729	22,276,751	9,501,271	28,425	1,119	12,755	481	9,624,976
Nicola	1971	753	26,614			89,339,382	18,369,918					18,396,532
	1972					**46,064,025**	**20,654,649**					**20,654,649**
	To date	9,931	285,391	276,453	135,632	509,766,603	223,170,843	2,241,499	91,282	323,889	10,977	223,694,125
Omineca	1971	10,542	372,597	123,690	192,918	22,973,282	10,727,604	130,278	18,174	148,298	24,152	11,335,440
	1972	**17,118**	**984,576**	**262,542**	**436,670**	**31,154,210**	**13,969,236**	**278,042**	**41,510**	**2,352,634**	**413,570**	**15,845,562**
	To date	107,552	4,185,811	10,630,329	9,508,940	155,622,406	80,929,128	29,704,354	3,807,011	35,284,877	4,522,358	102,948,246

		Oz.	$	Oz.	$	Lb.	$	Lb.	$	Lb.	$	$
Osoyoos	1971	4,984	176,154	328,686	512,635	36,207,295	16,607,358					17,596,147
	1972	4,270	245,598	280,779	467,003	32,742,731	14,681,513					15,394,114
	To date	1,673,875	51,047,810	3,545,196	6,151,034	97,087,816	46,853,929	539,811	67,106	238,970	34,797	104,154,676
Revelstoke	1971											
	1972											
	To date	87,300	1,069,260	4,109,297	2,769,163	153,686	51,037	36,077,602	3,858,082	27,127,076	3,311,895	11,059,387
Similkameen	1971											
	1972	14,482	332,861	64,274	106,903	20,151,625	9,035,787					9,975,551
	To date	198,499	7,160,409	4,284,383	2,690,394	621,849,263	120,173,770	392,099	14,887	80,198	5,205	130,044,665
Skeena	1971	10,732	379,312	573,434	894,356	49,837,022	23,271,896	32	4	85	14	24,545,582
	1972	9,166	527,201	505,476	840,728	52,025,093	23,327,531					24,695,460
	To date	2,463,591	62,987,568	70,678,938	47,288,588	836,815,600	172,330,606	60,001,248	5,488,853	17,198,320	2,541,653	290,581,768
Slocan	1971	100	3,584	997,805	1,555,447			28,537,886	3,981,035	26,508,103	4,316,295	9,856,311
	1972	21	1,208	452,929	753,330			3,099,790	461,125	3,071,882	540,006	1,755,669
	To date	17,198	508,268	77,889,518	55,818,577	13,662	1,861	1,126,981,292	106,947,154	950,603,951	105,779,098	269,049,958
Trail Creek	1971											
	1972	13	748	752	1,251			2,882	429	8,618	1,515	3,943
	To date	2,984,956	63,355,129	3,674,069	2,104,323	122,561,732	18,245,404	151,669	13,057	148,044	17,881	83,735,794
Vancouver	1971			91,615	142,387	16,916,210	7,899,193					8,042,080
	1972	50	2,876	95,314	158,530	19,351,713	8,677,115					8,838,521
	To date	499,482	16,195,495	5,444,185	3,908,290	1,092,605,412	222,290,953	18,570,027	1,883,516	288,340,360	30,973,086	275,251,340
Vernon	1971	18	636	1,482	2,311			3,696	516	118	19	3,482
	1972											
	To date	5,283	178,263	64,388	113,000	654	100	162,882	24,845	66,128	9,378	325,081
Victoria	1971											
	1972	92	5,292	2,175	3,618	832,050	379,083					381,993
	To date	42,212	985,825	925,382	579,182	56,798,595	15,165,811	210,097	19,848	3,568,709	283,923	17,034,089
Not assigned[1]	1971	689	24,352	140,462	219,072	1,207,560	565,852	14,519,768	2,025,507	31,576,350	5,142,524	7,975,337
	1972	956	54,986	(26,021)	(43,279)	130,851	58,872	2,546,420	378,805	46,528,674	8,179,276	8,628,460
	To date	21,740	685,219	6,839,758	8,095,017	55,740,110	14,232,096	539,672,465	49,588,504	1,445,510,856	148,885,425	221,489,261
Totals	1971	85,781	3,081,844	7,673,546	11,968,046	280,619,150	131,027,918	248,827,301	34,711,408	305,451,243	49,745,789	230,495,005
	1972	121,624	6,995,448	6,926,036	11,519,660	467,012,694	209,403,822	194,249,571	28,896,566	268,347,996	47,172,894	303,988,390
	To date	17,233,886	513,842,781	199,861,801	376,662,453	5,007,309,980	1,452,549,267	16,271,392,718	1,411,548,450	14,994,858,109	1,486,803,484	5,241,406,385

[1] Metals recovered from operations at the Trail smelter but not assigned to individual mines.

TABLE 7C—PRODUCTION OF MISCELLANEOUS METALS BY MINING DIVISIONS, 1971 AND 1972, 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	1971					188,266	268,236								
	1972					104,294	263,864								
	To date					784,191	2,288,655			4,782,817	49,634,711				
Atlin	1971														
	1972														
	To date					319,212	561,762								
Cariboo	1971														
	1972														
	To date														
Clinton	1971														
	1972														
	To date							126	900						
Fort Steele	1971					384,429	745,792			62,862	758,116				
	1972					349,707	884,759			44,402	509,360				
	To date					8,013,572	8,659,362			1,350,883	13,968,226				
Golden	1971														
	1972														
	To date	40,062	14,906			555,335	1,145,909								
Greenwood	1971					2,047	3,971								
	1972					2,599	6,575								
	To date					75,148	159,359	670	81,395						
Kamloops	1971														
	1972					53	134								
	To date					53	134			21,167	95,851			10,987	5,795
Liard	1971														
	1972														
	To date														
Lillooet	1971														
	1972														
	To date	18,466	4,821											9,281	41,304
Nanaimo	1971									542,479	6,541,662				
	1972									532,202	6,102,909				
	To date									15,901,304	138,859,454				
Nelson	1971					235,922	457,689								
	1972					198,690	490,036								
	To date					8,226,667	17,614,480								
New Westminster	1971														
	1972														
	To date														
Nicola	1971									22,810	371,684				
	1972									39,066	841,890				
	To date									80,441	1,265,377				
Omineca	1971					1,885	2,687								
	1972					11,113	28,116								
	To date	118,882	21,882			282,855	572,893							4,150,892	10,400,259

		Lb.	$	Lb.	$	Lb.	$	Tons	$	Tons	$	Tons	$	Lb.	$
Osoyoos	1971														
	1972														
	To date											16			
Revelstoke	1971														
	1972														
	To date	9,894	3,455			103,612	176,102								
Similkameen	1971														
	1972														
	To date														
Skeena	1971									1,301,717	10,482,150				
	1972									640,632	5,350,250				
	To date					141,890	316,764			7,404,934	65,700,441				
Slocan	1971					101,994	197,868								
	1972					16,928	42,828								
	To date	81,865	8,183			2,688,267	5,725,026					541	8,160		
Trail Creek	1971														
	1972														
	To date					115	210			550	1,925				
Vancouver	1971														
	1972														
	To date					566,006	1,208,328								
Vernon	1971														
	1972														
	To date					190	532								
Victoria	1971														
	1972														
	To date					7,000	10,929					1,167	24,508		
Not assigned[2]	1971	323,525	243,614	82,521	388,674	172,670	334,980								
	1972	679,601	419,042	93,820	324,617	17,266	43,683								
	To date	53,356,339	17,491,172	6,922,796	14,463,399	24,389,261	37,663,247								
Totals	1971	323,525	243,614	82,521	388,674	1,036,718	2,011,228			1,929,868	18,153,612				
	1972	679,601	419,042	93,820	324,617	695,650	1,759,995			1,256,303	12,604,400				
	To date	53,569,508	17,543,869	6,922,796	14,463,399	41,153,874	76,098,687	796	32,295	29,492,096	269,525,985	1,724	32,668	4,171,110	10,447,358

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

TABLE 7C—PRODUCTION OF MISCELLANEOUS METALS BY MINING DIVISIONS, 1971 AND 1972, 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.	$	Lb.	$	Oz.	$	Lb.	$	Lb.	$	$	$
Alberni	1971														268,236
	1972														**268,864**
	To date														51,923,866
Atlin	1971														
	1972														
	To date											292	360		562,122
Cariboo	1971	1,588,507	2,734,079												2,734,079
	1972	**665,350**	**1,149,956**												**1,149,956**
	To date	17,532,990	29,683,566					59	2,299			27,698	21,431		29,707,296
Clinton	1971														
	1972														
	To date														900
Fort Steele	1971									318,999	421,079				1,924,987
	1972									**351,043**	**473,908**				**1,868,027**
	To date									18,855,025	17,094,227			88,1841	39,809,999
Golden	1971														
	1972														
	To date														1,160,815
Greenwood	1971														3,971
	1972														**6,575**
	To date														190,754
Kamloops	1971														
	1972														**134**
	To date	93,995	138,479												240,259
Liard	1971														
	1972														
	To date							2	79						79
Lillooet	1971														
	1972														
	To date	1,469	2,440					3	113			32,353	37,921		86,099
Nanaimo	1971														6,541,662
	1972	**345,334**	**382,049**												**6,484,958**
	To date	345,334	382,049												139,241,503
Nelson	1971											1,335,808	3,012,540		3,470,229
	1972											**1,273,196**	**2,167,663**		**2,657,699**
	To date	15,035	18,378									16,348,943	39,080,514		56,713,372
New Westminster	1971			2,548,578	3,497,420									103,099	3,600,519
	1972			**3,240,483**	**4,601,486**									**155,739**	**4,757,225**
	To date			47,465,567	45,572,116									258,8382	45,830,954
Nicola	1971														371,684
	1972														**641,890**
	To date														1,265,377
Omineca	1971	9,126,026	16,103,836												16,106,523
	1972	**10,950,264**	**18,456,699**												**18,484,815**
	To date	97,913,112	169,404,008					3	154			2,210,892	4,697,710	4202	185,097,326

		Lb.	$	Lb.	$	Lb.	$	Oz.	$	Lb.	$	Lb.	$	$	$
Osoyoos	1971	4,806,600	7,629,532												7,629,532
	1972	13,399,770	18,501,277												18,501,277
	To date	24,601,502	37,015,162												37,015,162
Revelstoke	1971	988,245	1,615,109												1,615,109
	1972	698,268	1,029,821												1,029,821
	To date	2,323,617	3,716,726									7,784	5,687		3,901,970
Similkameen	1971														
	1972														
	To date							1,287	129,186						129,186
Skeena	1971	4,800,380	7,921,386												18,403,536
	1972	1,680,025	3,220,948												8,571,198
	To date	23,084,581	37,732,288									366	331	1,889[3]	103,751,213
Slocan	1971														197,868
	1972														42,828
	To date														5,741,319
Trail Creek	1971	574,971	950,904												950,904
	1972	302,592	520,460												520,460
	To date	3,644,193	6,515,150			749	30,462	53	3,177						6,550,924
Vancouver	1971														
	1972														
	To date														1,203,323
Vernon	1971														
	1972														
	To date	5,414	9,500												10,032
Victoria	1971														
	1972														
	To date														35,437
Not assigned	1971													5,774,192	6,741,460
	1972													3,212,297	3,999,639
	To date													42,861,359	112,479,177
Totals	1971	21,884,729	36,954,846	2,543,578	3,497,420					318,099	421,079	1,335,808	3,012,540	5,877,291	70,560,299
	1972	23,041,603	43,261,210	3,240,483	4,601,486					351,043	473,908	1,273,196	2,167,663	3,368,036	68,980,366
	To date	169,561,242	284,617,746	47,465,567	45,572,116	749	30,462	1,407	135,008	18,855,025	17,094,227	18,628,328	43,843,954	43,210,190	822,047,964

[1] Magnesium, page A 22.
[2] Cobalt, page A 18.
[3] Selenium, page A 24.

TABLE 7D—PRODUCTION OF INDUSTRIAL MINERALS BY

Division	Period	Asbestos		Barite		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	1971										
	1972										
	To date										
Atlin	1971										
	1972										
	To date										
Cariboo	1971					1,550	37,830				
	1972					875	40,346				
	To date					11,143	280,068			48	168
Clinton	1971										
	1972										
	To date										
Fort Steele	1971										
	1972										
	To date			8	80						
Golden	1971			21,267	179,455						
	1972			44,237	395,289						
	To date			439,150	4,489,227			3,259	12,612		
Greenwood	1971										
	1972										
	To date							1,790,502	1,540,319	200	4,000
Kamloops	1971										
	1972										
	To date									625	12,230
Liard	1971	87,118	17,800,406								
	1972	105,807	20,870,241								
	To date	1,118,132	218,102,692								
Lillooet	1971										
	1972										
	To date										
Nanaimo	1971							26,719	98,196	3,000	70,000
	1972							31,579	59,036	3,800	82,300
	To date							937,450	1,420,153	22,809	395,199
Nelson	1971									13,440	281,843
	1972									18,747	506,465
	To date							7,601	8,174	82,636	2,154,353
New Westminster	1971									3,210	52,350
	1972									3,706	80,000
	To date									109,669	1,811,625
Nicola	1971										
	1972										
	To date										
Omineca	1971										
	1972										
	To date										
Osoyoos	1971									8,456	73,019
	1972									10,905	89,159
	To date							802,611	3,699,031	199,098	2,481,480
Similkameen	1971										
	1972										
	To date										
Skeena	1971										
	1972										
	To date							601,019	1,050,722		
Vancouver	1971										
	1972										
	To date									29,692	418,606
Vernon	1971									1,132	42,000
	1972										
	To date									1,632	51,500
Victoria	1971							21	230		
	1972							21	210		
	To date							229	2,565	9,605	157,080
Not assigned	1971										
	1972										
	To date										
Totals	1971	87,118	17,800,406	21,267	179,455	1,550	37,830	26,740	98,426	29,238	519,192
	1972	105,807	20,870,241	44,237	395,289	875	40,346	31,600	59,246	37,158	757,924
	To date	1,118,132	218,102,692	439,158	4,489,307	11,143	280,068	4,142,671	7,733,576	456,014	7,286,241

Other: *See* notes of individual minerals listed alphabetically on pages A 16 to A 25.

[1] Arsenious oxide.
[2] Bentonite.
[3] Fluorspar.
[4] Hydromagnesite.
[5] Iron oxide and ochre.
[6] Magnesium sulphate.

MINING DIVISIONS, 1971 AND 1972, 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.	$	Tons	$	$	$
								9,3987	9,398
								20,3254	20,325
									37,330
									40,346
				10,013,800	143,012			30012	423,548
873	6,236							156,1914 6 10	162,427
						80,737	609,564		609,564
						81,597	676,439		676,439
112,878	298,824					1,149,132	19,162,886	16,8949	19,478,684
344,795	930,348								1,109,803
388,315	1,087,196								1,482,485
3,455,075	9,803,460							1,2765 11	14,306,575
								783,5783	2,327,897
1,246,918	6,323,178			424,700	2,075			203,0556 10	6,540,538
		3,993	7,772			59,179	416,654		18,224,832
		2,934	3,689			56,627	308,380		21,182,310
		45,297	65,007			812,107	15,887,155		234,054,854
		44,867	102,900						102,900
		192,450	142,800						142,800
		530,584	460,766					5,12911	465,895
									168,196
									141,336
									1,815,352
									281,343
									506,465
								55,9015	2,218,428
									52,330
									80,000
									1,611,625
2,407	10,050								10,050
		118,900	85,660						85,660
		48,341	88,729						88,729
		431,998	437,447					11,4601 8	448,907
									73,019
									89,159
				1,588,800	25,938			306,5331 3 6	6,512,982
250	1,700							16,8582	18,558
				634,250	10,815	41,624	178,678		1,240,215
						687,596	6,550,969	97,3895	7,066,964
									42,000
				160,500	3,978				55,478
									230
									210
								30,22611	189,871
						148,551	1,121,560		1,121,560
						159,483	1,322,114		1,322,114
						5,191,175	58,208,342	4,913	58,213,255
344,795	930,348	167,760	196,332			288,467	2,147,778		21,909,767
388,315	1,087,196	243,725	235,218			297,707	2,306,933		25,752,393
4,818,401	16,443,448	1,007,879	963,220	12,822,050	185,818	7,881,634	99,988,030	1,719,426	357,191,826

[7] Natro-alunite.
[8] Perlite.
[9] Phosphate rock.
[10] Sodium carbonate.
[11] Talc.
[12] Volcanic ash.

TABLE 7E—PRODUCTION OF STRUCTURAL MATERIALS BY MINING DIVISIONS, 1971 AND 1972, 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
		$	$	$	$	$	$	$	$
Alberni	1971				5,013	427,459			432,472
	1972				5,168	247,858			253,026
	To date				339,510	3,949,196			4,288,706
Atlin	1971					3,375			3,375
	1972								
	To date		1,108		102,453	234,680			338,241
Cariboo	1971		293,400		391,518	2,391,205	74,070		3,150,193
	1972		224,853		382,149	2,836,516	68,100		3,511,618
	To date		1,013,794		2,956,395	19,408,418	332,457		23,711,064
Clinton	1971				988	269,294			270,282
	1972				530,614	243,000			773,614
	To date				1,783,785	1,791,701			3,575,486
Fort Steele	1971				170,867	410,774			581,641
	1972				102,430	508,259			610,689
	To date		43,873	71,941	2,576,929	6,458,322	15,918		9,166,983
Golden	1971				5,498	230,680	10,500		246,678
	1972				6,453	153,801	2,887		163,141
	To date		1,000	50,840	208,940	3,182,932	120,574		3,564,286
Greenwood	1971			4,000	5,160	166,165			175,325
	1972			200		250,504			250,704
	To date		42,560	138,336	278,474	1,606,005	121,283		2,186,658
Kamloops	1971	2,795,009			392,255	1,289,533			4,476,797
	1972	2,617,842			872,572	1,675,934			5,166,348
	To date	5,998,504	25,067	19,800	9,389,649	13,069,376	72,379		28,574,775
Liard	1971				460,573	915,262			1,375,835
	1972				152,380	1,137,309			1,289,689
	To date				1,455,504	10,308,692			11,764,196
Lillooet	1971				93,903	70,341			164,244
	1972				29,558	32,501			62,059
	To date		100	2,000	1,066,908	2,179,855			3,248,863
Nanaimo	1971		2,496,269		587,301	1,025,926			4,109,496
	1972		2,806,033		261,617	1,184,398			4,252,048
	To date		51,912,554	3,450,735	2,660,298	9,305,495	1,178,992		68,508,074
Nelson	1971		90,018	4,962	24,645	430,587			550,212
	1972		203,549	966	1,418	436,970			642,903
	To date		727,837	431,564	546,119	5,748,923	21,974		7,476,417
New Westminster	1971		138,945		1,099,716	7,751,450	5,117,878		14,107,989
	1972		102,175		991,023	9,185,040	4,571,663		14,849,901
	To date		3,216,387	20,974	16,468,797	82,514,259	72,719,995		174,940,412
Nicola	1971				20,108	272,915			293,023
	1972					266,451			266,451
	To date			8,000	187,754	1,718,660			1,914,414
Omineca	1971		2,500		149,249	1,006,989			1,158,738
	1972		8,119		154,253	939,347			1,096,719
	To date		12,467		2,290,824	10,513,403	5,274		12,821,968
Osoyoos	1971				21,046	426,864			447,910
	1972				68,498	650,454			718,952
	To date		43,774	33,018	321,072	3,420,734			3,818,598
Revelstoke	1971				27,035	167,548			194,583
	1972				29,694	124,245			153,939
	To date		1,000	5,575	513,577	2,388,165			2,908,317
Similkameen	1971					121,785			121,785
	1972				5,250	76,285			81,535
	To date	10,500	11,571	24,000	656,847	3,515,645	13,355		4,231,918
Skeena	1971				143,280	1,595,021			1,738,301
	1972				126,948	1,740,392			1,867,340
	To date		1,645,300	144,000	3,259,111	11,939,750	13,249		17,001,410
Slocan	1971				810	106,106			106,916
	1972				810	79,319			80,129
	To date		1,000	115,143	131,603	1,771,672			2,019,418
Trail Creek	1971				90	139,169			139,259
	1972				150,000	120,434			270,434
	To date		32,500	85,520	378,993	3,098,608			3,595,621
Vancouver	1971	7,614,263				2,518,610			10,132,873
	1972	6,683,954			6,561	3,320,186			10,010,701
	To date	73,027,618	40,885	4,012,560	8,193,322	47,419,829	1,088,592		133,782,806
Vernon	1971				48,000	757,641			805,641
	1972				59,430	1,081,335			1,140,765
	To date		46,499	97,852	394,404	7,160,976	161,254		7,860,985
Victoria	1971	11,220,113	16,090		4,710	1,472,175	779,337		13,492,425
	1972	11,712,316	18,198		17,526	2,108,725	621,099		14,477,864
	To date	177,415,188	966,685	55	520,043	25,792,835	9,890,993		214,585,799
Not assigned	1971				18,818	1,645,522			1,664,340
	1972				78,196	4,676,933			4,755,129
	To date		315,498	505,018	933,122	33,606,067	3,180,828	5,972,171	44,512,704
Totals	1971	21,629,885	3,037,222	8,962	3,670,583	25,612,396	5,981,785		59,940,333
	1972	21,014,112	3,357,927	1,166	4,032,548	33,076,196	5,263,749		66,745,698
	To date	256,451,810	60,101,459	9,216,931	57,614,433	312,104,198	88,937,117	5,972,171	790,398,119

TABLE 8A—PRODUCTION OF COAL, 1836–1972

Year	Quantity[1] (Short Tons)	Value	Year	Quantity[1] (Short Tons)	Value
		$			$
1836–59	41,871	149,548	1917	2,436,101	8,484,343
1860	15,956	56,988	1918	2,575,275	12,833,994
1861	15,427	55,096	1919	2,433,540	11,975,671
1862	20,292	72,472	1920	2,852,535	13,450,169
1863	23,906	85,380	1921	2,670,314	12,836,013
1864	32,068	115,528	1922	2,726,793	12,880,060
1865	36,757	131,276	1923	2,636,740	12,678,548
1866	28,129	100,460	1924	2,027,843	9,911,935
1867	34,988	124,956	1925	2,541,212	12,168,905
1868	49,286	176,020	1926	2,406,094	11,650,180
1869	40,098	143,208	1927	2,553,416	12,269,135
1870	33,424	119,372	1928	2,680,608	12,633,510
1871	55,458	164,612	1929	2,375,060	11,256,260
1872	55,458	164,612	1930	1,994,493	9,435,650
1873	55,459	164,612	1931	1,765,471	7,684,155
1874	91,334	244,641	1932	1,614,629	6,523,644
1875	123,362	330,435	1933	1,377,177	5,375,171
1876	155,895	417,576	1934	1,430,042	5,725,133
1877	172,540	462,156	1935	1,278,380	5,048,864
1878	191,348	522,538	1936	1,352,301	5,722,502
1879	270,257	723,903	1937	1,446,243	6,139,920
1880	299,708	802,785	1938	1,388,507	5,565,069
1881	255,760	685,171	1939	1,561,084	6,280,956
1882	315,997	846,417	1940	1,662,027	7,088,265
1883	238,895	639,897	1941	1,844,745	7,660,000
1884	441,358	1,182,210	1942	1,996,000	8,237,172
1885	409,468	1,096,788	1943	1,854,749	7,742,030
1886	365,832	979,908	1944	1,931,950	8,217,966
1887	462,964	1,240,080	1945	1,523,021	6,454,360
1888	548,017	1,467,903	1946	1,439,092	6,732,470
1889	649,411	1,739,490	1947	1,696,350	8,680,440
1890	759,518	2,034,420	1948	1,604,480	9,765,395
1891	1,152,590	3,087,291	1949	1,621,268	10,549,924
1892	925,495	2,479,005	1950	1,574,006	10,119,303
1893	1,095,690	2,934,882	1951	1,573,572	10,169,617
1894	1,134,509	3,038,859	1952	1,402,313	9,729,739
1895	1,052,412	2,824,687	1953	1,384,138	9,528,279
1896	1,002,268	2,693,961	1954	1,308,284	9,154,544
1897	999,372	2,734,522	1955	1,332,874	8,986,501
1898	1,263,272	3,582,595	1956	1,417,209	9,346,518
1899	1,435,314	4,126,803	1957	1,085,657	7,340,339
1900	1,781,000	4,744,530	1958	796,413	5,937,860
1901	1,894,544	5,016,398	1959	690,011	5,472,064
1902	1,838,621	4,832,257	1960	788,658	5,242,223
1903	1,624,742	4,332,297	1961	919,142	6,802,134
1904	1,887,981	4,953,024	1962	825,339	6,133,986
1905	2,044,931	5,511,861	1963	850,541	6,237,997
1906	2,126,965	5,548,044	1964	911,326	6,327,678
1907	2,485,961	7,637,713	1965	950,763	6,713,590
1908	2,362,514	7,356,866	1966	850,821	6,196,219
1909	2,688,672	8,574,884	1967	908.790	7,045,341
1910	3,314,749	11,108,335	1968	959,214	7,588,989
1911	2,541,698	8,071,747	1969	852,340	6,817,155
1912	3,211,907	10,786,812	1970	2,644,056	19.559.669
1913	2,713,535	9,197,460	1971	4,565,242	45.801.936
1914	2,237,042	7,745,847	1972	6,026,198	66,030,210
1915	2,076,601	7,114,178			
1916	2,583,469	8.900,675	Totals	155,680,542	748,115,691

[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, 1972

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	74,178	58,213	.....	.....	.....	.....	.....	58,213	.....	58,213	58,213	616,464
Fording Coal Ltd.	2,659,418	1,141,452	.....	.....	.....	.....	302	1,100,316	.....	1,100,618	1,100,618	8,254,638
Kaiser Resources Ltd.—												
Michel Colliery	6,307,285	5,352,590	5,228	203,820	70,781	.....	.....	4,536,499	38,876	4,646,156	4,855,204	57,037,938
Liard Mining Division												
Coalition Mining Ltd.[1]	12,000	12,000	.....	.....	.....	.....	.....	.....	11,687	11,687	11,687	116,870
Omineca Mining Division												
Bulkley Valley Colliery Ltd.[2]	476	476	.....	.....	476	.....	.....	.....	.....	476	476	4,300
Totals	9,053,357[3]	6,564,731	5,228	203,820	71,257	.....	302	5,695,028	50,563	5,817,150	6,026,198	66,030,210

[1] Metallurgical coal for washing and coking tests. [2] Estimated.
[3] In addition, 12,735 tons of raw coal was shipped from Line Creek by Crows Nest Industries Ltd. to Coleman Collieries for test purposes.

TABLE 9—PRINCIPAL ITEMS OF EXPENDITURE, REPORTED FOR OPERATIONS OF ALL CLASSES

Class	Salaries and Wages	Fuel and Electricity	Process Supplies
	$	$	$
Metal-mining	107,603,117	20,042,981	67,245,083
Exploration and development	41,835,526		
Coal	26,031,235	4,447,018	3,947,711
Petroleum and natural gas (exploration and production)	5,475,297		
Industrial minerals	7,431,053	1,768,770	2,150,359
Structural-materials industry	10,975,221	4,856,852	3,749,802
Totals, 1972	199,351,449	31,115,621	77,092,955
Totals, 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	56,409,056	8,937,567	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	8,557,845	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, 1901–1972

Year	Metals						Coal Mines			Structural Materials				
	Placer	Mines: Under	Mines: 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	4,432	1,641	6,078	.....	.....	.....	.....	9,767
1909	.....	2,184	1,070	.....	.....	.....	3,254	4,713	1,705	6,418	.....	.....	.....	.....	9,672
1910	.....	2,472	1,237	.....	.....	.....	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	4,342	1,807	6,140	.....	.....	.....	.....	9,767
1924	.....	2,353	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	2,926	2,052	.....	966	2,948	8,892	3,675	1,353	5,028	492	544	268	.....	15,565
1930	425	2,816	1,260	.....	832	3,197	7,605	3,389	1,256	4,645	843	344	170	.....	14,032
1931	638	1,463	834	.....	581	3,157	6,035	2,957	1,125	4,082	460	526	380	.....	12,171
1932	874	1,355	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	2,796	1,729	.....	661	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	.....	729	2,678	8,197	2,015	799	2,814	931	288	825	.....	14,179
1937	1,371	3,603	1,818	.....	1,168	3,027	9,616	2,286	867	3,153	724	327	938	.....	16,129
1938	1,303	3,849	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	3,923	2,104	.....	1,048	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	2,380	842	378	262	.....	13,270
1943	212	2,394	1,699	.....	891	2,835	7,819	2,240	611	2,851	673	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	7,339	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	.....	17,868
1952	230	4,171	3,928	.....	1,516	4,120	13,730	1,280	401	1,681	1,530	557	529	.....	18,257
1953	132	3,145	2,589	.....	1,371	3,901	11,006	1,154	396	1,550	1,909	559	684	.....	15,790
1954	199	2,644	2,520	.....	1,129	3,119	9,412	1,076	358	1,434	1,861	638	584	.....	14,128
1955	103	2,564	2,553	.....	1,091	3,304	9,512	1,100	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	2,393	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	3,081	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	35	1,677	1,976	270	949	3,356	8,228	548	228	776	1,523	481	517	.....	11,560
1963	43	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	3,485	10,151	260	197	457	1,809	372	584	507	13,380
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	16,437
1970	.....	2,160	3,167	4,964	1,331	3,788	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**	**1,734**	**3,353**	**14,584**	**214**	**1,771**	**1,985**	**1,116**	**800**	**527**	**458**	**19,470**

[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 METAL AND COAL MINES, 1972

	Tons		Days Operating Mill	Average Number Employed[1]					
					Mine				
	Mined	Milled		Administrative, Etc.	Surface	Underground	Mill	Others	Total
Metal Mines									
Anaconda Canada Ltd. (Britannia)	763,552	765,517	265	77	52	169	27	—	325
Bethlehem Copper Corporation Ltd. (Bethlehem)	5,868,514	5,964,696	366	28	193	—	147	—	368
Bradina Joint Venture (Silver Queen)	141,299	111,907	200	23	—	77	19	10	129
Brenda Mines Ltd. (Brenda)	8,931,200	9,503,192	365	85	131	—	184	—	400
British Columbia Molybdenum Ltd. (B.C. Molybdenum)	521,625	521,625	83	8	32	—	17	13	70
Canex Placer Ltd. (Endako)	6,412,400	6,382,000	264	108	53	—	198	—	359
Canex Placer Ltd. (Invincible)	193,769	198,126	365	45	19	56	24	—	144
Coast Copper Co. Ltd. (Old Sport)	225,761	225,761	335	30	26	75	8	—	139
Cominco Ltd. (Sullivan)	1,925,099	1,925,099	226	188	70	441	102	—	801
Craigmount Mines Ltd. (Craigmont)	1,878,100	1,873,543	365	110	106	262	45	—	523
Giant Mascot Mines Ltd. (Pride of Emory)	389,834	389,834	231	45	29	86	20	4	184
Gibraltar Mines Ltd. (Gibraltar)	11,995,000	10,861,500	275	92	101	—	181	—	374
Granduc Operating Co. (Granduc)	2,073,625	2,089,865	366	188	203	237	53	—	681
The Granby Mining Co. Ltd. (Phoenix)	885,645	889,266	366	25	65	—	48	—	138
Granisle Copper Ltd. (Granisle)	2,569,214	2,537,138	365	50	56	—	112	3	221
Jordan River Mines Ltd. (Sunro)	126,000	126,000	275	13	9	50	19	—	91
Kam-Kotia-Burkam Joint Venture (Silmonac)	27,429	27,429	295	3	7	25	12	7	54
King Resources Co. (Mount Copeland)	52,211	52,211	248	13	—	19	9	17	58
Lornex Mining Corporation Ltd. (Lornex)	2,851,824	2,851,824	92	21	55	—	35	38	149
Noranda Mines Ltd. (Bell)	903,121	767,270	86	16	8	—	27	—	51
O.K. Syndicate (Alwin)	83,613	83,613	162	15	9	24	13	—	61
Placid Oil Co. (Bull River)	190,596	206,331	305	15	24	—	9	—	48
Reeves MacDonald Mines Ltd. (Annex)	180,188	180,188	244	21	19	64	10	—	114
Similkameen Mining Co. Ltd. (Similkameen)	3,053,000	3,053,000	283	59	146	—	20	—	225
Teck Corporation Ltd. (Highland-Bell)	37,090	37,090	346	7	—	17	9	5	38
Texada Mines Ltd. (Texada)	1,030,299	1,071,812	366	22	72	82	35	—	211
Utah Mines Ltd. (Island Copper)	7,835,317	7,835,317	366	33	314	—	232	—	579
Westfrob Mines Ltd. (Tasu)	1,232,364	1,232,364	288	51	20	—	75	—	146
Western Mines Ltd. (Lynx)	379,405	379,405	363	47	47	132	35	—	261
Other mines	—	—	—	28	34	17	9	—	88
Total metal mines	—	—	—	—	—	—	—	—	7,030
Coal Mines									
Coalition Mining Ltd. (Sukunka)	12,000	—	96	1	6	9	—	—	16
Fording Coal Ltd.	2,659,418	—	334	116	356	—	84	—	556
Kaiser Resources Ltd. (Michel Collieries)	6,307,285	—	346	297	746	205	165	—	1,413
Total coal mines	—	—	—	—	—	—	—	—	1,985

[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.

TABLE 12—METAL PRODUCTION, 1972

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 mine	Buttle Lake	Western Mines Ltd.	379,406	Copper concentrates, 27,954 tons; lead concentrates, 3,510 tons; zinc concentrates, 29,799 tons	12,175	526,216	14,818,127	4,902,959	38,007,782	148,990
Atlin Mining Division										
Nil										
Cariboo Mining Division										
Boss Mountain mine	Big Timothy Mountain	Noranda Mines Ltd. (Boss Mountain Divsion)	Ceased production in 1971, shipped from stockpile	Molybdenite concentrates, 598 tons containing 665,350 lb. of molybdenum						
Gibraltar Mines	McLeese Lake	Gibraltar Mines Ltd.	10,861,500	Copper concentrates, 122,774 tons			74,412,300			
Clinton Mining Division										
Nil										
Fort Steele Mining Division										
Bull River mine	Wardner	Placid Oil Co.	206,331	Copper concentrates, 8,762 tons	1,037	51,909	4,357,281			
Sullivan mine	Kimberley	Cominco Ltd.	1,925,099	Lead concentrates, 136,085 tons; zinc concentrates, 180,050 tons; tin concentrates, 156 tons containing 351,043 lb. of tin; iron sinter, 44,408 tons	163	3,166,358	593,400	196,083,000	187,196,600	499,582
Golden Mining Division										
Nil										
Greenwood Mining Division										
Burnt Basin	Paulson	Donna Mines Ltd.	47	Crude ore		310		7,439	15,737	
Highland Bell mine	Beaverdell	Teck Corp. Ltd.	37,090	Lead concentrates, 1,308 tons; zinc concentrates, 380 tons; jig concentrates, 162 tons	404	676,046	2,194	535,648	567,446	3,713
Phoenix mine	Phoenix	The Granby Mining Co. Ltd., Phoenix Copper Division	889,266	Copper concentrates, 18,323 tons	15,443	100,419	9,697,007			

Kamloops Mining Division										
Bethlehem mine	Highland Valley	Bethlehem Copper Corp. Ltd.	5,964,696	Copper concentrates, 75,359 tons	1,375	151,671	48,568,603			
Energite Group	North Barriere River	R. A. Rabbitt, Kamloops	5	Crude ore		111		2,956	1,435	
Lornex mine	Highland Valley	Lornex Mining Corp. Ltd.	2,851,824	Copper concentrates, 55,805 tons	218	138,524	35,378,177			
Mosquito King, Ex	Adams Plateau	Giant Metallics Mines Ltd.	234	Lead concentrates, 64 tons; zinc concentrates, 15 tons		5,592		74	25	76
O.K. (Alwin)	Quiltanton Lake	O.K. Syndicate	83,613	Copper concentrates, 3,788 tons	183	19,887	2,539,426			
Liard Mining Division										
Nil										
Lillooet Mining Division										
Nil										
Nanaimo Mining Division										
Island Copper mine	Port Hardy	Utah Mines Ltd.	7,980,429	Copper concentrates, 142,115 tons; molybdenite concentrates, 408 tons containing 345,334 lb. of molybdenum	37,778	185,314	66,661,084			
Old Sport mine	Benson Lake	Coast Copper Co. Ltd.	225,761	Copper concentrates, 17,337 tons	5,406	43,280	8,499,290			
Texada mine	Texada Island	Texada Mines Ltd.	1,071,812	Iron concentrates, 532,202 tons; copper concentrates, 7,395 tons	1,274	45,209	3,473,798			
Nelson Mining Division										
Invincible, East Dodger	Salmo, Iron Mountain	Canex Placer Ltd., Tungsten Division	198,126	Tungsten concentrates, 926 tons containing 1,273,196 lb. of tungsten (WO_3)						
Annex	Nelway	Reeves MacDonald Mines Ltd.	180,188	Lead concentrates, 1,342 tons; zinc concentrates, 22,498 tons		284,822	8,432	1,810,198	23,691,787	278,527
New Westminster Mining Division										
Pride of Emory mine	Hope	Giant Mascot Mines Ltd.	389,834	Nickel-copper concentrates, 18,994 tons containing 3,682,367 lb. of nickel and 155,739 lb. of cobalt			2,610,512			
Nicola Mining Division										
Craigmont mine	Merritt	Craigmont Mines Ltd.	1,873,543	Copper concentrates, 83,012 tons; iron concentrates, 39,066 tons			46,894,145			
Omineca Mining Division										
Bell mine (Newman)	Babine Lake	Noranda Mines Ltd. (Bell Copper Division)	767,270	Copper concentrates, 11,823 tons	3,630		6,397,979			
Cronin mine	Smithers	Kindrat Mines Ltd.	700	Lead concentrates, 76 tons, zinc concentrates 82 tons	10	8,865		99,089	105,034	1,228

TABLE 12—METAL PRODUCTION, 1972—*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.
Endako mine	Endako	Canex Placer Ltd. (Endako Mines Division)	6,382,000	Molybdenite concentrates, 2,755 tons; molybdenum tri-oxide, 6,744 tons; ferro-molybdenum, 358 tons; total content, 10,950,264 lb. of molybdenum						
Granisle mine	Babine Lake	Granisle Copper Ltd.	2,537,138	Copper concentrates, 35,648 tons	12,234	121,810	24,909,713			
Pinchi Lake mine	Pinchi Lake	Cominco Ltd.	(1)	Mercury						
Silver Queen	Houston	Bradina Joint Venture	111,907	Copper concentrates, 789 tons; bulk zinc-lead concentrates, 2,616 tons	1,244	137,224	349,118	365,967	2,515,229	14,649
Osoyoos Mining Division										
Brenda mine	Brenda Lake	Brenda Mines Ltd.	9,503,192	Copper concentrates, 78,882 tons; molybdenite concentrates, 11,985 tons containing 13,399,770 lb. of molybdenum	4,270	286,509	33,531,551			
Revelstoke Mining Division										
Mount Copeland mine	Revelstoke	King Resources Co.	52,211	Molybdenite concentrates, 600 tons containing 698,268 lb. of molybdenum						
Similkameen Mining Division										
Similkameen mine (Ingerbelle)	Princeton	Similkameen Mining Co. Ltd.	3,053,000	Copper concentrates, 40,568 tons	14,482	65,586	20,557,305			
Skeena Mining Division										
British Columbia Molybdenum mine	Alice Arm	British Columbia Molybdenum Ltd.	521,625	Molybdenite concentrates, 1,402 tons containing 1,680,025 lb. of molybdenum						
Granduc mine	Stewart	Granduc Operating Co.	2,089,865	Copper concentrates, 86,667 tons	7,389	436,296	47,846,156			
Tasu mine	Tasu Harbour	Wesfrob Mines Ltd.	1,232,364	Iron concentrates, 640,632 tons; copper concentrates, 13,053 tons	1,777	79,496	5,176,140			
Slocan Mining Division										
Crown	Ainsworth	Dave Norcross, Nelson	52	Crude ore		2,133		4,719	8,493	
Enterprise	Slocan City	W. C. Wingert and L. M. Fried, New Denver	834	Crude ore	4	21,229		95,217	245,422	301

General, Grant	Woodbury Creek	G and S Enterprises, Ainsworth	5	Crude ore		244		236	321	
Kootenay Florence (Western Mill)	Ainsworth	R. B. Savage, Nelson	19	Salvage		57		2,880	3,775	
Lavina	Hamill Creek	A. Graham, Kaslo	13	Crude ore		220		4,617	5,148	
Ottawa	Springer Creek	Pamicon Developments Ltd.	81	Crude ore		29,412		858	527	
Silmonac (Minniehaha)	Sandon	Kam-Kotia and Burkam Joint Venture	27,429	Lead concentrates, 2,467 tons; zinc concentrates, 2,708		415,373		2,995,445	3,346,671	23,882
Victor	Sandon	E. Peterson, Sandon	14	Crude ore	1	1,300		18,683	776	
Trail Creek Mining Division										
Bluebird	Rossland	Standonray Mines Ltd.	46	Crude ore	13	767		5,764	9,575	
Coxey mine	Rossland	Consolidated Canadian Faraday Ltd.	(2)	Molybdenite concentrates, 504,825 tons containing 302,592 lb. of molybdenum						
Vancouver Mining Division										
Britannia	Howe Sound	Anaconda Canada Ltd.	765,517	Copper concentrates, 33,828 tons; gold concentrates, 1 ton	50	97,259	19,689,993			
Vernon Mining Division										
Nil										
Victoria Mining Division										
Sunro mine	River Jordan	Jordan River Mines Ltd.	126,000	Copper concentrates, 1,849 tons	92	2,219	850,540			

[1] Details confidential.
[2] Ceased production in 1971. Shipments made from stockpile.

Departmental Work

CHAPTER 3

CONTENTS

RETIREMENTS

Kenneth B. Blakey retired as Deputy Minister on April 30, 1972, after serving nearly 49 years with the Government. Mr. Blakey was born on December 20, 1909, in Bedfordshire, England, and received his schooling in England and Canada. He joined the Department as an office boy on May 5, 1923. In 1929 he was transferred to Vancouver as office assistant to B. T. O. Grady, the Resident Mining Engineer. On January 8, 1940, he joined the RCNVR and served five and one-half years in the North Atlantic and the British Isles during World War II. He returned to the Department on October 1, 1945, as a clerk and on December 12, 1945, was appointed Gold Commissioner of the Victoria Mining Division. In April 1954 he became Deputy Chief Gold Commissioner and Deputy Chief Commissioner, Petroleum and Natural Gas. In 1958 he was appointed Chief Gold Commissioner and Chief Commissioner, Petroleum and Natural Gas. On November 1, 1966, on the retirement of P. J. Mulcahy, he was appointed Deputy Minister, a position he held until his early retirement. Mr. Blakey's service was the longest on record with the Department of Mines and Petroleum Resources.

Ronald H. McCrimmon retired as Chief Gold Commissioner on April 30, 1972, after serving nearly 38 years with the Department. Mr. McCrimmon was born on April 16, 1916, in Victoria, where he received his schooling. He joined the Department on October 22, 1934, as a junior clerk. He served with the 1st Battalion, Canadian Scottish, in Canada and the British Isles during World War II. He was invalided home and rejoined the Department on April 1, 1944, as a clerk. On April 1, 1946, he was appointed Deputy Gold Commissioner and on April 1, 1954, he was appointed Gold Commissioner of the Victoria Mining Division. In October 1958 he was promoted to Deputy Chief Gold Commissioner. On November 1, 1966, he was appointed Chief Gold Commissioner, a position he held until his early retirement.

ORGANIZATION

The organization of the Department of Mines and Petroleum Resources is displayed in the chart on page 60.

ADMINISTRATION BRANCH

The Administration Branch, consisting of three divisions — Mining Titles, Petroleum and Natural Gas Titles, and Accounts—is responsible for the administration of the Provincial laws regarding the acquisition of rights to minerals, coal, petroleum, and natural gas, and deals with other departments of the Provincial service for the Department or for any branch.

MINING TITLES

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 claim or 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 1. Officials in the offices of the Gold Commissioner at Victoria and the Gold Commissioner at 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 below.

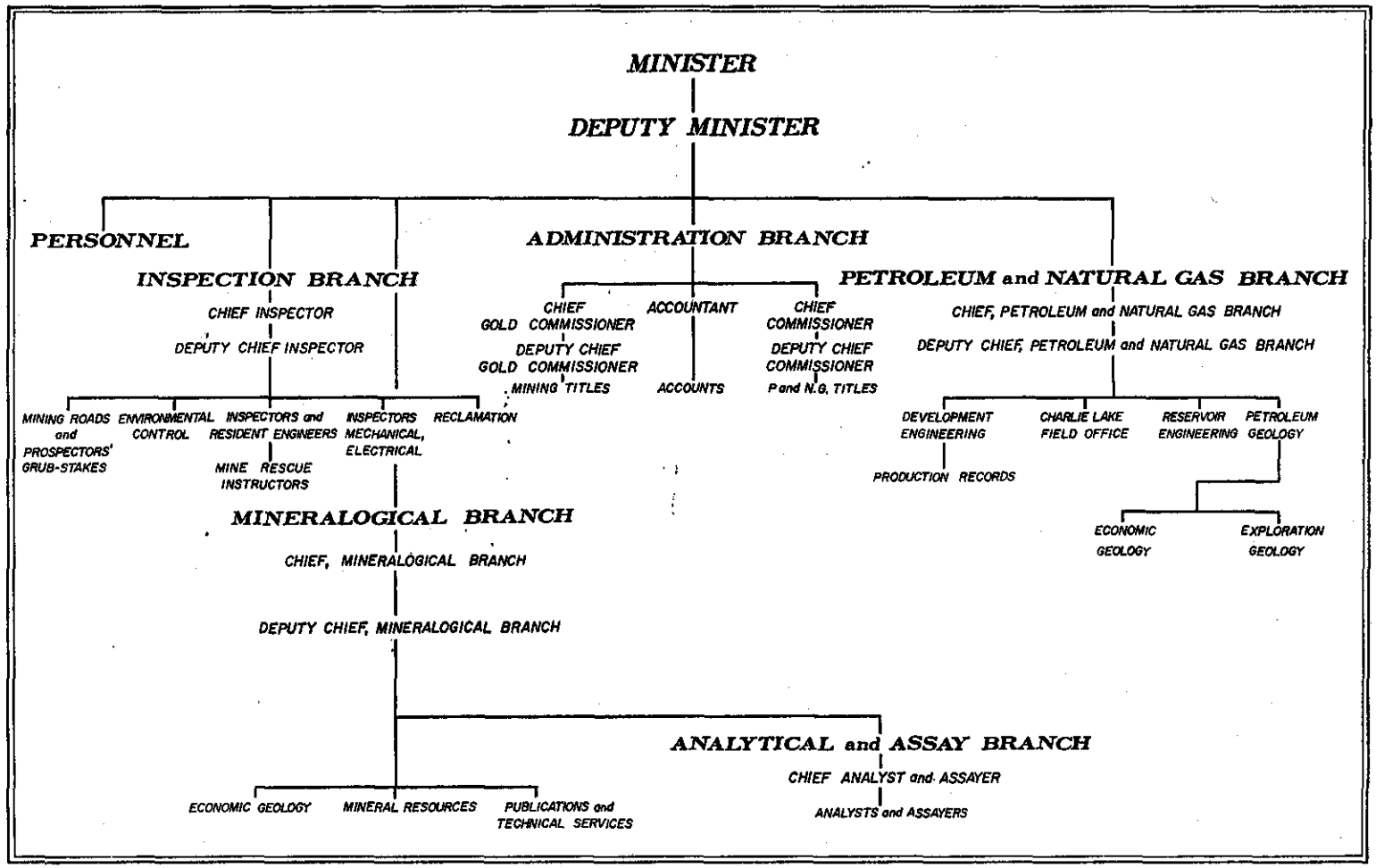
Central Records Offices (Victoria and Vancouver)

Transcripts of all recordings in Mining Recorders' offices throughout the Province, and also the names of lessees of reverted surveyed mineral claims, 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 1972, nine investigations were carried out pursuant to section 80 of the *Mineral Act*. Three investigations with regard to certificates of work being wrongfully or improperly obtained resulted in 28 certificates of work being cancelled. Nine investigations with regard to mineral claims having been located or recorded otherwise than in accordance with the *Mineral Act* resulted in 89 mineral claims being cancelled.

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. J. Bowles	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. J. Bowles	E. A. H. Mitchell.


MINISTER
DEPUTY MINISTER
PERSONNEL
ADMINISTRATION BRANCH
INSPECTION BRANCH
PETROLEUM and NATURAL GAS BRANCH
CHIEF INSPECTOR
DEPUTY CHIEF INSPECTOR
CHIEF GOLD COMMISSIONER
DEPUTY CHIEF GOLD COMMISSIONER
MINING TITLES
ACCOUNTANT
ACCOUNTS
CHIEF COMMISSIONER
DEPUTY CHIEF COMMISSIONER
P and N.G. TITLES
CHIEF, PETROLEUM and NATURAL GAS BRANCH
DEPUTY CHIEF, PETROLEUM and NATURAL GAS BRANCH
MINING ROADS and PROSPECTORS' GRUB-STAKES
ENVIRONMENTAL CONTROL
INSPECTORS and RESIDENT ENGINEERS
MINE RESCUE INSTRUCTORS
INSPECTORS MECHANICAL, ELECTRICAL
RECLAMATION
DEVELOPMENT ENGINEERING
PRODUCTION RECORDS
CHARLIE LAKE FIELD OFFICE
RESERVOIR ENGINEERING
PETROLEUM GEOLOGY
ECONOMIC GEOLOGY
EXPLORATION GEOLOGY
MINERALOGICAL BRANCH
CHIEF, MINERALOGICAL BRANCH
DEPUTY CHIEF, MINERALOGICAL BRANCH
ANALYTICAL and ASSAY BRANCH
CHIEF ANALYST and ASSAYER
ANALYSTS and ASSAYERS
ECONOMIC GEOLOGY
MINERAL RESOURCES
PUBLICATIONS and TECHNICAL SERVICES

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).

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, 1972

	$
Licences—	
Fees	34,397.00
Rental	170,493.45
Total	204,890.45

During 1972, 77 coal licences were issued, totalling 45,965 acres. As of December 31, 1972, a total of 1,759 coal licences, amounting to 1,004,183 acres, was held in good standing.

Gold Commissioners' and Mining Recorders' Office Statistics, 1972

Mining Division	Free Miners' Certificates		Lode-mining						Placer-mining					Revenue		
	Individual	Company	Mineral Claims	Certificates of Work	Cash in Lieu	Certificates of Improvements	Bills of Sale, Etc.	Leases	Placer Claims	Leases	Certificates of Work	Cash in Lieu	Bills of Sale, Etc.	Free Miners' Certificates	Mining Receipts	Total
					$							$		$	$	$
Alberni	105	1	1,275	1,895	4,100.00	*Nil*	60	4	*Nil*	*Nil*	*Nil*	250.00	*Nil*	626.00	25,634.50	26,260.50
Atlin	194	*Nil*	1,405	5,239	13,600.00	*Nil*	97	*Nil*	*Nil*	65	46	250.00	60	965.00	53,931.91	54,896.91
Cariboo	557	2	2,852	4,839	14,300.00	24	176	23	*Nil*	70	350	3,500.00	214	3,232.00	78,902.25	82,134.25
Clinton	57	2	2,672	2,456	5,000.00	*Nil*	125	7	*Nil*	4	48	*Nil*	24	485.00	33,958.25	34,443.25
Fort Steele	253	5	1,024	4,038	5,600.00	*Nil*	150	3	*Nil*	21	47	1,000.00	1	2,061.00	36,920.75	38,981.25
Golden	80	5	301	1,632	5,800.00	*Nil*	69	4	*Nil*	1	*Nil*	*Nil*	1	1,145.00	22,816.25	23,961.25
Greenwood	175	6	738	2,009	7,872.00	*Nil*	81	14	*Nil*	4	19	250.00	1	1,762.00	28,423.75	30,185.75
Kamloops	749	14	21,218	18,098	39,000.00	*Nil*	706	2	*Nil*	3	23	500.00	8	5,841.00	290,629.33	296,470.33
Liard	287	1	11,398	11,783	58,100.00	*Nil*	273	*Nil*	*Nil*	30	85	500.00	17	1,641.00	191,136.75	192,777.75
Lillooet	129	4	1,099	1,556	11,026.00	*Nil*	41	2	*Nil*	5	28	250.00	1	1,345.00	29,881.75	31,226.75
Nanaimo	111	4	1,903	4,991	14,196.00	*Nil*	111	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1,355.00	53,922.75	55,277.75
Nelson	263	6	531	396	3,200.00	*Nil*	27	14	*Nil*	2	20	250.00	1	2,211.00	10,546.50	12,757.50
New Westminster	470	22	1,015	2,617	8,300.00	*Nil*	122	3	3	4	134	*Nil*	16	6,186.00	45,923.25	52,109.25
Nicola	130	7	6,856	4,896	18,200.00	*Nil*	310	1	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	2,052.00	83,836.75	85,888.75
Omineca	372	8	13,044	16,650	67,564.00	*Nil*	599	6	*Nil*	23	42	*Nil*	45	2,956.00	242,014.75	244,970.75
Osoyoos	199	4	1,044	1,472	23,876.00	*Nil*	68	14	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1,702.00	44,034.00	45,736.00
Revelstoke	80	2	120	900	8,904.00	*Nil*	44	4	*Nil*	2	8	250.00	2	800.00	16,288.00	17,088.00
Similkameen	181	3	4,594	3,324	22,500.00	*Nil*	238	5	*Nil*	36	284	5,625.00	98	1,505.00	90,275.75	91,780.75
Skeena	607	*Nil*	542	3,173	16,740.00	*Nil*	64	11	*Nil*	6	3	*Nil*	*Nil*	607.00	45,785.75	46,392.75
Slocan	179	7	836	1,379	7,848.00	*Nil*	115	23	*Nil*	*Nil*	3	*Nil*	*Nil*	2,095.00	28,422.50	30,517.50
Trail Creek	69	4	217	62	1,196.00	*Nil*	5	7	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	1,155.00	3,328.00	4,483.00
Vancouver	3,002	734	3,045	2,454	9,684.00	*Nil*	109	2	*Nil*	1	5	250.00	3	151,190.00	63,683.00	214,873.00
Vernon	291	10	683	825	3,700.00	*Nil*	45	3	1	3	17	*Nil*	*Nil*	2,922.00	11,762.50	14,684.50
Victoria	492	76	489	889	1,300.00	*Nil*	30	3	1	4	6	*Nil*	10	16,861.00	13,768.00	30,629.00
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
Totals for 1971	9,351	930	57,778	106,704	350,728.00	129	4,015	177	6	467	934	15,062.50	451	216,951.00	1,438,907.61	1,655,858.61

PETROLEUM AND NATURAL GAS TITLES

Staff

R. E. Moss ..... Chief Commissioner
W. W. Ross ..... Deputy Chief Commissioner

Petroleum and Natural Gas Titles, under the direction of the 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 titles issued under the *Petroleum and Natural Gas Act* 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.

Titles

As of December 31, 1972, 27,309,202 acres or approximately 42,671 square miles, an increase of 545,886 acres over the 1971 total, of Crown petroleum and natural gas rights, issued under the *Petroleum and Natural Gas Act, 1965,* 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	483	19,891,946
Natural gas licences	———	———
Drilling reservations	44	452,079
Leases (all types)	3,605	6,965,177
Total		27,309,202

Title Transaction Statistics, 1972

	Permits		Leases		Drilling Reservations		Natural Gas Licences	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Issued	90	2,766,410	313	515,820	31	311,150	—	—
Cancelled or surrendered	37	1,581,703	401	1,147,972	20	196,727	—	—
Renewed or extended	353	———	3,223	———	6	———	—	—
Assigned	92	———	1,117	———	12	———	—	—
Acreage amendments	2	18,898	66	102,194	—	———	—	—
Crown reserve dispositions	80	2,482,264	150	85,838	31	311,150	—	—

Petroleum and Natural Gas Revenue, 1972

During the year there were four dispositions of Crown reserve petroleum and natural gas rights resulting in tender bonus bids amounting to $20,495,662, a decrease of $1,690,589 from the previous year. A total of 428 parcels was offered and bids were accepted on 261 parcels covering 5,758,504 acres. The average price per acre was $7.12, which is a decease of $2.25 per acre over the previous year. Average bonus price per acre was respectively—permits, $5.57; leases, $42.69; and drilling reservations, $9.68.

	$	$
Rentals and fees—		
Permits	1,729,829	
Drilling reservations	107,537	
Natural gas licences		
Petroleum, natural gas, and petroleum and natural gas leases	6,976,517	
Total rentals and fees		8,813,883
Disposal of Crown reserves—		
Permits	13,818,020	
Drilling reservations	3,011,025	
Leases	3,666,617	
Total Crown reserves disposal		20,495,662
Royalties—		
Gas	5,580,434	
Oil	9,845,125	
Processed products	44,379	
Total royalties		15,469,938
Miscellaneous fees		42,775
Total petroleum and natural gas revenues		44,822,258

Administration of Regulations

During the year, 22 geophysical licences were renewed or issued, one petroleum-development road application was received and processed for approval, and three unit agreements and three royalty agreements were approved.

A total of 124 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.

ANALYTICAL AND ASSAY BRANCH

STAFF

S. W. Metcalfe	Chief Analyst and Assayer
N. G. Colvin	Laboratory Scientist
R. J. Hibberson	Laboratory Scientist
W. M. Johnson, Ph.D.	Laboratory Scientist
Mrs. E. A. Juhasz	Laboratory Technician
F. F. Karpick	Assayer
L. E. Shepard	Crusherman

Staff Changes

R. S. Young, Ph.D., laboratory scientist, retired on October 31, 1971.

W. M. Johnson, Ph.D., laboratory scientist, a graduate of the University of British Columbia and of the University of Washington, joined the staff on July 10, 1972.

Analytical and Assay Work

During 1972 the analytical laboratory in Victoria issued reports on 519 samples received for analysis from prospectors and Departmental geologists and engineers. Between May 1 and September 30 only five samples will be assayed without charge for a prospector who makes application for free assays and satisfies the Chief Analyst that prospecting is his principal occupation during the summer months. A form for use in applying for free assays may be obtained from the office of any Mining Recorder. A laboratory examination of a prospector's sample generally consists of the following: (1) A spectrographic analysis to determine if any base metals are present in interesting percentages; (2) assays for precious metals and for base metals shown by the spectrographic analysis to be present in interesting amounts.

The laboratory reports were distributed in the following manner among prospectors who were not grantees, prospectors who were grantees under the *Prospectors' Grub-stake Act*, and Departmental geologists and engineers:

	Samples	Spectrographic Analyses	Assays and Analyses
Prospectors (not grantees)	156	150	295
Prospectors (grantees)	62	62	125
Departmental geologists and engineers	301	145[1]	1,677
Totals	519	357	2,097

[1] An additional 78 spectrographic analyses were done for Departmental engineers and geologists, but the results were not reported.

Mineralogical Branch Samples

Of the 145 samples for spectrographic analysis, 12 were for five elements each, 28 for 14 elements each, and 58 for four elements each, making a total of 680 quantitative determinations. The remainder of the samples were for semiquantitative analyses.

Nine complete limestone analyses were performed.

Complete analyses were performed on six silicate rock samples, each for 17 elements, and on 48 for 15 elements each; in addition, partial analyses were conducted on 24 silicate rocks.

Twenty-four sediments were analysed for various elements.

Ferrous and ferric oxides were determined in nine glass beads obtained by the arc-fusion process.

Three samples of ore were assayed for both oxide and sulphide copper, and two of these samples were assayed for gold and silver.

Eighty-one samples were assayed for various elements, and the black material in a sample of fluorspar was identified as carbon.

Inspection Branch Samples

Free silica was determined in seven dust samples, and four tailings effluents were analysed.

Petroleum and Natural Gas Branch Samples

One sample of water was analysed, and tests were performed on oil stains on a paper towel.

Miscellaneous Samples

Reports were issued on 112 samples of a miscellaneous nature.

For the Department of Highways, Geotechnical and Materials Branch, a cutter and a shaft were analysed and the silica content of a sample of sand was determined.

For the Department of Recreation and Conservation, Fish and Wildlife Branch, 19 water samples were analysed; in addition, a precipitate and a coating on a rock were identified.

For the Department of Public Works, Architectural Branch, two samples of plaster were analysed.

For the Department of Agriculture, Field Crops Branch, green crystals and two pieces of cloth, one with a sediment attached, were analysed.

For the Department of Lands, Forests, and Water Resources, Research Division, a tree-ash residue was analysed.

For the Department of Health Services and Hospital Insurance, Health Branch, arsenic was determined in two samples of material from the tailing pond at Hedley. For the Minister of the same Department, an ore sample was examined for its copper content.

For the Speaker of the House, one ore sample was assayed.

For the Royal Canadian Mounted Police, two ore samples were assayed.

For the City of Victoria, Smoke Inspection, determination was made of the weights of residues and soluble salts collected in 65 bottles of water placed at various stations in the city.

X-RAY POWDER DIFFRACTION ANALYSES

One hundred and sixty-five mineral samples were identified by X-ray diffraction, quartz was determined quantitatively in 460 samples, and calcite, dolomite, and magnesite were determined quantitatively in eight samples.

EXAMINATIONS FOR ASSAYERS

Examinations for assayers were held in May and December. In the May examination, two candidates wrote and passed the examination. In the December examination, three candidates were examined, of whom one was granted a supplemental, and two failed.

INSPECTION BRANCH

ORGANIZATION AND 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

W. B. Montgomery, Inspector, Reclamation ..... Victoria
S. Elias, Senior Inspector, Environmental Control ..... Vancouver
D. I. R. Henderson, 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
B. M. Dudas, Inspector and Resident Engineer ..... Prince Rupert
P. E. Olson, Inspector and Resident Engineer ..... Nelson
T. M. Waterland, Inspector and Resident Engineer ..... Prince George
A. D. Tidsbury, Inspector and Resident Engineer ..... Prince George
W. G. Clarke, Inspector and Resident Engineer ..... Smithers
W. H. Childress, Technician, Noise Surveys ..... Vancouver

Inspectors are stationed at the places listed above and inspect coal mines, metal mines, and quarries in the districts shown on Figure 1. 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. W. B. Montgomery 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.

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

Staff Changes

In January, W. G. Clarke, Inspector and Resident Engineer, was transferred from Prince George to Smithers. On March 14, T. M. Waterland rejoined the staff as Inspector and Resident Engineer at Prince George.

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.

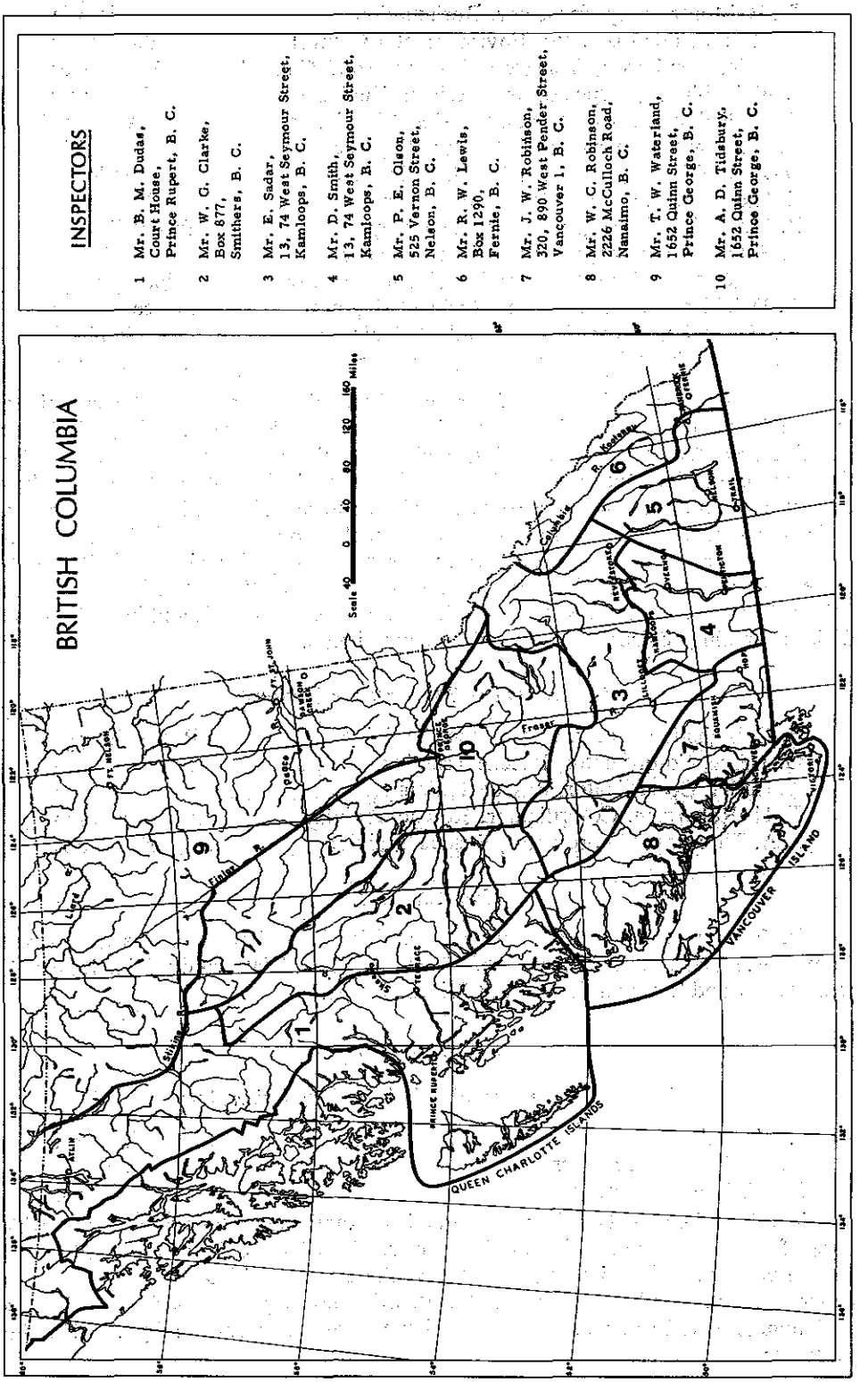


Figure 1. Index map showing inspectoral districts.

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 1972/73 fiscal year were as follows:

	Miles	Cost
		$
Roads—		
Construction	34.5	134,241.41
Maintenance	362.0	204,762.79
Bridges—		
Construction	———	28,876.29
Maintenance	———	82,589.89
Total		450,470.38

In addition to the above, work continued on the Stewart–Cassiar Road. The construction is done by contract, and is supervised by the Department of Highways on behalf of the Department of Mines and Petroleum Resources.

Construction was done under Projects 2233, 2234, and 763. Projects 2233 and 2234 were completed in 1972 to close the remaining gap of 14.76 miles of unfinished road. Vehicular traffic may now flow from Stewart to the Alaska Highway and all Alaska Highway traffic has access to British Columbia's most northerly coastal port of Stewart.

Since the closing of the gap, further responsibility of the road has been transferred to the Department of Highways.

Funds for completion of Project 763 (Barnett-McQueen Ltd. contract for the Stikine River bridge) have been included in the Department of Mines and Petroleum Resources estimates for 1973/74.

Total expenditure on the road to this date is $31,277,285.58. The Federal Government's commitment of $7,500,000 under the "Roads to Resources" agreement was expended by the end of September 1967 and since that time the whole cost of construction has been borne by the Provincial Government.

The Omineca Road, which extends 205 miles northwest of Fort St. James, was extended an additional 15 miles past Johanson Lake. Further construction will be undertaken.

The new British Columbia railway extension to Takla Lake has expanded the use of the Omineca road. This increased use has been reflected in much higher road and bridge maintenance costs. Also, additional logging is anticipated and the road between Fort St. James and the Nation River bridge is being upgraded from a 15-ton load limit to a 50-ton load limit as far as Nation River.

For the purpose of assisting the development of the petroleum and natural-gas resources in the northeastern part of the Province, an additional grant was provided to improve the vehicle access approaches to the new British Columbia railway bridge over the Fort Nelson River. The cost of this work totalled $44,000.

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.

Forty-three applications were received, and 27 grub-stakes were authorized. Grantees unable to complete the terms and conditions of the grant received only partial payment. Eleven prospectors were given grants for the first time. One grantee proved to be unsatisfactory.

E. R. Hughes interviewed applicants in Vancouver and contacted 15 grantees in the field, giving advice and direction to those requiring additional guidance. Personnel in offices of Government Agents and local Mine Inspectors throughout the Province assisted in administering the programme. The following notes comprise summaries by Mr. Hughes of the prospecting activities and results. They are based on observations made by him in the field and from information contained in diaries of the grantees.

Alberni Mining Division—Several short holes were drilled and blasted in an area well served with logging-roads, in the Donner Lake area, west of Strathcona Park, and at Kunlin Lake, between Strathcona Park and Gold River. One sample taken from the area assayed copper, 0.89 per cent, and silver, 0.9 ounce per ton. Another sample assayed copper, 2.78 per cent, and silver, 2.0 ounces per ton.

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

Some work was done in the Brooks Peninsula, near the boundary of the Nanaimo and Alberni Mining Divisions. Of 13 samples, several indicated traces of gold and silver. One sample assayed copper, 0.32 per cent, and another sample assayed copper, 0.14 per cent.

Clinton Mining Division—Several short holes were drilled and blasted, and some trenching was done in an area west of Kelly Lake where pyrite and copper stains were found. The work was inconclusive.

A camp at Bluff Lake in the Clinton Mining Division served as a base for a two-man team to prospect an area on both sides of the boundary between the Clinton and Cariboo Mining Divisions. Most of the work was done in the Clinton Mining Division. Between Bluff Lake and the headwaters of Klinaklini River, shales, sandstones, limestones, coarse conglomerate, phyllite, porphyritic basalt, pyroxene, and scattered dolomite were seen. A sample taken from a quartz outcrop, 2 to 3 feet wide, assayed silver, 1.1 ounces per ton. A second sample in this area assayed molybdenum, 0.4 per cent. Further sampling of quartz outcrop assayed silver, 1.5 ounces per ton. A sample from the Wolverine Creek area assayed gold, 0.04 ounce per ton; silver, 4.9 ounces per ton.

In the Sapeye Lake area, sandstone was reported with many basaltic intrusions. Fossils seen were brachiopods and gastropods. On Razor Creek, sedimentary rocks were dominant; these being chiefly conglomerates and sandstones, with many basaltic intrusions.

Near the southeast end of Blackhorn Lake, the rock consisted primarily of granodiorite cut by dykes of porphyritic andesite and containing veins of quartz,

with minor chalcopyrite and sphalerite. On the west side of Blackhorn Lake, adjacent to some old mine workings, dump materials were found to consist of arsenopyrite, pyrrhotite, chalcopyrite, and pyrite.

In the Lord River area, south of Taseko Lakes, acid instrusive rocks with minor pyritization were encountered and some silt samples were taken. Occasional feldspar-porphyry dykes were seen. Coarse molybdenite rosettes in quartz and on fracture faces were found in large angular float boulders. Detailed prospecting of granitic ridges revealed quartz stringers and veins with occasional pyrite. East of the upper Taseko Lake, chalcopyrite and bornite were found in rounded boulders.

Some prospecting was done in the Scum Lake and Taseko River area with inconclusive results. In the Fish Lake area, east of Taseko River, extensive dioritic feldspar porphyry float was found and some silt-sampling was done. Coarse-grained igneous rocks on the southeast side of Anvil Mountain were examined, and a gossan zone on Beece Creek was silt-sampled. A grid was established over an area of molybdenite float and four mineral claims were staked near the south side of Taseko River.

Kamloops Mining Division—A little over one month was spent by a two-man team in the area between Bonaparte Lake and the town of Barriere. The rocks encountered were mostly granodiorite, monzonite, and gabbro near Bonaparte Lake, and andesite breccia, syenite, shale, and slate nearer Barriere. Some soil-sampling was done with mediocre results. Minor amounts of molybdenite were seen in float. One sample taken from the area assayed 0.08 per cent nickel.

In the Birch Lake area, diorite, gabbro, and chert-breccia were reporteed, but copper mineralization was found to be a sparse.

In the Sleetsis Creek, Skoonka Creek, and Murray Creek areas, west of Spences Bridge, some prospecting was done, and andesite, basalt, argillite, and quartzite rocks were found. Except for minor pyrite, no mineralization was seen.

Liard Mining Division—A base camp was established at the Smith River bridge at Mile 514 on the Alaska Highway, and some prospecting was done northward along the Smith and Coal Rivers, and adjacent to the Alaska Highway between Mile 504 and Mile 538. Calcite, limestone, slate, and barite stringers were reported to have been seen near Smith River Falls, and a small outcrop of basaltic rock was observed near the confluence of the Smith and Liard Rivers. On the west side of Smith River there were showings of argillite, limestone, calcite, shale, quartz, quartzite, schist, and pieces of pyrite float. On the east side of Smith River, traces of bornite and chalcopyrite in fresh float were observed. On Coal River, shale with quartzite layers was seen, and near Mile 538 quartzite and shale were found. A sample taken from near Mile 504 assayed 34.4 per cent iron.

Lillooet Mining Division—In the Lizzie Creek area, east of Lillooet Lake, some prospecting was done along logging-roads and on the flanks of the valley north of the creek. An extensive area of rusty, stained, and altered granodiorite was seen with occurring pyrite in hairline fractures. A magnetometer survey was made over an established grid in the Owl Lake area, and 96 soil samples were taken. Intrusive rocks were examined and some minor malachite was seen.

Nanaimo Mining Division—Some prospecting was done on the hillside east of the highway bridge at the north end of Buttle Lake. An "M" scope was used and five diamond-drill holes were completed, the deepest of which was 85 feet. The purpose of this work was an attempt to find the source of free gold found in a boulder in this vicinity. The effort was not successful and drilling was discontinued.

In the Upper Quinsam Lake-Iron River area some prospecting was done and seven mineral claims were staked from which five samples were submitted for assaying. One sample from the Heather Hill claim assayed 4.25 per cent zinc, 0.86 per cent copper, and 1.3 ounces silver per ton. Other samples indicated traces of gold and silver.

Nelson Mining Division—Some prospecting was done in the Ymir Creek, Porcupine Creek, Barrett Creek, Erie Creek, Active Creek, Blazed Creek, and Sheep Creek areas. Outcrops of quartzite, schist, dolomite, and quartz were reported in the Porcupine Creek area. Barren quartz float was found on Erie Creek. Plentiful quartzite was reported east of the old Reno mine, and some large pieces of zinc sulphide float were seen on the Huckleberry Creek Road.

An outcrop on Stewart Creek, northwest of Ymir, was investigated and some shallow holes were drilled with a pack-sack drill. One sample taken here was reported to assay 5 per cent zinc, and another was reported to assay 10 per cent zinc. The extent of the mineralization cannot be determined until some stripping has been done. Six mineral claims were staked to cover the area.

Omineca Mining Division—Nine miles of trail was cut northward from a base camp on Tchentlo Lake to the FUM group of mineral claims. Some prospecting was done east of the trail where fractured syenite and granite occur. Minor pyrite was found but no copper. West of the trail, float with malachite was found and some silt-sampling was done. West of the FUM group in a basin, near the top of Nation Mountain, several streams were silt-sampled and a diorite to granite outcrop was prospected. Some disseminated chalcopyrite with epidote and sulphides was encountered in a rhyolite dyke which follows a small stream. Plugger holes were blasted in trenches on the COL group north of the west end of Chuchi Lake. Magnetite and chalcopyrite were found in float in a stream east of Lisa Lake.

Some prospecting was done south of Tchentlo Lake and some silt-sampling was done. Several outcrops of rhyolite intruded into coarse conglomerate were examined. The only mineralization found was minor pyrite.

On foot and by boat, investigations were made in areas where anomalies were indicated by aeromagnetic mapping in the country adjacent to Ootsa, François, Gale, and Cheslatta Lakes. Small amounts of opal, of undetermined value, were reported north of Tatalrose road west of Southbank and near Hallet Lake. Perlite was seen on the north side of Cheslatta Lake. Heavy pyrite in basalt was reported west of Jacob Lake, and specular hematite, pyrite, and minor chalcopyrite were found east of Danskin.

On Kitnayakwa River, a tributary of Zymoetz River, much red andesite was reported. Some prospecting was done along a gravel bar on the east side of the river near its confluence with Iceflow Creek where pieces of float containing bornite and malachite were found. Fine grains or bornite were also reported in calcite stringers. Native copper was found in float on the west side of Kitnayakwa River. One sample taken in the area assayed 0.4 ounce silver per ton and 2.15 per cent copper. Twenty-nine mineral claims were staked near Icebow Creek. A long season was spent in the Fredrikson Lake-McConnell Lake area, but no significant mineralization was found.

A trip was made by aircraft from Fort St. James to Takatoot Lake, east of Takla Lake. The rocks encountered in the area included granodiorite, quartzite, limestone, and conglomerate. Minor pyrite was the only mineralization that was found.

Osoyoos Mining Division—Prospecting was done in the area adjacent to Mile 7 and Mile 30 on the Ashnola River forest road. Soil sampling was reported to be favourable. Some minor scheelite was found in quartz float, and some minor malachite was seen. Bornite was also found in float. A sample taken from this area assayed 0.23 per cent tungsten.

Revelstoke Mining Division—Some prospecting was done in the Rady Creek, Laughton Creek, Ottawa Creek, Brown Creek, and Fays Peak areas northeast of Trout Lake. On Rady Creek, a phyllite band was found cut by highly oxidized quartz veins containing minor galena. On Fays Peak a wide band of calcite schist appears to run the entire length of the mountain at about the 6,500-foot level. Some well-disseminated chalcopyrite was reported to have been seen in the schist. Four samples were taken from the Fays Peak area. One of the samples assayed 0.14 ounce gold per ton; 0.4 ounce silver per ton, and 3.65 per cent zinc. Another sample assayed a trace of gold, 0.2 ounce silver per ton, and 0.51 per cent copper. The third sample assayed a trace of silver and the fourth sample had neither gold nor silver. Six mineral claims were staked between Fays Peak and Ottawa Creek.

Similkameen Mining Division—In the Pasayten River, Placer Creek, Trapper Lake, and Lime Creek areas, east of the Hope–Princeton Highway, a full season's prospecting was done. The area is underlain by rocks of the Princeton and Nicola Groups and by Coast Instrusions. The rocks seen were limestone, sandstone, argillite, quartzite, andesite, felsite, dolomite, gabbro, and granite. No significant mineralization was found. Coarse coal float was found in Tuning Fork Creek, east of Placer Lake, but efforts to find a coal seam were not successful.

Slocan Mining Division — Some prospecting was done on Hamill, Carter, Argenta, Glacier, Salisbury, Gardner, and Gar Creeks near the northeast end of Kootenay Lake, but no mineralization of any significance was reported.

In the St. Leon-Halcyon Hot Springs area and in the Halcyon Ridge area, east of the Upper Arrow Lake, some prospecting was done on foot. A helicopter was used to reach the height of land between the Upper Arrow Lake and Trout Lake. The rocks encountered were granite, quartz diorite, quartzite, shale, and schist. Other than minor iron pyrite and sphalerite float, no mineralization was observed.

Vancouver Mining Division — Some prospecting was done in the Pokosha Creek area, about 26 miles north of Squamish, where the rocks were reported to be mostly quartz porphyry, granite, and limestone. Scattered pyrite and chalcopyrite were found in some specimens. In the Ashlu Creek area, near the old Ashloo mine, some prospecting was done and two samples were taken. These assayed as follows: Gold, 0.14 ounce per ton; silver, 0.2 ounce per ton, and gold, 0.46 ounce per ton; silver, 2.1 ounces per ton; copper, 0.02 per cent. Several short holes were drilled and blasted. A new logging-road now provides improved access into the area.

Victoria Mining Division—In the San Juan-Clapp Creek area, a trail was blazed and some prospecting was done where antimony had been found in several outcrops on a previous occasion. Eight mineral claims were staked. One sample assayed 20 per cent antimony.

MINERALOGICAL BRANCH

The principal functions of the Mineralogical Branch are to assist in the orderly exploration, development, and use of the Province's coal and mineral resources and to provide information to Government and industry on the quantity and distribution of the coal and mineral resources of the Province. The Branch makes a variety of geological studies; publishes data concerning mineral deposits; makes mineral poten-

tial assessments of land; collects, stores, and disseminates geological and statistical data; and records the exploration and mining activities of the industry. The Branch is engaged in inventorying the mineral deposits of the Province and is working toward a metal-by-metal quantitative appraisal of the mineral resources. It provides rock and mineral identifications, limited free assaying for prospectors, contributes lectures in courses on prospecting, participates in scientific meetings, and arranges educational exhibits.

The Branch consists of an Economic Geology Section, a Mineral Resources Section, and a Publication and Technical Services Section. The Analytical and Assay Branch in effect functions as a fourth section of the Branch inasmuch as it reports to the Deputy Minister through the Chief of the Mineralogical Branch.

The Economic Geology Section, under the direction of Dr. A. Sutherland Brown, is responsible for the scientific investigations related to mineral deposits. The work may involve detailed geological mapping and study of mineral deposits in mining camps or areas of recognized mineral potential as well as chemical, petrographic, and other studies in the laboratory.

The Mineral Resources Section, under the direction of N. C. Carter, is concerned with the documentation of current exploration and mining activity, compilation of an inventory of all mineral deposits, and obtaining and interpreting data for the purpose of appraising the mineral resource of areas for various purposes.

The Publications and Technical Services Section is responsible for the production and editing of manuscripts and maps for publication, and for library, lapidary, photographic, transport, and equipment services.

STAFF

On December 31, 1972, the professional and technical staff included the following:

Stuart S. Holland, Ph.D., P.Eng.	Chief
A. Sutherland Brown, Ph.D., P.Eng.	Deputy Chief
N. C. Carter, M.Sc., P.Eng.	Senior Geologist
B. N. Church, Ph.D., P.Eng.	Geologist
G. E. P. Eastwood, Ph.D., P.Eng.	Geologist
J. A. Garnett, B.Sc., P.Eng.	Geologist
E. W. Grove, M.Sc., P.Eng.	Geologist
E. V. Jackson, B.Sc., P.Eng.	Geologist
W. J. McMillan, Ph.D., P.Eng.	Geologist
J. W. McCammon, M.Sc., P.Eng.	Geologist
K. E. Northcote, Ph.D., P.Eng.	Geologist
A. Panteleyev, M.Sc., P.Eng.	Geologist
V. A. Preto, Ph.D., P.Eng.	Geologist
A. F. Shepherd, B.Sc., P.Eng.	Geologist
R. I. Thompson, Ph.D., P.Eng.	Geologist
Miss E. M. Balicki, B.Sc.	Research Officer (Geology)
Mrs. Rosalyn J. Moir	Manuscript Supervisor
K. S. Crabtree	Draughting Supervisor
R. E. Player	Lapidary and Photographer

Staff Changes

A. Panteleyev, geologist, a graduate of the University of British Columbia, joined the staff on May 15, 1972.

N. C. Carter, geologist, a graduate of the University of New Brunswick and of Michigan School of Technology, was appointed Senior Geologist (Mineral Resources) to fill the position vacated by James T. Fyles who, on September 5, 1972, was appointed Deputy Minister of the Department of Mines and Petroleum Resources.

Field Work, 1972 Season

A. Sutherland Brown visited all major copper deposits coming into production.

N. C. Carter mapped in detail an area adjacent to Babine Lake for the purpose of preparing and publishing a preliminary geological map. Numerous mining properties under active exploration were examined.

B. N. Church completed the geological mapping and property examination of the Buck Creek map area.

J. A. Garnet continued detailed geological mapping of the Hogem batholith in the Omineca.

E. W. Grove made property examinations in the Stewart area.

W. J. McMillan completed the geological mapping of the Guichon Creek batholith and began detailed examinations of the mineral deposits of the area.

J. W. McCammon examined fluorite deposits at Liard Hot Springs and examined quarries from Prince George through the Kamloops to the East and West Kootenays.

K. E. Northcote undertook regional mapping and examination of mining properties on Vancouver Island.

A. Panteleyev examined active mining properties in the Atlin area and western part of the Stikine Basin.

V. A. Preto examined active mining properties in the Iron Mask area west of Kamloops.

R. I. Thompson did some detailed geological mapping near Harrison Lake and made mineral evaluation and reconnaissance studies near Keremeos, Taseko Lakes, and Robb Lake.

Four senior geological field assistants and 10 junior assistants were employed on the various projects.

Publications and Reports

Technical reports of the Mineralogical Branch were published in *Geology, Exploration, and Mining in British Columbia,* 1972. Bulletin 59, *Geology of Copper Mountain,* by V. A. Preto and Bulletin 62, *Gravity, Magnetics, and Geology of the Guichon Creek Batholith,* by C. A. Ager, W. J. McMillan, and T. J. Ulrych were also published.

A considerable number of scientific reports and papers resulting directly from their work as staff geologists were also published by officers of the Branch.

Aeromagnetic Surveys and Magnetic Surveillance

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 1972. Eight map sheets (94 D/1 and 2, 7 to 10, 15 and 16) 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 Columbia Department of Mines and Petroleum Resources, Room 411, Douglas Building, Victoria, or the Geological Survey of Canada, 100 West Pender Street, Vancouver 3.

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.

The Department of Energy, Mines and Resources (Earth Physics Branch) operates a magnetic observatory at Victoria. Services available to geophysical exploration companies and other interested agencies include:

(*a*) Three-hour range indices of magnetic activity; these provide a measure of the intensity of the magnetic disturbance (on a 0–9 scale) for each three-hour period. The monthly listings of these indices are normally mailed within a few days after the end of each month.

(*b*) Copies of magnetograms are available through a local duplicating firm at a charge of $7.50 for a monthly set. These recordings of the magnetic field can be used to control field surveys, in particular to correct for the diurnal changes and magnetic disturbances. The area over which this control is valid depends on the required accuracy; for ±5 gamma accuracy, it covers an elliptic region reaching roughly as far as longitude 118 degrees to the east and latitude 50.5 degrees to the north.

Further details can be obtained by writing to the Officer-in-charge, Victoria Magnetic Observatory, RR 7, Victoria.

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 of the Mineralogical Branch, Douglas Building, Victoria.

PETROLEUM AND NATURAL GAS BRANCH

General

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Every well location must be approved by the Branch before the well is drilled. All operations related to drilling and production are inspected frequently to ensure compliance with the provisions of all regulations, including such features as facilities and practices used, adequate plugging of abandoned wells, surface restoration of well-sites, well-testing and measurement procedures employed, disposal of produced water, protection of installations against fire, and general conservation.

Investigations are made of complaints of property damage resulting from drilling and producing operations, and from geophysical work programmes.

Comprehensive records of all drilling and producing operations are maintained at Victoria and are made available for study, or are published, for the use and benefit of anyone interested in oil or gas development in British Columbia. Samples of bit cuttings, as well as all core, obtained from every well drilled in the Province, are collected and retained at the field office located at Charlie Lake, where they are available for study. Charlie Lake is adjacent to the Alaska Highway, about 5 miles northwest of Fort St. John.

Detailed reservoir engineering and geological studies are conducted on the basis of technical information submitted to the Branch from operating companies, as well as information acquired through field work by Branch personnel. Estimates of the reserves of oil and natural gas are made annually, at the end of December. Crown-owned oil and natural-gas rights are evaluated prior to being disposed of by public tender.

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G. T. Mohler	Field Technician (Engineering)
W. B. Holland	Field Technician (Engineering)
J. W. D. Kielo	Field Technician (Engineering)

Staff Changes

J. W. D. Kielo, Technician, Engineering, joined the staff on March 6, 1972.

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

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Seven cases were outstanding at the end of the year. These involve five right-of-entry orders, the case stemming from the jurisdictional award, and an application for review of an existing award order.

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Chairman: J. T. Fyles, Deputy Minister, Department of Mines and Petroleum Resources.

Members: M. H. A. Glover, Economist, Department of Industrial Development, Trade, and Commerce, and one to be named.

The Conservation Committee is responsible to the Minister of Mines and Petroleum Resources and was established originally on October 11, 1957, under the authority of the *Petroleum and Natural Gas Act.* 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.

The Conservation Committee did not meet in 1972.

PUBLICATIONS

A list of the publications of the Department of Mines and Petroleum Resources is available free on request to the Chief of the Mineralogical Branch or Chief of the Petroleum and Natural Gas 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.

Petroleum and Natural Gas

CHAPTER 4

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PETROLEUM AND NATURAL GAS TITLES

STAFF

R. E. Moss ..... Chief Commissioner
W. W. Ross ..... Deputy Chief Commissioner

Petroleum and Natural Gas Titles, under the direction of the 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* 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.

During the year, there were four dispositions of Crown reserve petroleum and natural gas rights resulting in tender bonus bids amounting to $20,495,662, a decrease of $1,690,589 from the previous year. A total of 428 parcels was offered and bids were accepted on 261 parcels covering 5,758,504 acres. The average price per acre was $7.12 which is a decrease of $2.25 per acre over the previous year. Average bonus price per acre was respectively—permits, $5.57; leases, $42.69; and drilling reservations, $9.68.

During the year, 22 geophysical licences were renewed or issued.

During the year, one petroleum-development road application was received and processed for approval.

A total of 124 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, three unit agreements and three royalty agreements were approved.

As of December 31, 1972, 27,309,202 acres or approximately 42,671 square miles, an increase of 545,886 acres over the 1971 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	483	19,891,946
Natural gas licences	------	------
Drilling reservations	44	452,079
Leases (all types)	3,605	6,965,177
Total		27,309,202

Title Transaction Statistics, 1972

	Permits		Leases		Drilling Reservations		Natural Gas Licences	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Issued	90	2,766,410	313	515,820	31	311,150	—	—
Cancelled or surrendered	37	1,581,703	401	1,147,972	20	196,727	—	—
Renewed or extended	353	—	3,223	—	6	—	—	—
Assigned	92	—	1,117	—	12	—	—	—
Acreage amendments	2	18,898	66	102,194	—	—	—	—
Crown reserve dispositions	80	2,482,264	150	85,838	31	311,150	—	—

Petroleum and Natural Gas Revenue, 1972

	$	$
Rentals and fees—		
Permits	1,729,829	
Drilling reservations	107,537	
Natural gas licences	—	
Petroleum, natural gas, and petroleum and natural gas leases	6,976,517	
Total rentals and fees		8,813,883
Disposal of Crown reserves—		
Permits	13,818,020	
Drilling reservations	3,011,025	
Leases	3,666,617	
Total Crown reserves disposal		20,495,662
Royalties—		
Gas	5,580,434	
Oil	9,845,125	
Processed products	44,379	
Total royalties		15,469,938
Miscellaneous fees		42,775
Total petroleum and natural gas revenues		44,822,258

Acreage of Crown Petroleum and Natural Gas Rights Held, 1963–72

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Petroleum and natural gas permits	24,902,690	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
Petroleum and natural gas leases	10,753,287	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
Natural gas licences	74,987	9,669	—	27,815	—	—	—	—	—	—
Natural gas leases	543,966	555,829	540,088	524,612	549,218	518,826	475,419	472,964	471,919	470,260
Petroleum leases	2,568	2,568	2,568	2,568	644	644	—	—	1,284	1,284
Drilling reservations	641,919	451,998	534,868	503,603	462,138	384,925	350,546	292,402	337,656	452,079
Totals	36,919,417	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

Petroleum and Natural Gas Revenue, 1947–72

	Cumulative, 1947–63	1964	1965	1966	1967	1968	1969	1970	1971	1972	Cumulative, 1947–72
Rentals and Fees	$	$	$	$	$	$	$	$	$	$	$
Permits	35,853,674	1,302,305	1,176,501	1,661,591	1,369,232	1,184,457	1,772,064	1,426,448	1,615,619	1,729,829	49,091,720
Drilling reservations	525,977	64,800	114,483	113,496	86,303	87,759	79,796	48,156	79,120	107,537	1,307,427
Natural gas licences	63,788	—	—	1,466	—	—	—	—	—	—	65,254
Leases (all)	21,147,722	7,077,488	7,013,187	8,432,386	8,901,196	9,349,480	8,488,114	7,699,844	7,733,584	6,976,517	92,819,518
Total rentals	57,591,161	8,444,593	8,304,171	10,208,939	10,356,731	10,621,696	10,339,974	9,174,448	9,428,323	8,813,883	143,283,919
Crown Reserve Disposition Bonuses											
Permits	15,655,648	721,193	1,825,322	6,982,439	8,428,409	9,554,004	16,516,392	9,506,074	14,688,570	13,818,020	97,696,071
Drilling reservations	10,949,617	1,541,685	3,278,641	4,657,510	3,013,979	1,785,527	1,394,215	1,825,404	2,486,763	3,011,025	33,944,366
Leases	24,774,263	10,830,994	13,057,470	4,199,528	2,855,428	3,737,489	3,735,845	5,008,323	5,010,918	3,666,617	76,876,875
Crown reserve disposition total	51,379,528	13,093,872	18,161,433	15,839,477	14,297,816	15,077,020	21,646,452	16,339,801	22,186,251	20,495,662	208,517,312
Crown Royalties											
Gas	5,795,956	1,583,292	1,682,444	2,256,725	2,870,656	3,217,227	3,730,634	3,948,356	4,209,793	5,580,434	34,875,517
Oil	7,064,043	3,502,222	3,697,668	5,449,663	6,678,245	7,677,405	9,017,352	9,483,937	10,415,656	9,845,125	72,831,316
Processed products	551,346	104,990	93,226	61,568	58,536	50,762	48,847	42,314	42,517	44,379	1,098,485
Crown royalties total	13,411,345	5,190,504	5,473,338	7,767,956	9,607,437	10,945,394	12,796,833	13,474,607	14,667,966	15,469,938	108,805,318
Miscellaneous fees	164,406	26,851	17,790	18,073	17,917	17,955	19,025	21,843	35,604	42,775	382,839
Total petroleum and natural gas revenue	122,546,440	26,755,820	31,956,732	33,834,445	34,279,901	36,662,065	44,802,884	39,010,699	46,318,144	44,822,258	460,989,388

PETROLEUM AND NATURAL GAS BRANCH

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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.

The Conservation Committee did not meet in 1972.

FIELD OPERATIONS

General

The Field Office is responsible for enforcement of all sections of the Drilling and Production Regulations which pertain to field operations throughout the entire Province. The staff are headquartered at Charlie Lake, near Mile 52 on the Alaska Highway. Offices, core and sample storage facilities, technical laboratories, and residences comprise the Branch establishment. During periods of increased winter drilling activity, a suboffice at Fort Nelson is used.

During 1972, eight vehicles were driven 158,529 miles to conduct various inspections, perform surveys, or witness industry operations pertaining to the drilling and production phases of the oil and gas industry. Numerous geophysical and pipe-line operations were observed and reported to Departmental personnel in Victoria.

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 1972 numbered 759 boxes from 64 wells, bringing the total stored at the end of the year to 31,218 core boxes from 1,897 wells. In 1972, 6,725 boxes of core from 340 wells were studied by oil company personnel and other interested individuals. Cores from 23 wells were 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, 88,451 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 1972, the Charlie Lake storage contained 821,302 samples, while 815,325 samples were retained in the Victoria library. During 1972, samples from 215 wells were delivered to the Field Office and a total of 55,931 10-foot samples was washed and bottled. Industry and personnel from other government agencies studied samples from 24 wells during the year.

The Provincial calibration standard for selective oilfield-pressure measurement equipment is located at the Charlie Lake Field Office. During 1972, 704 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 free of charge to the industry.

A specialized wireline truck was employed to conduct pressure and temperature surveys of 59 potential or producing wells. These surveys were conducted to both check and supplement pressure data submitted by operating companies.

Inspections

Inspections of gas production, oil production, and sales meters were performed in 1972 to insure that proper production practices were being employed. Complete meter calibrations were done on 449 gas meters while an additional 608 meters were given the fast-check procedure. Meter calibrations on 27 positive displacement meters were witnessed.

Crude-oil production facilities were inspected on 256 occasions, while 2,101 routine inspections were made at producing, potential, or abandoned well-sites. Drilling operations were observed by the field staff in 470 instances and 16 drill-stem tests were witnessed.

Tests on 49 natural gas wells were witnessed and one test was conducted on a producing oil well. These tests were performed to verify production characteristics of the wells and to ensure that data received by the Reservoir Engineering Section is accurate.

Spillages, Accidents, and Fires

Immediate attention was paid by field personnel to any incidents involving the spillage of petroleum products. No major spills were reported during 1972, although 15 cases were investigated by Branch staff members and prompt remedial measures were taken by the responsible oil company. Three spills related to oil-gathering operations, plus six each at wellhead and battery installations. Nine of the fifteen instances were the result of equipment failure, three were caused by freezing-off of flow-lines, two from pipe-line corrosion, and one accident happened when a bulldozer blade came into contact with a buried gathering-line.

The Oil Spill Contingency Plan, initiated in 1971, for the producing area of the Province was available for remedial measures in the event of spillages. Additional equipment was transported to the area and located in strategic points to ensure containment and rapid clean-up of any spilled oil.

An explosion in a Milligan Creek separator building occurred during 1972. Faulty electrical equipment was determined to be responsible. A minor fire, which was immediately extinguished, was reported at a well in the Graham area. Gas accumulation followed by ignition from an electrical short-circuit was concluded to be the cause.

A fatal accident in the Jedney area occurred on September 12, 1972. A two-man crew employed by a well-servicing company was working at the water-disposal well, Pacific Imperial Jedney a-95-C. Their assignment was to bleed-off accumulated gas, following a routine acidization operation. The flare-line, through which the gas was to be flared, was improperly anchored and the line was violently thrown sideways, striking one of the workmen.

GEOLOGICAL SECTION

General

The Geological Section is primarily responsible for the preservation and evaluation of certain well data, the administration of the Branch well-evaluation requirements, the geologic mapping of oil and gas accumulations, and the regional sub-

surface mapping of the sedimentary basin hydrocarbon bearing rock assemblages. These functions of responsibility are used as a means of providing data and opinions to attract, assist, and encourage industry in the exploration and development of the oil and gas resources of the Province.

For each well location approved, the Section stipulates sampling and coring requirements 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 the 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 or 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 Chief Petroleum and and Natural Gas Commissioner 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 seletced 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 evaluation of rock-stratigraphic units which have attained a position of economic importance in the development of the Province's hydrocarbon resources.

Reservoir geological work in co-ordinated studies with the Reservoir Engineering Section completed the updating and inclusion of new well data for the annual publication of the *Hydrocarbon and By-products Reserves.* In addition, a considerable amount of new mapping and information was compiled in preparation for the publication of a reference volume on the oilfields and gasfields of British Columbia. A minor amount of geological work involved the revision of the Halfway reservoir limits of the Milligan Creek oilfield in agreement with engineering material balance studies.

A number of regional subsurface mapping projects were completed within that portion of the Western Canadian Sedimentary Basin underlying northeastern British Columbia. These mapping projects originally compiled on a scale of 2 miles to the inch were subsequently photo-reduced and spliced for regional presentation of the mapped unit.

An isopachous map of the interval base Jean Marie-Kakisa to top of the first Middle Devonian carbonate displays in gross aspects the development and distribution of the Slave Point along the zone of facies change from shale to carbonate. As a corollary and in conjunction with the latter isopachs, a structure map on top of the Middle Devonian Slave Point was prepared which is definitive in showing the distribution of the facies variations of the Slave Point-Elk Point rock assemblages.

The thickness and distribution of the Lower Cretaceous Bluesky Formation (?) was studied in the general Kotcho Lake area. These porous sandstone deposits are

mainly developed within an extensive northwest-southeast trending Pre-Cretaceous erosional low. Similar type clastic sediments productive to the south are separated from the latter geographical area by an intervening topographic high. This study also defined the distribution of the Mississippian subcrop sequences which were strongly modified by erosional truncation in a general northeasterly direction prior to deposition of Cretaceous sediments.

Drilling Highlights

The 1972 exploratory and development drilling programme carried out by industry in British Columbia increased by 9 per cent with a total of 211 wells drilled versus 193 wells completed in 1971. The independent segment of the industry predominated in the exploratory drilling programme, while the majors concentrated their efforts in the development drilling of established fields.

Exploratory drilling was up 28 per cent over last year with the completion of 34 new pool discoveries out of a total of 118 wells drilled. Of the 34 new pool discoveries, 31 were completed as gas wells and 3 were completed as potential oil producers. None of the 34 completions were given major discovery status.

With the exception of one unsuccessful well drilled southwest of Prince George in the Quesnel basin, all exploratory drilling activity centred in the Western Canadian sedimentary basin of northeastern British Columbia. The majority of drilling and subsequent new pool discoveries occurred within the general Fort St. John area. Although extensively drilled, this area continued to provide the most favourable completion results from multiple potential objectives such as the Bluesky, Dunlevy, Charlie Lake, Halfway, and Belloy hydrocarbon bearing rock sequences.

Several small gas accumulations were encountered from drilling to the east and south of Fort Nelson. These reserves were discovered within carbonates of Mississippian and Middle Devonian age associated with the Pre-Cretaceous unconformity and Klua Shale embayment respectively. In addition, an indeterminate amount of gas reserve was encountered in the partial reef penetration of the BP et al Gote d-37-D/94-P-12 well located west of the Slave Point facies front.

A moderate amount of gas was recovered in open-hole testing from two wells drilled in the Grizzly Valley area. The intervals tested covered sections of the Lower Cretaceous Nikinassin and Triassic Baldonnel Formations. The Quasar Grizzly a-74-G exploratory wildcat, currently assigned the finished drilling status, blew wild at a final depth of 12,861 feet. This well is believed to have bottomed in Triassic Halfway or equivalent sediments. It has not been possible to determine the potential gas reserve from the latter horizon.

Two marginal oil pools were discovered in Charlie Lake and Halfway Formations. The Scurry ML CAEL Cecil 10-24-84-18 extension well encountered an oil leg to an associated gas cap.

Development drilling activity resulted in the drilling of 93 wells, of which 27 were completed for gas, 34 for oil, and 5 for water injection to enhance secondary recovery projects. A part of this development drilling resulted in the successful extension of the proven plus probable reserve limits of established fields.

Geophysical and Surface Geological Coverage

With the exception of a limited amount of geophysical work offshore of Vancouver Island, most of the year's activity centred in northeastern British Columbia. Seismic reflection, with some refraction, and gravity-type surveys resulted in a total of 200 crew weeks of work completed, with January as the most active month.

During the year, 80 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 within the northeastern British Columbia basin area.

Oil Discoveries, 1972

Well Authorization No.	Well Name	Location	Total Depth (Ft.)	Productive Horizon
3157	GAO Cdn Res Pintail 2-12-85-25	2-12-85-25 W6M	7,750	Charlie Lake.
3098	Texaco et al N Boundary 11-30-87-14	11-30-87-14 W6M	4,484	Halfway.

Gas Discoveries, 1972

3137	ARCo Bivouac d-68-C	d-68-C/94-I-8	2,200	Debolt.
3165	Anadarko Cdn-Sup Buick a-29-L	a-29-L/94-A-10	3,792	Dunlevy.
3063	BP et al Gote d-37-D	d-37-D/94-P-12	7,628	Sulphur Point.
3135	CIGOL S Milligan d-24-G	d-24-G/94-H-2	3,770	Halfway.
3032	Cdn Res Quintana Adsett a-36-G	a-36-G/94-J-2	8,630	Slave Point.
3142	Dome Antelope a-63-L	a-63-L/94-H-1	3,565	Bluesky-Gething.
3141	Dome Drake b-48-F	b-48-F/94-H-1	3,565	Charlie Lake.
3126	Dome Nettle b-44-A	b-44-A/94-H-7	3,875	Bluesky-Gething.
3108	GPD et al Gleam d-90-J	d-90-J/94-H-6	4,112	Bluesky-Gething.
3053	GraMic et al Velma b-70-C	b-70-C/94-H-8	3,590	Dunlevy.
3113	HB et al Velma b-66-D	b-66-D/94-H-8	3,583	Dunlevy.
3056	Huber Quintana Amoco Hostil d-81-G	d-81-G/94-P-8	5,504	Slave Point.
3125	Pacific et al Coyote d-51-C	d-51-C/94-A-16	4,050	Baldonnel.
3097	Pacific et al Jackfish c-97-H	c-97-H/94-J-7	7,797	Mississippian.
2966	Quasar Grizzly a-74-G	a-74-G/93-I-15	12,861	Dunlevy and Baldonnel.
3158	SOC et al Graham b-21-D	b-21-D/94-B-9	9,620	Confidential.
3203	SOC et al Jeans b-42-A	b-42-A/94-A-13	6,530	Dunlevy.
3227	SOC et al W Jeans c-78-B	c-78-B/94-A-13	6,620	Dunlevy.
3184	Scurry CAEL Cecil 6-13-84-18	6-13-84-18 W6M	4,140	Confidential.
3071	Sierra et al Fireweed a-43-H	a-43-H/94-A-13	3,967	Bluesky.
3070	TPPL et al W Inga 6-11-87-24	6-11-87-24 W6M	4,754	Charlie Lake.
3121	TPPL et al W Inga 10-17-87-24	10-17-87-24 W6M	5,060	Charlie Lake.
3076	Union Silverberry 6-16-88-20	6-16-88-20 W6M	5,100	Charlie Lake.
3088	Uno-Tex et al Lily d-67-K	d-67-K/94-G-2	7,583	Baldonnel.
3122	Wainoco Ft St John 11-23-84-19	11-23-84-19 W6M	6,545	Baldonnel and Belloy.
3060	Wainoco Ft St John 6-24-84-19	6-24-84-19 W6M	6,325	Halfway.
3050	Wainoco Pennzoil Kyklo c-79-I	c-79-I/94-I-11	6,450	Debolt.
3171	Woods Wainoco Oak 6-35-86-18	6-35-86-18 W6M	4,626	Halfway.
3055	Woods Anadarko Siphon 7-31-86-16	7-31-86-16 W6M	4,524	Halfway.

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 in studies to forecast the oil and gas recoverable from hydrocarbon accumulations in the Province. The results from such studies are applied in making recommendations concerning the approval of submissions from industry for improved recovery and other production schemes, and also for estimating Provincial hydrocarbon, and hydrocarbon-associated sulphur reserves.

The Section ensures that requisite reservoir data are obtained, either by industry or Branch personnel, and maintains files of these data. In addition, oil and gas allowable production rates are established by the Section. Other re-

sponsibilities of the Section include matters affecting conservation and correlative rights, approval of measurement practices, and approval of produced-water disposal schemes.

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, 1972. The areas included in projects or units are shown on the maps following Table 15.

During 1972, 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 Boundary Lake Unit 1, Peejay Units 1 and 3, and an expansion of the waterflood scheme in Inga Unit 2 was approved. At year-end 1972 a proposal to inject water into the gas cap in Boundary Lake Unit 1 was under review. Discussions were held with the operators of the waterflood project in Beatton River and Peejay Unit 2 concerning remedies to possible problem situations arising in these waterfloods. In August the water-injection plant in Weasel Unit 1 was upgraded to a capacity of 14,000 BPD at 1,300 psig, and two additional water-source wells were placed in service.

The Bluesky Pool in the Beatton River West field became subject to unitized operations on November 1, 1972. Prior to this a primary unit MPR was granted, to become effective upon unitization. Installation of a waterflood scheme was also approved, subject to certain conditions, and a waterflood MPR was approved. This will come into effect following demonstration that reservoir withdrawals can be replaced by water injection. A waterflood scheme was also approved for installation in Inga Unit 4. Injection of water, however, had not started in either project prior to December 31, 1972. A proposal for waterflooding Inga Unit 5 was under review at year-end. In the meantime, a primary unit MPR was granted.

A gas-cap drive project was established in the Halfway pool, Osprey feld, in June 1972, and a project MPR of 100 BOPD was assigned. This was increased to 130 BOPD in October, when the project was enlarged to include virtually all the presently defined oil reservoirs. The Currant Unit 1 was also enlarged, in June 1972, and use of a well in the enlargement area for injection purposes was approved, in order to improve the waterflood performance of this project. In September 1972, the off-target penalty factor was removed from the oil MPR assigned to the well in 4-24-84-18 in the Cecil Field. This was for a period of six months, pending formulation of a comprehensive pool-development plan and improved recovery scheme for the reservoir. During 1972, a proposal to waterflood that part of the boundary Lake Zone pool extending into Alberta was received by the Alberta Energy Resources Conservation Board. Implementation of such a scheme could be expected to have an effect on operations in British Columbia in Boundary Lake Unit 1. As a result, the proposal was discussed by the Alberta Board with the Petroleum and Natural Gas Branch Reservoir Section. Discussions were still in progress at December 31, 1972.

Application was received in July 1972 for approval to change the status of the well in d-30-A/94-H-2 from Halfway oil well to Halfway gas well. In addi-

tion, waiver was sought from the off-target penalty factors that would apply to gas production from this well and from the adjacent well in d-50-A/94-H-2. The change in status was approved but approval to produce gas from the wells was not granted. An application for 320-acre spacing to be assigned to the Cecil Sand production obtained in the well in 5-26-84-14 (Boundary Lake field) was not granted, pending receipt of exploitation plans from the operator.

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 parameters as the oil is brought to the surface, much of the dissolved gas is evolved. In many cases the volume of this gas, in excess of lease-equipment fuel requirements, is so small that it is not economical to install gathering facilities to market the gas. This excess gas is flared. 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.

Gas produced with oil can be conserved in two ways—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 1972, 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. No additional gas conservation schemes were approved during the year. 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 guide-lines included in the Drilling and Production Regulations. As a result of this policy, applications were received for approval to continue flaring gas from Inga Units 4 and 5. These were under consideration at year-end, as was a similar application in connection with Beatton River West Unit 1. In July, relief from gas-oil ratio penalty was granted to oil production from the Halfway formation through the well in d-62-E/94-A-16. This was subject to the proviso that all gas be conserved.

During 1972, 79 per cent of the associated gas produced in the Province was conserved or used as fuel. Flared gas comprised only 15 per cent of the gas 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 established 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 1972. The areas included in the various Project Allowable and GEP schemes are shown on the maps following Table 15. Only one project was enlarged during 1972—the spacing area allocated to the well in d-30-K/94-J-9 was included into the Clarke Lake Project in March.

During 1972, well-testing schedules were reviewed for a majority of the gas pools in the Province. Where necessary, for evaluation test purposes, flaring of the test gas production was allowed (four wells). In addition, flaring of up to 1 MMSCF/D from the Beaver River gas plant was approved until August. This was necessary because of equipment problems, scheduled to be rectified as soon as suitable compression facilities could be installed. Data obtained during the year from 14 wellbore segregation tests were reviewed, and data from some 350 AOF tests were analysed.

In May a policy memo was issued advising all operators that maximum daily gas-well production rates need no longer be reported for two classes of well. Basically, this provision now applies to most wells within projects and upon application by the operator, to wells incapable of producing their allowable.

In September a Royalty Sharing Agreement pertaining to gas production from the Beaver River field was signed by the Provincial Minister of Mines and Petroleum Resources and the Federal Minister of Indian Affairs and Northern Development. The history and terms of this Agreement were discussed in the 1971 Annual Report. The Agreement became effective on January 1, 1972, and during the initial term total field gas production will be allocated to British Columbia and the Yukon Territory in the proportion 93 per cent and 7 per cent respectively.

Hydrocarbon and Associated Sulphur Reserves

The Provincial reserves of oil, gas, and gas by-products, as of December 31, 1972, 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, 1972*. 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, 1972, are estimated at some 148 MMSTB. Drilling during 1972 proved-up only 2.6 MMSTB of reserves, while revisions to previous estimates reduced these by 14.1 MMSTB. In addition, 23.8 MMSTB were produced during the year, resulting in a net decrease in proved reserves of 35.4 MMSTB when compared with reserves at the end of 1971.

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 151.9 MMSTB, as of December 31, 1972, an increase of 4.4 MMSTB over the estimate of December 31, 1971.

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, 1972, the estab-

lished raw-gas reserves are estimated at 10.6 TSCF. Adjustment for removal of a percentage of the liquid hydrocarbons and acid gases results in established residue gas reserves of 9.2 TSCF, or 9.4 TSCF when converted to a standard heat content of 1,000 Btu/SCF. These volumes represent increases over the 1971 estimates of 0.7 TSCF raw gas, and 0.6 TSCF residue gas. Drilling during 1972 added 0.7 TSCF raw gas, while revisions to previous estimates were cancelled by production of 0.4 TSCF.

Natural gas liquids reserves at year-end 1972 are estimated at 111.2 MMSTB, very little changed from the 1971 estimate. Sulphur reserves, at 4,173 thousand long tons, are up 127 thousand long tons compared with estimates made in 1971. Sulphur reserves have again been included for pools serviced by the Fort Nelson gas plant; sulphur-extraction facilities are scheduled for installation during the 1973/74 winter period.

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 1972 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 water and receiving-zone water, the water quality in the disposal zone and the effect on this of the injected water, and whether the planned water disposal will be prejudicial to hydrocarbon reserves either in the planned disposal zone or in other zones penetrated by the disposal well. In addition, when disposition of water into a hydrocarbon productive zone is planned, consideration is given to the probable effect on reservoir performance, and 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 1972, nine water-disposal schemes (or modifications to existing schemes) were approved. Two submissions for approval of a scheme were under review at year-end, pending the results of laboratory water-compatibility tests.

In 1969, approval was granted for the use of integrating orifice meters with digital read-out on the Northeast British Columbia Gas Gathering System. These installations were theoretically superior to a conventional chart record, and when property calibrated were so in practice. However, the very high cost of maintaining calibration of the read-out equipment caused the operator to revert to use of conventional charts during 1972. Also, on the subject of gas metering, an application was rejected that sought approval for installation of seven-day chart-metering facilities for the associated gas produced from the Beatton River field, Halfway Project.

During 1972 a number of reservoir studies was carried out. These ranged from comprehensive reservoir analysis and modelling (e.g., Milligan Creek Halfway pool, Blueberry Debolt pools) to relatively unsophisticated lease drainage calculations. Where appropriate, full economic analayses were made in order to evaluate alternative courses of action. In all, some 20 reservoir studies were com-

pleted during the year. A Province-wide oil-supply forecast was prepared. In addition, the preparation of a generalized hydrocarbon fluid phase behaviour correlation was attempted, with some success.

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 the National Energy Board 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 Charlie Lake.

Reservoir-pressure survey proposals for a large number of oil and gas pools were reviewed during year. In January, a policy memo was sent to all operators in the Province, establishing a streamlined procedure for obtaining reservoir-pressure data in the various pools. Under this, each pool has been assigned to a co-ordinating operator, who is responsible for scheduling requisite pressure 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 1972, detailing reserves estimates as of December 31, 1971. The Section advised the Titles Branch with respect to the evaluation of 65 lease renewal applications during 1972.

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. Two staff members attended the annual technical meeting of the Petroleum Society of the Canadian Institute of Mining and Metallurgy.

DEVELOPMENT ENGINEERING SECTION

GENERAL

The Development Engineering Section is responsible for all matters related to the location, drilling, completion, and abandonment of wells. This involves the assurance that operators of all wells drilled in the Province conform to the requirements of the regulations and that the prescribed information is submitted to the Branch.

Well classifications are assigned by the Section to each proposed drilling location according to the definitions outlined in the Drilling and Production Regulations. The Branch classification system is explained by the following definitions. A development well is located within a spacing area that is contiguous to a spacing area containing a well capable of production from the same objective geological pool. Exploratory wells are divided into two types—wildcat and outpost. An exploratory wildcat well is located further than 4½ miles from any capable well and an exploratory outpost well is located 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 undeveloped pools below or above the objective zone are being explored. The assigned classification is the basis used for the release of well information. Release of data for wildcat wells is made one year after the rig-release date, while the information from all other classifications is available 30 days after the rig-release date.

All submissions pertaining to drilling and completion operations are studied for approval by the Development Section. Such approvals must be obtained prior to commencement of drilling a well, changing a well name, abandoning a well, or any alteration proposed to change the physical characteristics of a well. When a submission is received by the Development Section, the information 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, is reviewed. With each application to drill a well, a surveyed position is given which is examined to assure conformation with target and spacing regulations. A spacing area is assigned to the proposed well and, if the location does not meet the target-area requirements, a production penalty is calculated.

Any application that is submitted to alter the equipment in a well or the proposed programme for a well is handled in a similar manner. Details of the application are examined and given approval by the various sections of the Branch. 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 official records are retained.

In addition, the Development Section collects and retains for use of Branch personnel and industry all drilling and production records, as well as statistics on refineries, gas plants, and the various pipe-line networks located 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, who are responsible for their release. Arrangements were completed during 1971 for the mailing of copies of the reports to interested persons who did not wish to examine them in the Victoria office.

Two monthly reports are prepared for distribution to subscribers, and a Weekly Drilling Report is compiled to advise Departmental personnel of current activities.

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

Drilling

During 1972, drilling activity in British Columbia substantially increased over the 1971 level. The number of wells drilled was up 12 per cent, while the annual footage increased by 15 per cent to 1,142,950 feet. The types of drilling and well completions reflected a continuing search for a significant discovery, rather than the development of existing oil and gas fields. Exploratory drilling increased 31 per cent, compared to a 5-per-cent decline in development drilling. The number of gas-well completions was 66 during the year, up 65 per cent. This was indicative that natural gas was the primary target of exploration in the Province. Oil-well completions, the secondary objective in most areas, declined 15 per cent to 39 wells. British Columbia's drilling success ratio maintained its relatively high degree, as only 110 abandonments were reported.

All the drilling operations were conducted in the northeastern corner of the Province except for one abandonment near Prince George and a wildcat venture in the Bowser Basin area which was still drilling at year-end. Several wells were drilled for shallow Mississippian gas in the Fort Nelson area with moderate success. Considerable activity took place in the Grizzly Valley foothills area, resulting in one gas completion, one abandonment, one well cased for evaluation, and three wells actively drilling at the close of the year. During 1972 a total of 68 operating com-

panies employed 64 individual drilling rigs, which were owned by 18 contractor companies to complete the drilling operations.

As in previous compilations, if more than one zone is completed in a well, each productive zone is counted as one well. Nine multiple completions were made in 1972—seven dual-zone gas wells, one triple-zone gas well, and one multiple gas-oil completion. At the end of 1972, one location was awaiting evaluation to determine a final status and 25 wells were in the process of being drilled. Five locations were drilled and completed to inject water and assist in the production of oil. Wells drilled and drilling are listed in Table 21 and monthly footages drilled since 1954 are shown graphically in Figure 2.

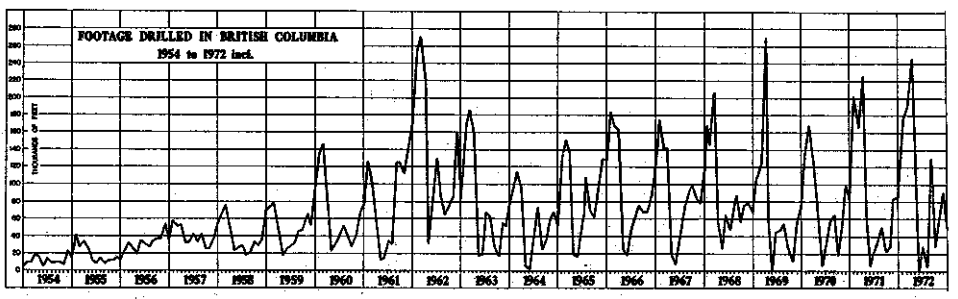


Figure 2. Footage drilled in British Columbia, 1955–72.

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 the 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 the well. Changes may include perforating, acidizing, fracturing, installing a pump or changing a choke, but do not include the replacement of equipment. During 1972, 230 workovers were performed on potential or producing wells in British Columbia.

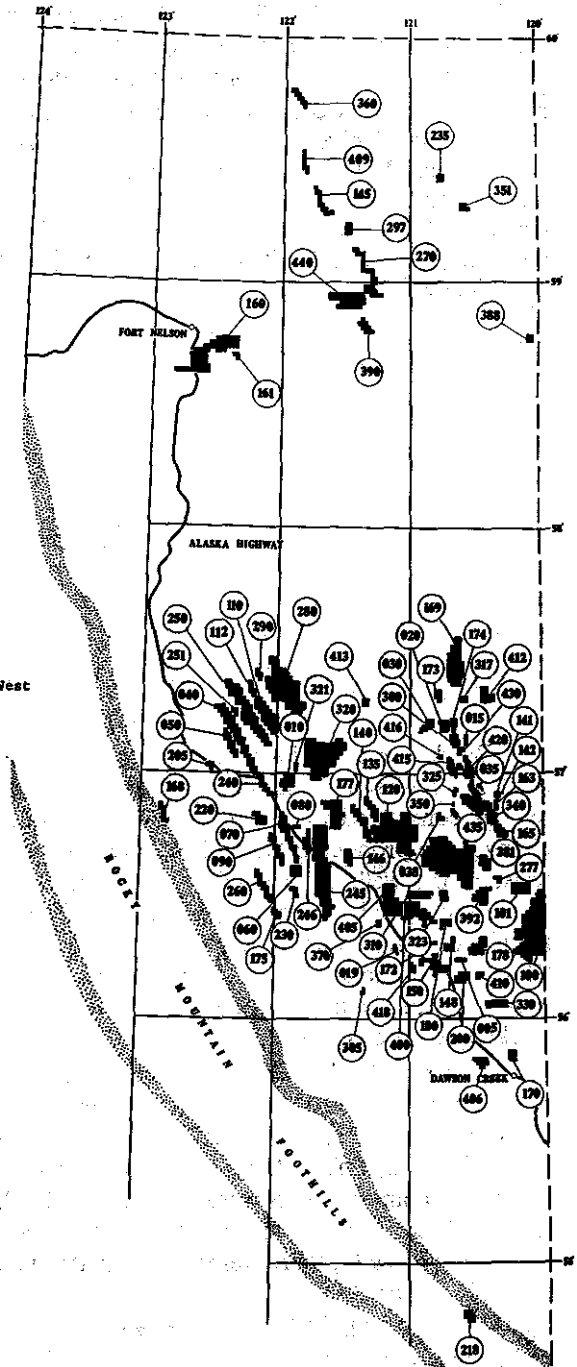
Five new fields were designated by the Branch in 1972 and field boundaries were amended on 20 occasions. The new fields were at Cecil, Fireweed, Louise, Oak, and Velma. Field boundaries were changed once during the year at Balsam, Bubbles North, Cabin, Inga, Parkland, Rigel, Stoddart, Stoddart West, and Weasel West. Two amendments were made to the Buick Creek, Flatrock, Kotcho Lake, and Laprise Creek fields, and boundaries of the Siphon field were altered three times. At the end of 1972, there were 93 designated fields, which are listed in Table 22 and shown in Figure 3.

During 1972, 226 well authorizations were issued by the Development Section and two were cancelled where operators decided not to drill the well.

Disposal of salt water produced with petroleum and natural gas was accomplished by injection into subsurface formations. Storage of salt water is permitted in surface pits only in emergency situations and for a limited period of time. During 1972 there were 5,517,382 barrels injected into the 21 disposal wells and 114,938 barrels put into evaporation pits.

FIELDS, DECEMBER 31, 1972

No.	Field	No.	Field
005	Airport	235	Helmet
010	Aitken Creek	240	Highway
015	Balsam	245	Inga
019	Bear Flat	246	Inga North
020	Beatton River	250	Jedney
030	Beatton River West	251	Jedney West
035	Beaverdam	255	Julienne
037	Beaver River	260	Kobes-Townsend
038	Beavertail	270	Kotcho Lake
040	Beg	277	LaGarde
050	Beg West	280	Laprise Creek
060	Bernadet	290	Laprise Creek West
070	Blueberry	297	Louise
080	Blueberry East	300	Milligan Creek
090	Blueberry West	305	Moberly Lake
100	Boundary Lake	310	Montney
101	Boundary Lake North	317	Nettle
110	Bubbles	320	Nig Creek
112	Bubbles North	321	Nig Creek West
120	Buick Creek	322	North Pine
135	Buick Creek North	323	Oak
140	Buick Creek West	325	Osprey
141	Bulrush	330	Parkland
142	Bulrush East	340	Peejay
145	Cabin	350	Peejay West
146	Cache Creek	351	Peggo
148	Cecil	360	Petitot River
150	Charlie Lake	370	Red Creek
160	Clarke Lake	380	Rigel
161	Clarke Lake South	381	Rigel East
163	Crush	388	Shekilie
165	Currant	390	Sierra
168	Cypress	392	Siphon
169	Dahl	400	Stoddart
170	Dawson Creek	405	Stoddart West
172	Eagle	406	Sunrise
173	Elm	409	Tsea
174	Evergreen	410	Two Rivers
175	Farrell Creek	412	Velma
177	Fireweed	413	Wargen
178	Flatrock	415	Weasel
180	Fort St. John	416	Weasel West
200	Fort St. John Southeast	418	Wilder
218	Grizzly	420	Wildmint
220	Gundy Creek	430	Willow
230	Halfway	435	Wolf
		440	Yoyo



OIL & GAS FIELDS

OF NORTHEASTERN BRITISH COLUMBIA

PETROLEUM & NATURAL GAS BRANCH
BRITISH COLUMBIA DEPARTMENT OF MINES & PETROLEUM RESOURCES
VICTORIA, B.C., DECEMBER 31, 1972

Figure 3. Petroleum and natural gas fields, 1972.

Water-flood operations to aid the efficiency of oil recovery continued in 10 producing pools in the Province. A total of 48,702,859 barrels, including both fresh and formation water, was injected into 144 individual injection wells. Fields receiving the largest volumes were Boundary Lake, 16,232,740 barrels; Peejay, 9,883,990 barrels; and Inga, 8,486,746 barrels.

PRODUCTION

Production of crude oil from British Columbia oilfields during 1972 was 23,831,444 barrels. The four largest producing fields, all under active water-flood programmes, were Boundary Lake, 9,426,811 barrels; Peejay, 3,789,160 barrels; Inga, 3,693,241 barrels; and Milligan Creek, 2,443,156 barrels. With the exception of the Inga field where additional wells were completed during the year, all major oilfields produced lesser volumes than during 1971.

The Clarke Lake field produced the largest volume of natural gas at 104,204,239 MSCF, followed by two other northern fields—Yoyo at 68,259,702 MSCF and Beaver River at 58,251,540 MSCF. Established gas fields in the central portion of the producing area all showed declines, an indication that the peak of production has passed for these areas.

Monthly crude oil and natural gas production by fields and pools for 1972 is given in Tables 24 and 25. Graphs of annual production since 1955 are shown in Figures 4 and 5.

No appreciable change was noted in the production or sales of butane, propane, or sulphur.

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 the producers are given in Table 30.

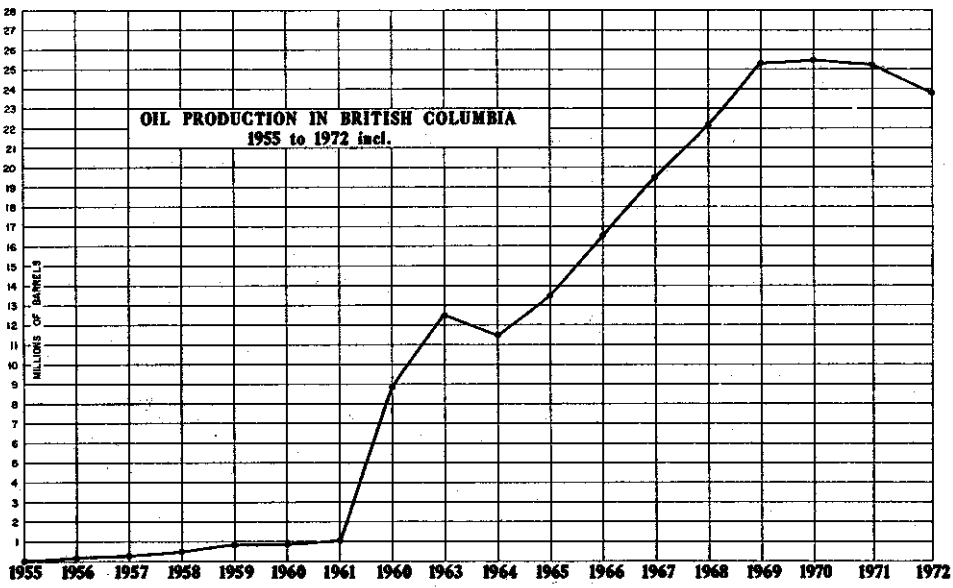


Figure 4. Oil production in British Columbia, 1955–72.

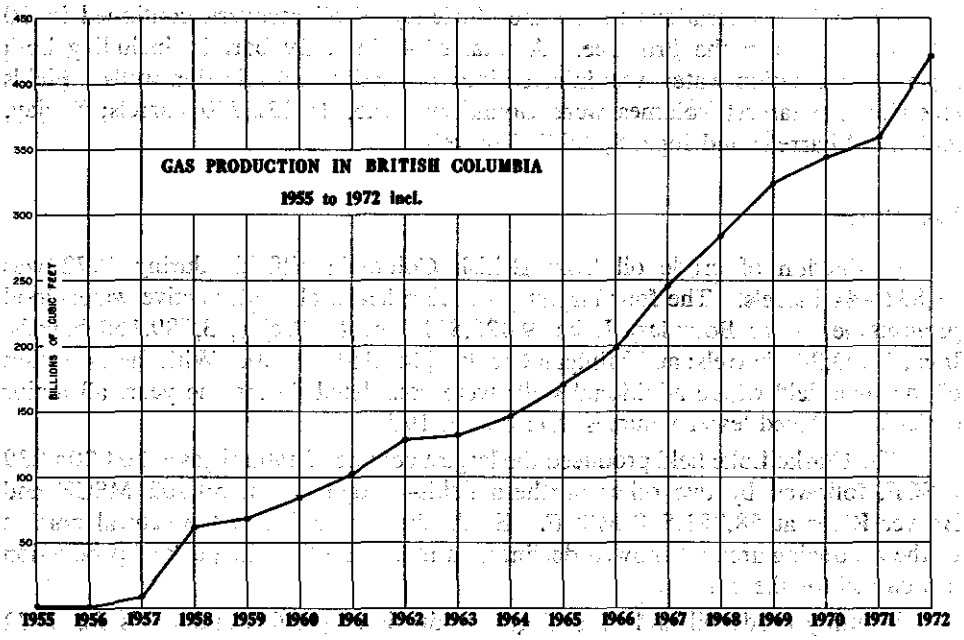


Figure 5. Gas production in British Columbia, 1955–72.

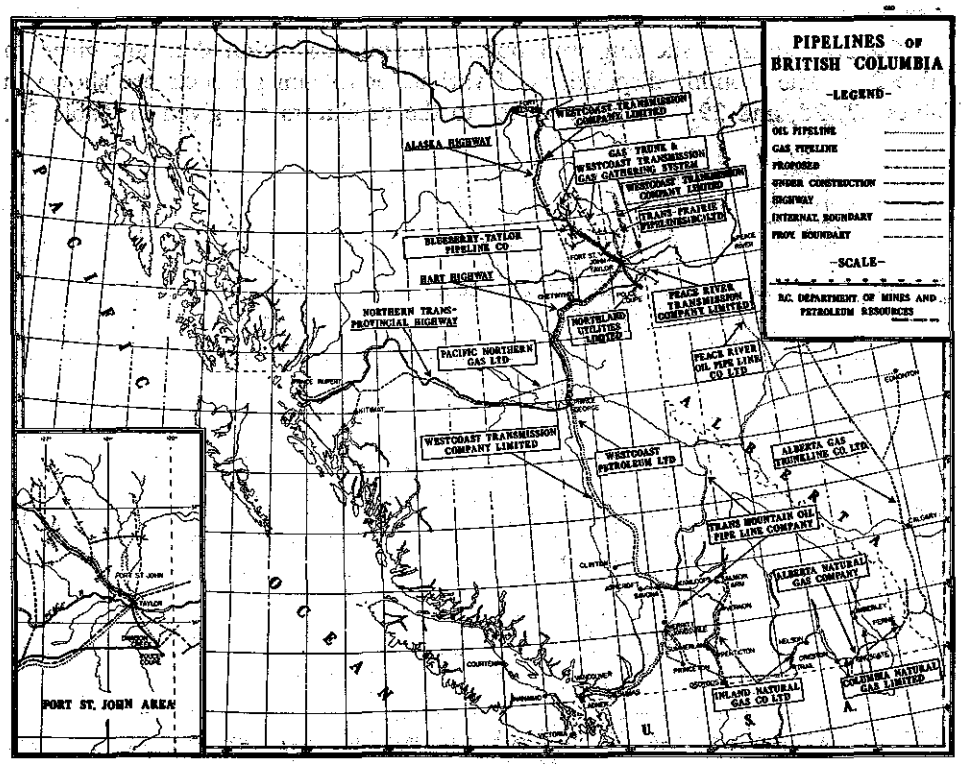


Figure 6. Petroleum and natural gas pipe-lines, 1972.

Pipe-lines, Refineries, and Gas Plants

Oil Pipe-line Systems

Pipe-line connections were extended to the Fort St. John and Stoddart fields by the Blueberry-Taylor Pipeline Co. Increased throughputs were reported for production from the Inga field and the mainline system of Trans-Prairie Pipelines (B.C.) Ltd.

Oil Refineries

The Provincial capacity for refineries was increased slightly with modifications to the Chevron Canada Ltd. refinery at North Burnaby and Imperial Oil's Ioco refinery. Enlarged storage facilities were provided at the Chevron refinery and the Pacific Petroleums installation at Taylor.

Gas Pipe-line Systems

Many additions to the gas pipe-line systems in British Columbia were completed during 1972. The most significant increase involved the construction of one compressor station which brought the daily capacity of the line from the Fort Nelson gas plant to 823,000 MSCF.

Gas Plants

Additional plant capacity was completed at the Westcoast Transmission plant at Fort Nelson which serves the Beaver River, Clarke Lake, and Yoyo areas of British Columbia and the Pointed Mountain field of the Northwest Territories.

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. Figure 6 outlines the major pipe-line systems operating within the Province.

Well Records

Information concerning the petroleum and natural gas industry in British Columbia is collected and compiled by the Petroleum and Natural Gas 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 Reservoir, Development, 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 Branch has representation on the Statistical Subcommittee which was established at the request of the Mines Ministers' Conference in 1955. This committee is composed of representatives from each province actively engaged in the petroleum industry and of personnel employed by oil companies. The objectives of the group are as follows:

(1) Standardization of forms designed for the same purpose but which are required individually by both the Provincial and Federal Governments under different formats.
(2) Standardization of forms to accommodate machine accounting procedures for reporting production statistics to Provincial Governments.
(3) Amendment of existing model report forms to conform with present requirements.
(4) Investigation of ways and means to obtain the co-operation of both Provincial and Federal Government agencies and provide early availability of information on all phases of the oil and gas industry.

The Petroleum and Natural Gas Branch has adopted many features of the model forms prepared by this committee and 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.

* For departmental use only.

Form No.	Form Name
31.	New Service Well Report.
32.	Production Allowable Report—Crude Oil.
*33.	Drilling Report.
34.	Application for Test-hole Authorization(s).
*35.	Report of 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 1972. 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 Petroleum and Natural Gas Titles Section 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 Chief Petroleum and Natural Gas Commissioner, Administrative Branch, or the Chief, Petroleum and Natural Gas Branch, Department of Mines and Petroleum Resources, Parliament Buildings, Victoria, B.C.

TABLE 13—EXPLORATORY AND DEVELOPMENT WELLS COMPLETED, JANUARY TO DECEMBER 1972

	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	1	7,750	4	28,427	5	36,177	17	142,029	---	-------	---	-------	22	178,206
New pool wildcats	---	-------	9	49,370	9	49,370	32	179,614	---	-------	---	-------	41	228,984
Deep-pool tests	---	-------	31	6,022	31	6,022	31	8,218	---	-------	---	-------	3	14,240
Outposts	2	9,300	18	88,669	20	97,969	35	181,564	---	-------	---	-------	55	279,533
Total exploratory wells	3	17,050	31	172,488	34	189,538	84	511,425	---	-------	---	-------	118	700,963
Total development wells	34	145,468	27	129,862	61	275,330	26	131,000	---	-------	---	-------	87	406,330
Subtotals	38	167,468	58	302,350	96	469,818	109	637,475	---	-------	---	-------	205	1,107,293
Other wells drilled (service wells)	---	-------	---	-------	---	-------	---	-------	1	12,861	5	22,796	6	35,657
Totals	38	167,468	58	302,350	96	469,818	109	637,475	1	12,861	5	22,796	211	1,142,950

[1] Six deep-pool tests are not included in the well total as they are counted under Development and Outpost. There were seven dual gas wells, one triple gas well, and one gas/oil well which are counted as single wells.

TABLE 14—GEOPHYSICAL EXPLORATION, 1972

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.	93-P-3	1	2.0
	94-P-6, -11, -12	1	2.0
Canadian Superior Oil Ltd.	94-J-3, -4, -5, -6	1	2.0
Dome Petroleum Limited	94-P-8	1	1
Frio Oil Limited	94-H-9	1	2
General American Oils Ltd.	94-P-14	1	0.5
	94-P-11, -14	1	1.5
	94-I-12	1	2
Gulf Oil Canada Limited	94-A-4	1	3
Hudson's Bay Oil & Gas Co. Ltd.	94-G-9, -16	1	0.4
	94-B-10, -14, -15	1	7.3
	94-O-10	1	2.6
	94-O-9	1	2.1
	94-O-7	1	0.5
	94-I-16	1	1.9
Mobil Oil of Canada Ltd.	94-P-1, -2	1	4
PanCanadian Petroleum Limited	93-P-2	1	2
Shell Canada Limited	94-A-1, -8	1	1.8
Sun Oil Company	94-O-13	1	1
Tenneco Oil & Minerals, Ltd.	94-P-4, -5	1	4.3
	94-I-13		
Texaco Exploration Canada Ltd.	94-J-16	1	3
February			
Amoco Canada Petroleum Co. Ltd.	94-P-6, -11, -12	2	0.4
	94-I-1, -8	2	2.0
	Tps. 81–83, R. 13–15, W6M	2	1.9
Aquitaine Co. of Canada Ltd.	94-G-3, -6	1	3.5
	94-N-8	1	4.0
General American Oils Ltd.	Tp. 86, R. 24, W6M	1	1
	Tps. 85, 86, R. 24, 25, W6M	1	1.5
	Tp. 87, R. 25, W6M	1	0.5
Gulf Oil Canada Limited	94-A-13, 94-B-8	1	3
Home Oil Company Limited	94-B-East	1	2.2
	94-A-West		
	94-G-10, -11	1	4.0
Hudson's Bay Oil & Gas Co. Ltd.	94-G-9, -16	1	3.9
	94-I-4	1	2.8
	94-J-4	1	3.4
	94-G-3, -6	1	4.5
	94-A-4	1	1.7
Mesa Petroleum Company	94-J-9	1	0.5
Mobil Oil of Canada Limited	94-P-1, -2	1	2.0
	94-I-16	1	2
PanCanadian Petroleum Limited	93-P-2	1	2
Placid Oil Company	94-P-3, -4, -5, -6	1	1.5
Tenneco Oil & Minerals, Ltd.	94-P-4, 94-J-16	1	0.7
Texaco Exploration Canada Ltd.	94-J-16	1	1
	94-J-12	1	2
	94-O-15	1	1
	94-O-14	1	1
Union Oil Co. of Canada Ltd.	93-I, -P	1	1.8
	93-P	1	2.2
	94-O	1	1.4
March			
Aquitaine Co. of Canada Ltd.	94-K-16	1	2.0
BP Oil & Gas Ltd.	94-G-13	1	0.6
	94-J-2, -7	1	0.6
	94-O-15, -16	1	0.7
	94-O-8, 94-P-5, -12	1	2.0
	Tp. 80, R. 20, 21, W6M	1	1.7
	Tp. 81, R. 19–21, W6M		
	Tp. 82, R. 21, W6M		

TABLE 14—GEOPHYSICAL EXPLORATION, 1972—*Continued*

Seismic Surveys—Continued

Company	Location of Exploration	Number of Seismic Crews	Number of Crew-weeks
March—Continued			
Canadian Industrial Gas & Oil	94-H-4	1	1
Chevron Standard	94-O-9	1	0.4
Frio Oil Limited	94-J-13	1	4
Home Oil Company Limited	94-B-15, -16	1	2.0
	94-A-East	1	0.6
Hudson's Bay Oil & Gas Co. Ltd.	94-A-4	1	3.0
	94-G-13, -14	1	1.3
Mobil Oil of Canada Ltd.	94-I-16	1	1
Northern Oil Explorers	94-O-2, -7, -8	1	1
Pacific Petroleums Limited	94-J-13	1	2
PanCanadian Petroleum Limited	93-P-2	1	1
	94-J-3, 94-G-14	1	2
	94-G-3, -6	1	1
Petrofina Canada Ltd.	Tp. 82, R. 25, W6M Tp. 83, R. 24, 25, W6M Tp. 84, R. 24, W6M	1	1.2
Texaco Exploration Canada Ltd.	94-J-12	1	2
Union Oil Co. of Canada Ltd.	94-O	1	1.2
Western Decalta Petroleum Ltd.	94-B-10	1	4
April			
BP Oil & Gas Ltd.	Tp. 80, R. 20, 21, W6M Tp. 81, R. 19–21, W6M Tp. 82, R. 21, W6M	1	0.6
Scurry Rainbow Oil Limited	Tp. 88, R. 25, W6M	1	0.6
June			
Mobil Oil of Canada Ltd.	94-B-15 94-G-1, -2	1	1
Shenandoah Oil Corporation	94-B-8, -9	1	3
July			
Gulf Oil Canada Limited	94-A-4, -5	1	2
Texaco Exploration Canada Ltd.	94-B-9, -16	1	4
August			
BP Oil & Gas Ltd.	93-P-5	1	1.6
Canadian Industrial Gas & Oil	Tp. 84, R. 23, W6M	1	0.4
Mobil Oil of Canada Limited	94-B-1, -2	1	3.4
PanCanadian Petroleum Limited	93-P-16	1	1
Wainoco Oil Ltd.	Tp. 82, R. 21, W6M	1	0.5
September			
Home Oil Company Limited	93-O-16	1	3
Hudson's Bay Oil & Gas Co. Ltd.	93-I-15	1	2
October			
Chevron Standard Limited	92-C	1	3[1]
Hudson's Bay Oil & Gas Co. Ltd.	93-I-15	1	2
Scurry Rainbow Oil Limited	94-A-12, 94-B-9, Tp. 88, R. 25, W6M	1	1
Sun Oil Company	94-B-7, -8	1	1
Pacific Petroleums Limited	93-P-3, -6, -12	1	3
Western Decalta Petroleum Ltd.	94-B-7, -10	1	1
November			
BP Oil and Gas Ltd.	94-J-12	1	1.3
	94-G-7, -10	1	0.3
Chevron Standard Limited	92-C, E; 102-I	1	4[1]
Dekalb Petroleum Corporation	94-J-8	1	1
Frio Oil Ltd.	94-G-7	1	3
Hudson's Bay Oil & Gas Co. Ltd.	94-A-5, -12	1	1.5
Pacific Petroleums Limited	93-P-3, -6, -12	1	4
Texaco Exploration Canada Ltd.	93-O-9, 93-P-12	1	2
December			
Ashland Oil Canada Limited	Tp. 88, R. 21, W6M	1	1
	94-G-1	1	1
BP Oil & Gas Ltd.	94-P-5 94-O-8	1	1.7

[1] Marine seismic.

TABLE 14—GEOPHYSICAL EXPLORATION, 1972—*Continued*

Seismic Surveys—Continued

Company	Location of Exploration	Number of Seismic Crews	Number of Crew-weeks
December—Continued			
Chevron Standard Limited	102-I, -P	1	21
Canadian Industrial Gas & Oil	Tp. 84, R. 23, W6M	1	2
Dekalb Petroleum Corporation	94-J-8	1	1
General American Oils Ltd.	94-B-16	1	2
Getty Oil Ltd.	94-J-5	1	1
Hudson's Bay Oil & Gas Co. Ltd.	93-I-15	1	1
	94-A-5	1	1.5
Kerr McGee Corporation	93-P-3	1	2

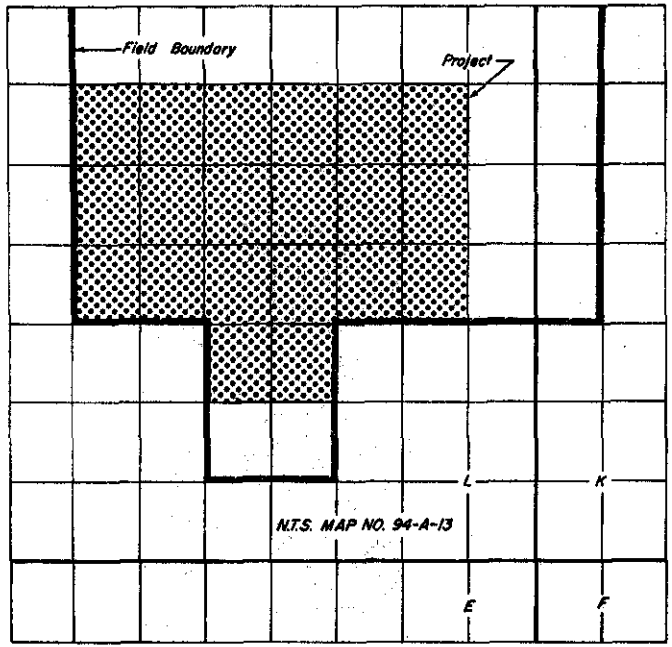
Gravity Surveys

February			
Texaco Exploration Canada Ltd.	94-K-16	1	1
	94-P-5	1	1
March			
Canadian Superior Oil Ltd.	93-I-9	1	2
Texaco Exploration Canada Ltd.	94-O-4	1	2
April			
Westcoast Petroleum Ltd.	94-N-5, -6, -7	1	2
May			
Hudson's Bay Oil & Gas Co. Ltd.	94-I-5	1	0.5
August			
Mobil Oil of Canada Limited	94-B-1, -2	1	3.4
October			
Chevron Standard Ltd.	92-C	1	3
November			
Chevron Standard Ltd.	92-C, E; 102-I	1	4
December			
Chevron Standard Ltd.	102-I, -P	1	2

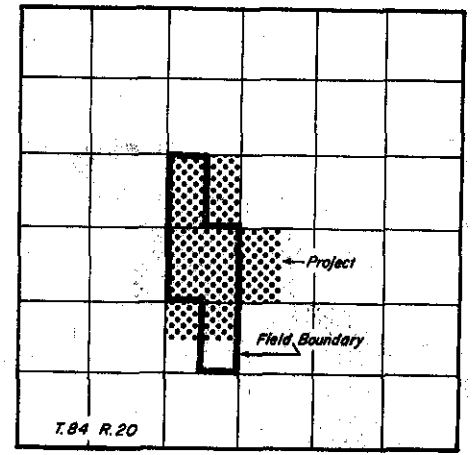
TABLE 15—SURFACE GEOLOGICAL EXPLORATION, 1972

Company	Location of Exploration	Number of Geologists	Two-man-party Weeks
June			
Bow Valley Exploration	94-N-NW	3	10
July			
Amoco Canada Petroleum Co. Ltd.	94-B, G, J, K	5	8
Atlantic Richfield Company	94-K, N	8	4.5
Pubco Canadian Petroleum Corp.	94-B, G	6	10
August			
Atlantic Richfield Company	94-N	2	0.2
Pubco Canadian Petroleum Corp.	93-I	5	5

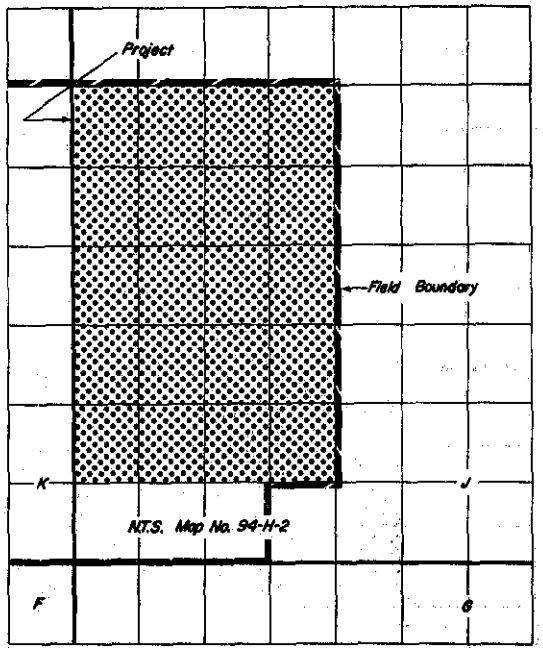
[1] Marine seismic.



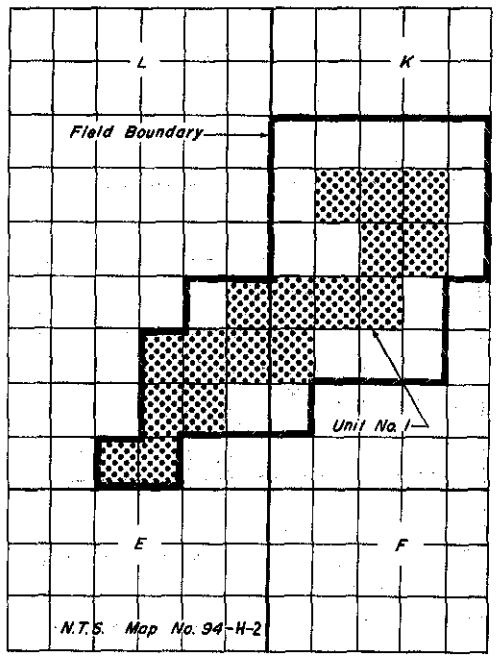
Map 1
UNION OIL PROJECT
GETHING ZONE
AITKEN CREEK FIELD



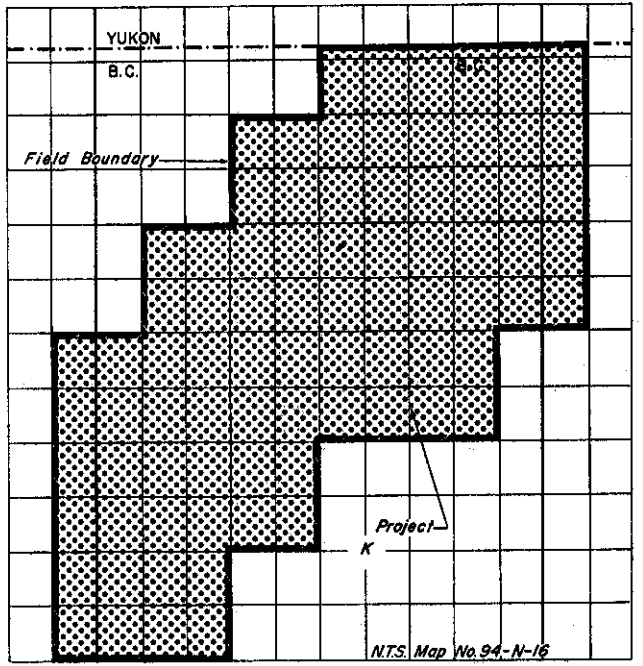
Map 2
MONSANTO PROJECT
CHARLIE LAKE ZONE
BEAR FLAT FIELD



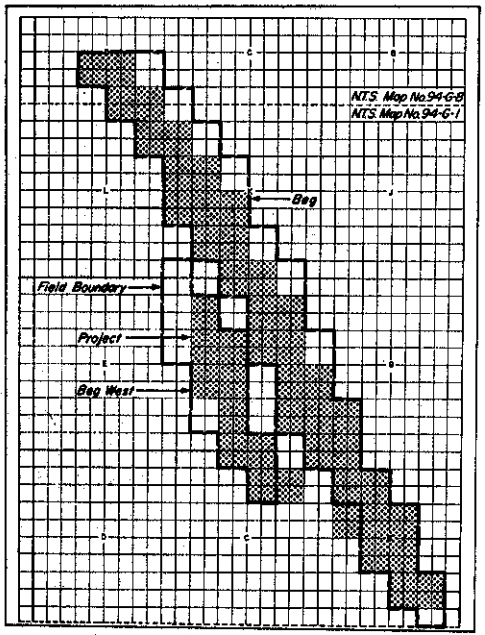
Map 3
BP OIL PROJECT
HALFWAY ZONE
BEATTON RIVER FIELD



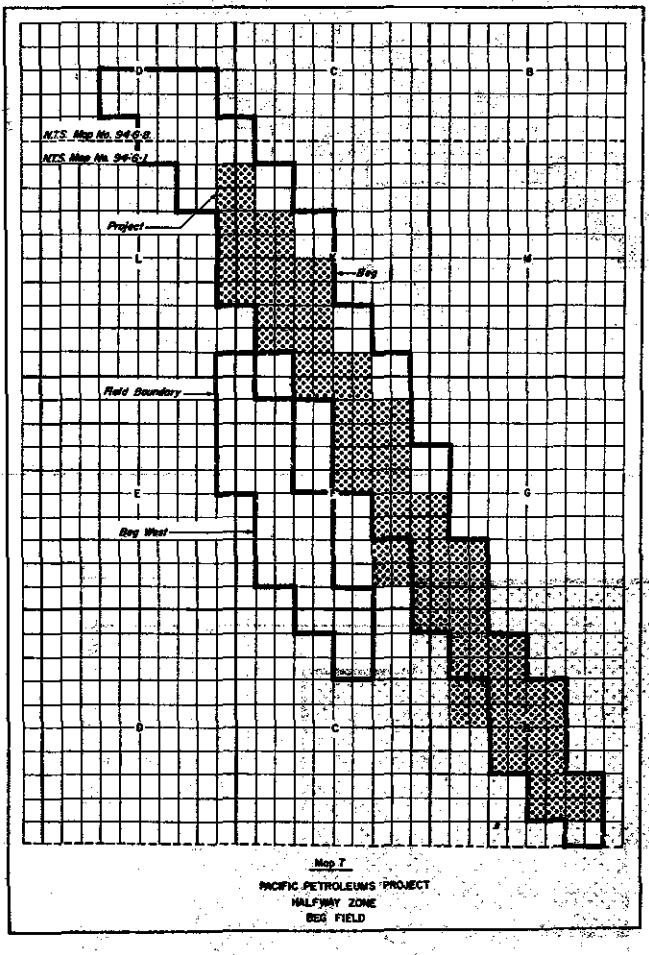
Map 4
BP OIL & GAS UNIT 1
BLUESKY ZONE
BEATTON RIVER WEST FIELD



Map 5
AMOCO PROJECT
NAHANNI ZONE
BEAVER RIVER FIELD

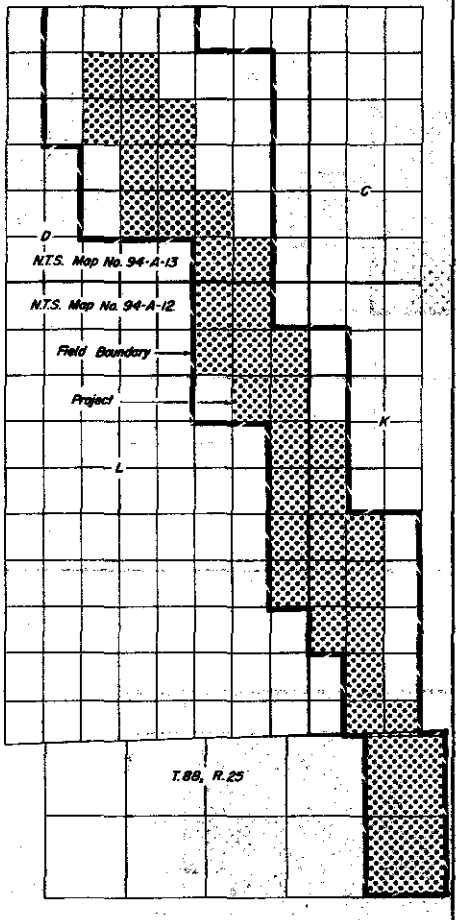


Map 6
PACIFIC PETROLEUMS PROJECT
BALDONNEL ZONE
BEG & BEG WEST FIELDS

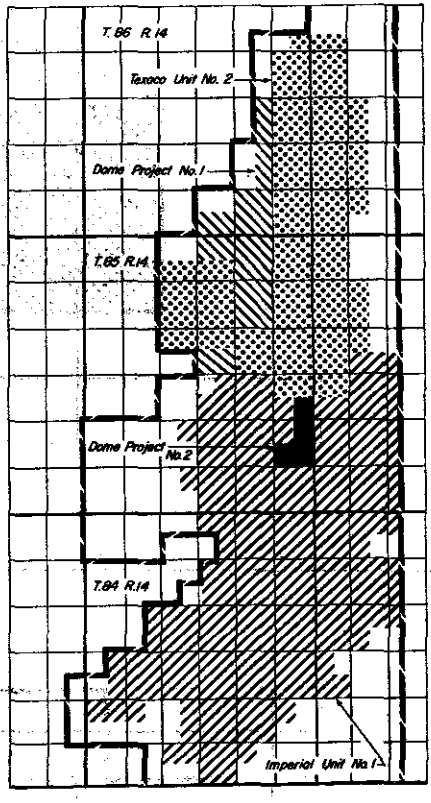


Map 7

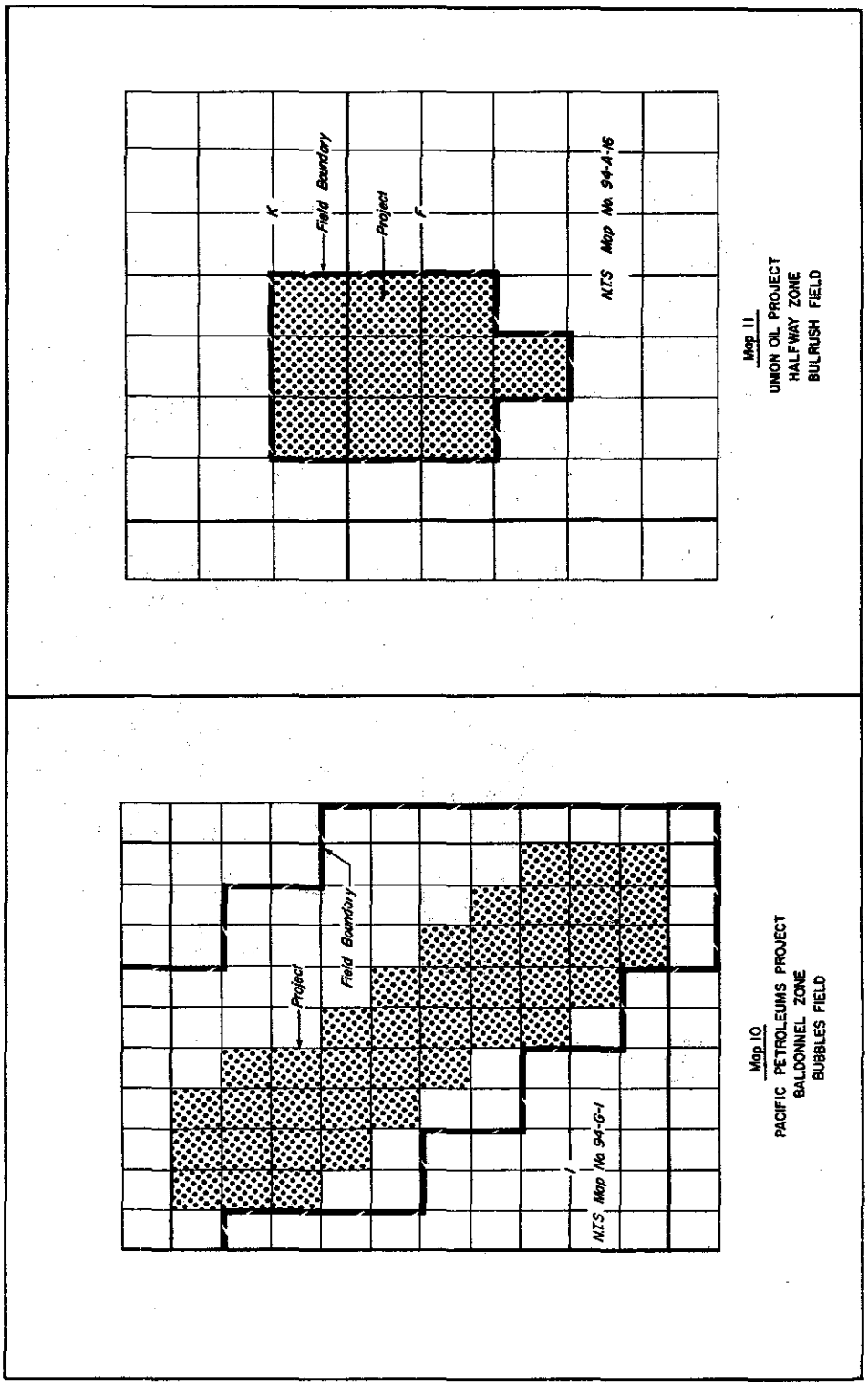
PACIFIC PETROLEUMS PROJECT
HALFWAY ZONE
BEG FIELD

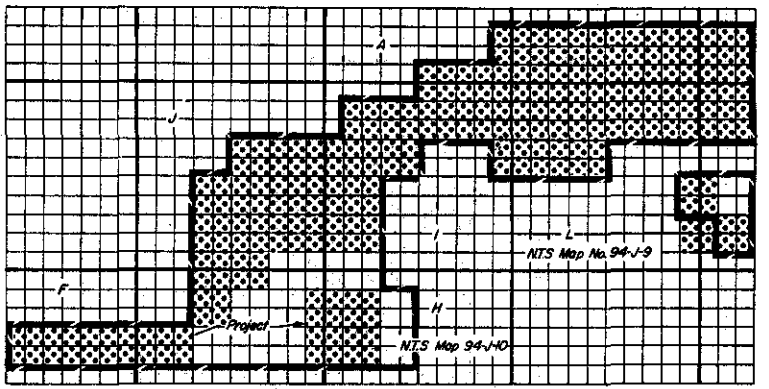


Map 8
PACIFIC PETROLEUMS PROJECT
DEBOLT ZONE
BLUEBERRY FIELD

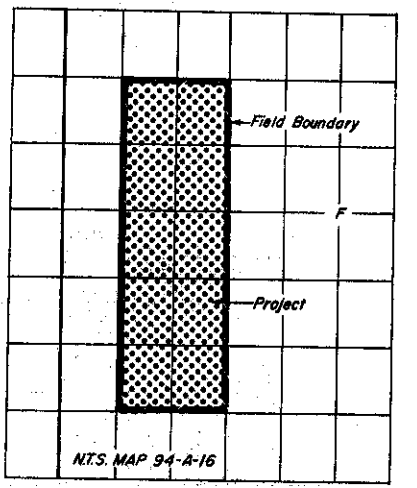


Map 9
BOUNDARY LAKE ZONE PROJECTS
BOUNDARY LAKE FIELD

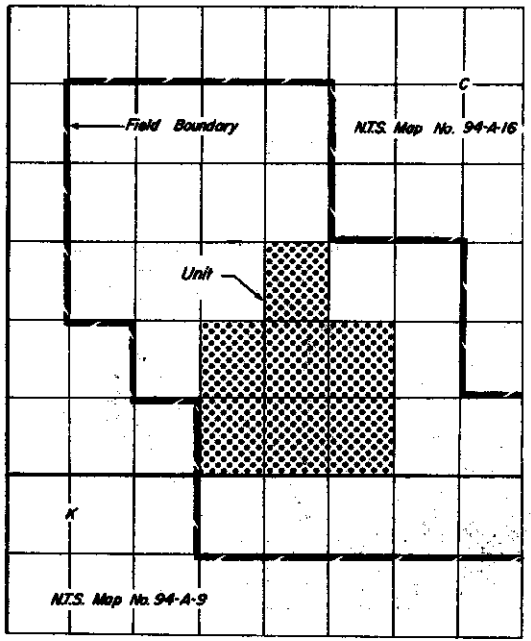

K
Field Boundary
Project
F
N.T.S. Map No. 94-A-16
Map 11
UNION OIL PROJECT
HALFWAY ZONE
BULRUSH FIELD
Project
Field Boundary
N.T.S. Map No. 94-G-1
Map 10
PACIFIC PETROLEUMS PROJECT
BALDONNEL ZONE
BUBBLES FIELD



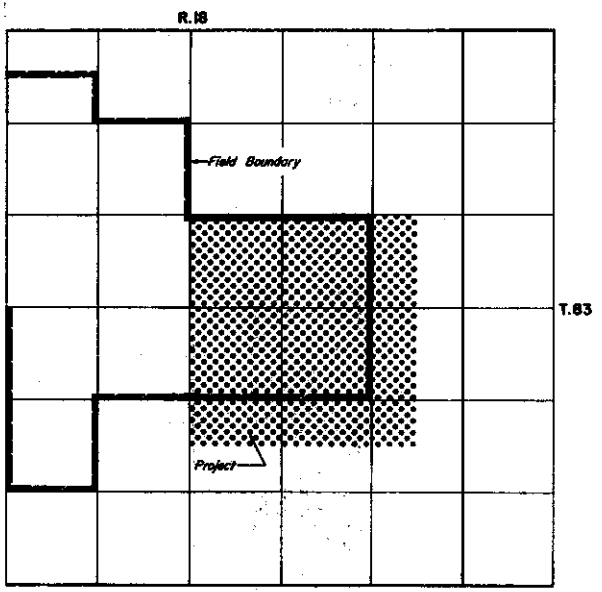
Map 12
PACIFIC PETROLEUMS PROJECT
SLAVE PT. ZONE
CLARKE LAKE AND CLARKE LAKE SOUTH FIELDS



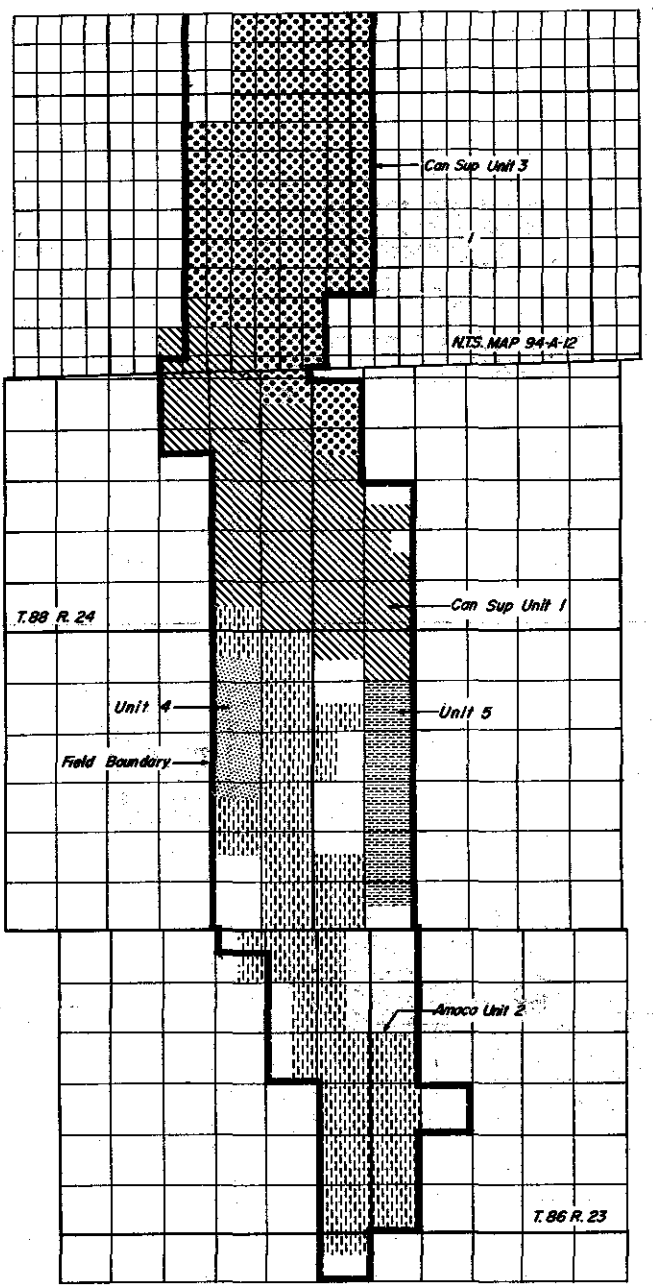
Map 13
UNION OIL UNIT I
HALFWAY ZONE
CRUSH FIELD



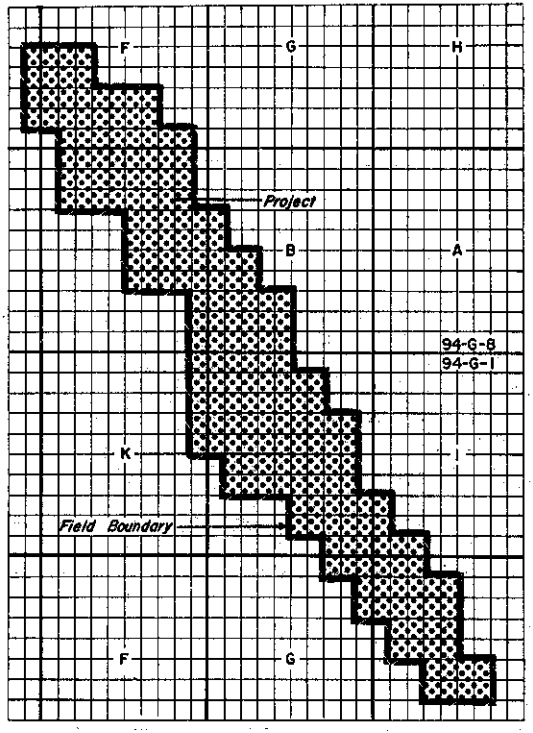
Map 14
PACIFIC PETROLEUMS UNIT I
HALFWAY ZONE
CURRANT FIELD



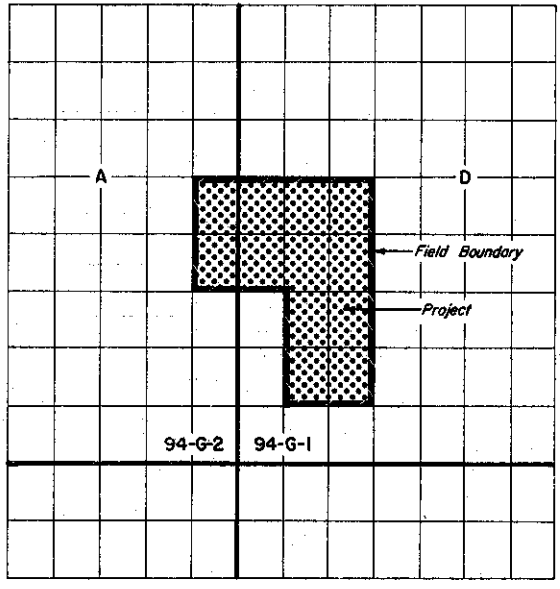
MAP 15
PACIFIC PETROLEUMS UNIT I
CHARLIE LAKE ZONE
FORT ST. JOHN FIELD



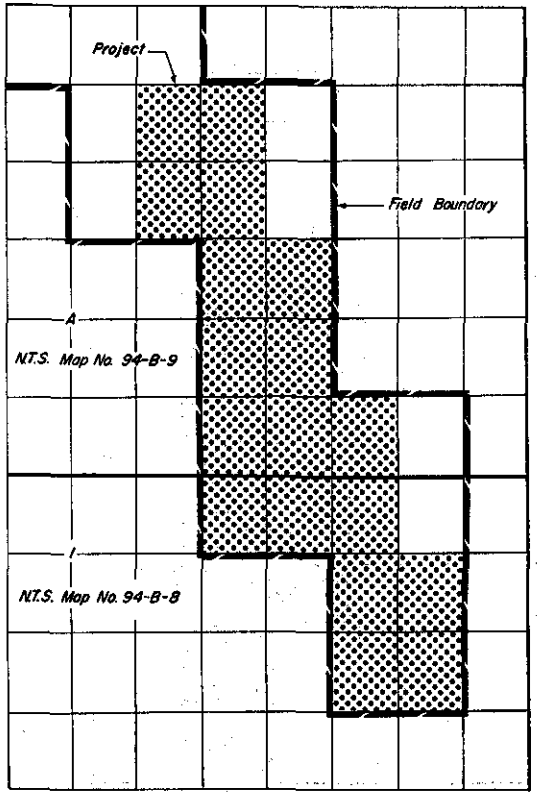
Map 16
INGA ZONE UNITS
INGA FIELD



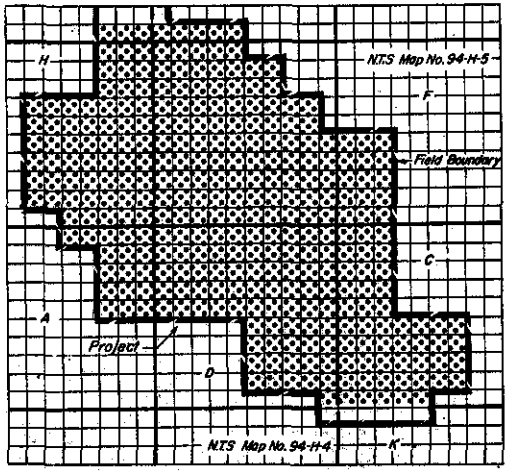
Map 17
PACIFIC PROJECTS
BALDONNEL & HALFWAY ZONES
JEDNEY FIELD



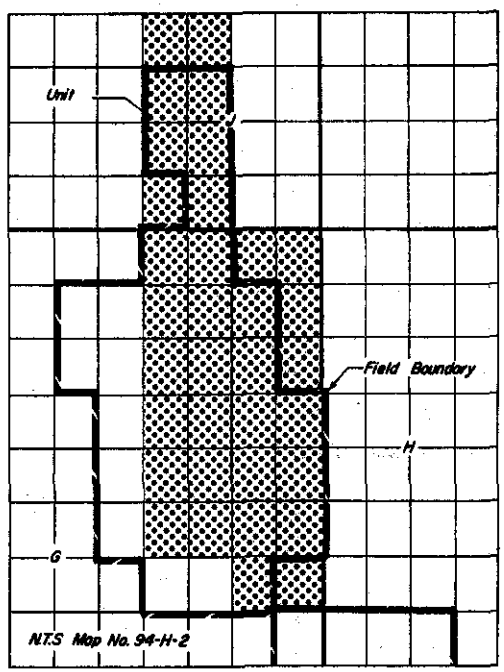
Map 18
ARCO PROJECTS
HALFWAY & BALDONNEL ZONES
JULIENNE FIELD



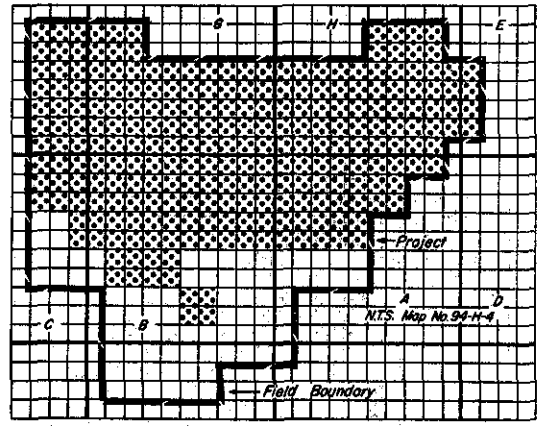
Map 19
PACIFIC PETROLEUMS PROJECT
HALFWAY ZONE
KOBES-TOWNSEND FIELD



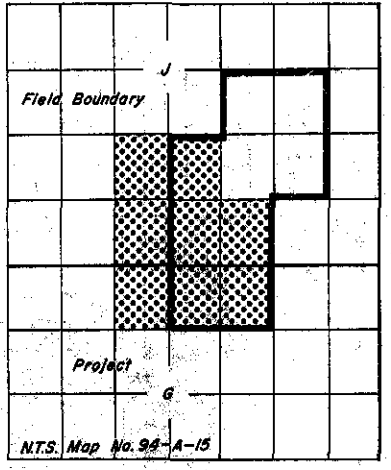
Map 20
BALDONNEL POOL PROJECT
LAPRISE CREEK FIELD



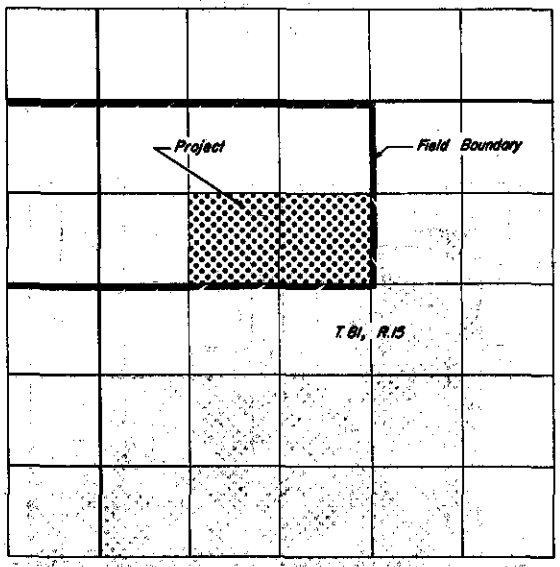
Map 21
UNION OIL UNIT I
HALFWAY ZONE
MILLIGAN CREEK FIELD



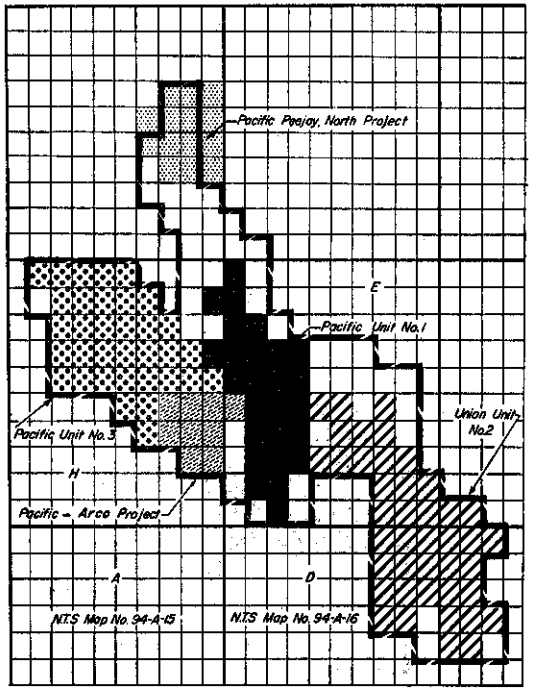
Map 22
TEXACO EXPLORATION PROJECT
BALDONNEL ZONE
NIG CREEK FIELD



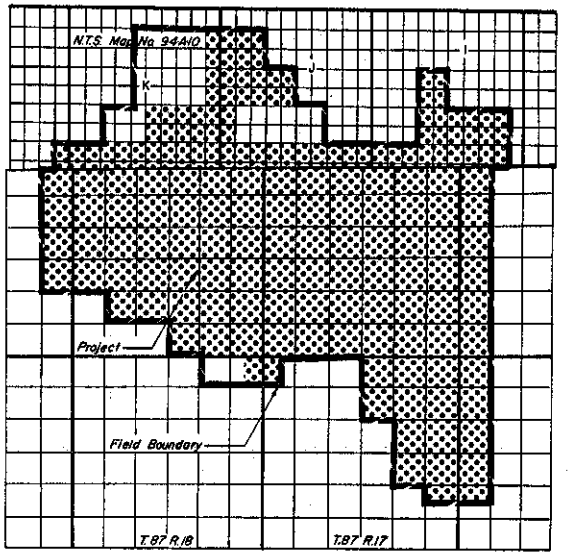
Map 23
PACIFIC PETROLEUMS PROJECT
HALFWAY ZONE
OSPREY FIELD



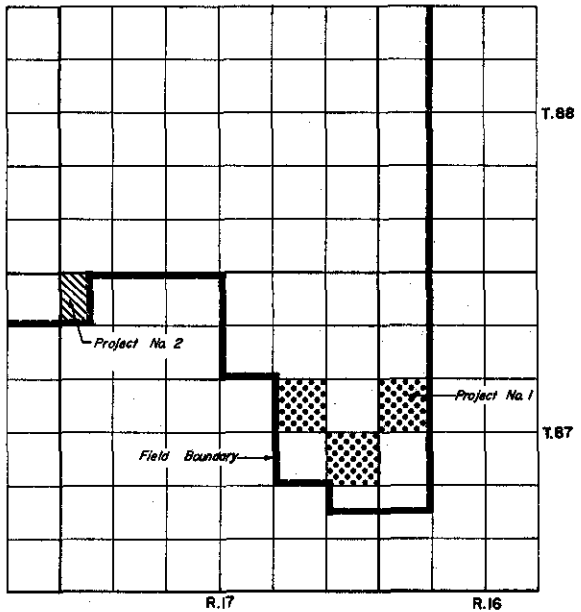
Map 24
PACIFIC PETROLEUMS PROJECT
WABAMUN ZONE
PARKLAND FIELD



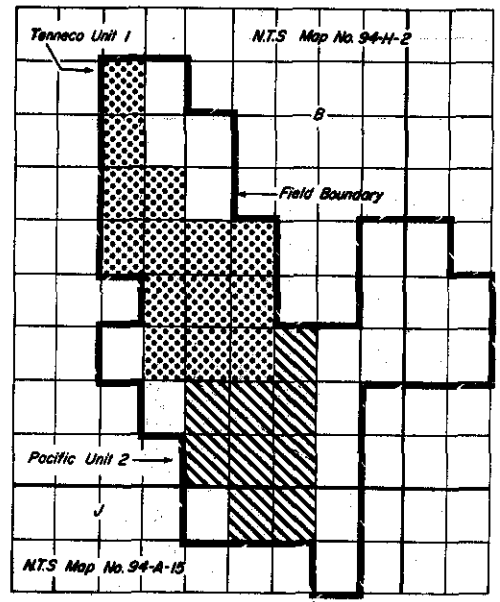
Map 25
HALFWAY ZONE PROJECTS
PEEJAY FIELD



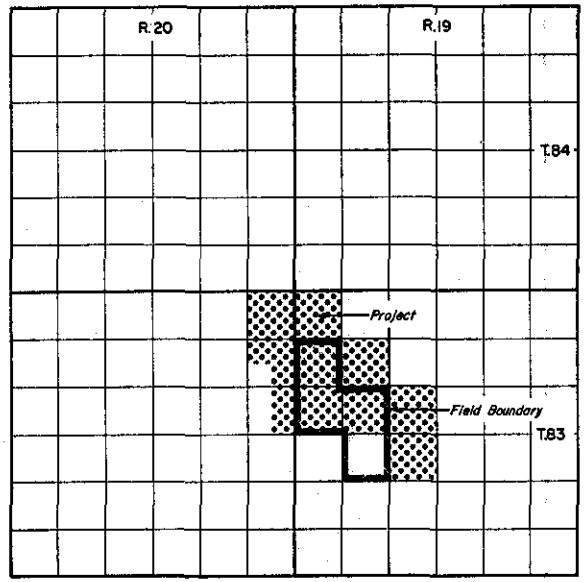
Map 26
DUNLEVY POOL PROJECT
RIGEL FIELD



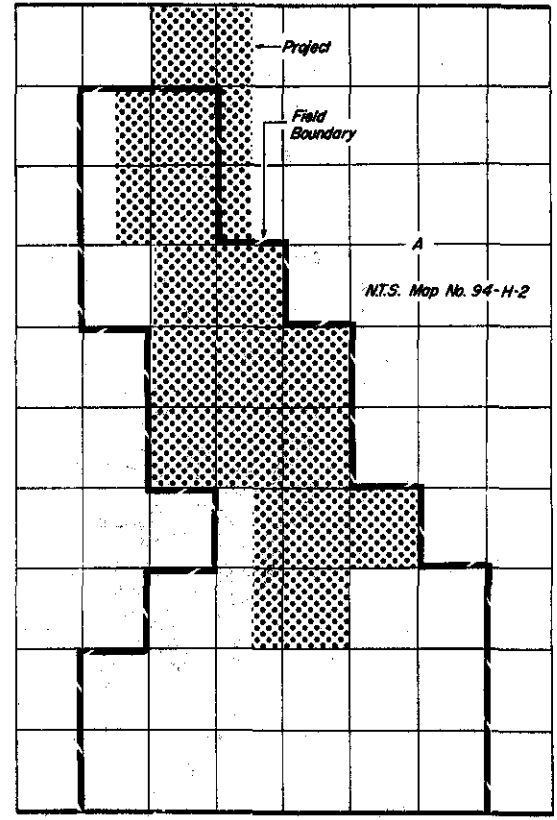
Map 27
MONSANTO CONSERVATION PROJECTS
DUNLEVY ZONE
RIGEL FIELD



Map 28
HALFWAY ZONE UNITS
WEASEL FIELD



MAP 29
WAINOCO UNIT 1
HALFWAY & BELLOY POOLS
WILDER FIELD



Map 30
UNION OIL PROJECT
HALFWAY ZONE
WILDMINT FIELD

TABLE 16—PROJECT AND INDIVIDUAL WELL MPR DATA AT DECEMBER 31, 1972

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	—	24,834	6	4	—	1
Balsam	Halfway	Ipex-Cox Hamilton Balsam d-47-H/94-H-2	1840	Suspended	—	—	—	—	—	—	—	—
Bear Flat	North Pine Sand	Monsanto Project	—	286	2	1,362	—	447	2	—	—	1
Beatton River	Halfway	POR Ashland Beatton d-9-J/94-H-2	2909	184	—	—	—	—	—	—	—	—
		CIGOL et al Beatton d-1-K/94-H-2	2948	—	—	—	—	—	—	—	—	—
		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	—	—	—	—	—	—	—	—
		Triad Project	—	2,270	3	1,849	12,331	—	10	1	5	—
		Pool total	—	2,716	—	—	—	—	—	—	—	—
Beatton River West	Bluesky-Gething	Unit 1	—	793	4	3,426	422	—	15	—	2	—
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	18	—	—	1
		Pool total	—	4,798	—	—	—	—	—	—	—	—
Boundary Lake	Dunlevy	Pacific Boundary 8-15-85-14	270	79	—	—	—	—	—	—	—	—
	Cecil Sand	Imp et al Boundary 5-26-84-14	2977	86	—	—	—	—	—	—	—	—
		Texaco et al Boundary A8-30-85-13	2931	58	—	—	—	—	—	—	—	—
	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	11,136	—	25	—	7	—
		Dome Project 2	—	1,484	9	650	3,774	—	6	—	2	—
		Imperial Unit 1	—	38,657	9	26,743	59,276	—	157	—	35	—
		Texaco Unit 2	—	22,723	9	14,103	47,945	—	120	—	22	—
		Pool total	—	67,958	—	—	—	—	—	—	—	—

TABLE 16—PROJECT AND INDIVIDUAL WELL MPR DATA AT DECEMBER 31, 1972—*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
Boundary Lake —*Continued*	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	-----	---	-----	-----	-----	---	---	---	---
		Texaco NFA Boundary 16-25-85-14	1144	Suspended	---	-----	-----	-----	---	---	---	---
		Pool total	----	366	---	-----	-----	-----	---	---	---	---
Buick Creek	Dunlevy	Texaco NFA Buick c-32-A/94-A-14	1500	144	---	-----	-----	-----	---	---	---	---
		Decalta et al Buick c-74-A/94-A-14	1345	-----	---	-----	-----	-----	---	---	---	---
Buick Creek West	Dunlevy	Pacific W Buick c-83-K/94-A-11	271	-----	---	-----	-----	-----	---	---	---	---
		Pacific W Buick b-76-C/94-A-14	280	-----	---	-----	-----	-----	---	---	---	---
Bulrush	Halfway	Union Project	----	389	11	1,173	-----	3,313	4	---	---	2
Bulrush East	Halfway	Dome Provo-Co-op E Bulrush d-5-K/94-A-16	1843	43	---	-----	-----	-----	---	---	---	---
Cecil Lake	North Pine Sand	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	2,240	-----	8	1	1	---
Currant	Halfway	Union HB Currant d-28-C/94-A-16	1768	Suspended	---	-----	-----	-----	---	---	---	---
		Pacific Unit 1	----	627	14	696	1,985	-----	4	---	3	---
Eagle	Belloy	Raines Eagle 8-29-84-18	2543	39	---	-----	-----	-----	---	---	---	---
		Raines Eagle 11-29-84-18	2502	285	---	-----	-----	-----	---	---	---	---
		Pool total	----	324	---	-----	-----	-----	---	---	---	---
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	---	-----	-----	-----	---	---	---	---
	Halfway	Wainoco et al Flatrock 6-13-84-17	3221	-----	---	-----	-----	-----	---	---	---	---
Fort St. John	Pingel Carbonate	Pacific Unit 1	----	334	15	1,260	-----	-----	4	---	---	---
	Belloy	Imp Pac Ft St John 9-19-83-18	171	Suspended	---	-----	-----	-----	---	---	---	---
Halfway	Blueberry Sand	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 Sand	Canadian Superior Unit 1	----	7,246	16	11,057	19,132	-----	25	1	14	---
		Amoco Unit 2	----	7,489	16	12,703	3,137	-----	35	---	9	---

		Texaco Unit 4—										
		Texaco Inga 16-13-87-24	2255	135	—	—	—	—	—	—	—	—
		Texaco Inga 16-24-87-24	2274	116	—	—	—	—	—	—	—	—
		Texaco Inga 16-25-87-24	2209	109	—	—	—	—	—	—	—	—
		Texaco Texcan Inga 8-36-87-24	2766	58	—	—	—	—	—	—	—	—
		Unit total	—	418	16	1,510	—	—	—	—	—	—
		Pacific Unit 5	—	630	16	2,913	—	—	9	—	—	—
		Pool total	—	15,783	—	—	—	—	—	—	—	—
Milligan Creek	Halfway	Union HB Milligan b-65-G/94-H-2	1493	157	—	—	—	—	—	—	—	—
		Union HB Milligan d-65-G/94-H-2	1518	107	—	—	—	—	—	—	—	—
		Ipex Milligan b-75-G/94-H-2	2721	148	—	—	—	—	—	—	—	—
		Ipex et al Milligan d-76-G/94-H-2	2659	—	—	—	—	—	—	—	—	—
		Ipex Milligan b-85-G/94-H-2	2765	110	—	—	—	—	—	—	—	—
		Duncan Milligan d-86-G/94-H-2	2566	52	—	—	—	—	—	—	—	—
		Union Unit 1	—	10,000	21	3,377	46,489	3,418	19	—	14	1
		Pool total	—	10,574	—	—	—	—	—	—	—	—
Moberly Lake	Pingel Carbonate	JBA Moberly 10-15-82-22	2019	61	—	—	—	—	—	—	—	—
		JBA Moberley 4-23-82-22	2463	38	—	—	—	—	—	—	—	—
		Pool total	—	99	—	—	—	—	—	—	—	—
Nettle	Bluesky-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	Baldonnel	Texaco NFA Nig d-87-A/94-H-4	2152	165	—	—	—	—	—	—	—	—
North Pine	Siphon Sand	Texaco N Pine 6-15-85-18	2264	50	—	—	—	—	—	—	—	—
Osprey	Halfway	Halfway Project	—	130	23	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	25	3,810	17,854	—	24	—	14	—
		Union Unit 2	—	8,229	25	6,884	27,937	—	39	—	11	—
		Pacific Unit 3	—	6,865	25	5,405	21,109	—	28	—	14	—
		Peejay North Project	—	42	25	917	—	—	1	2	—	—
		Pacific ARCo Project	—	2,717	25	1,317	5,889	—	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 8-18-87-16	1651	Suspended	—	—	—	—	—	—	—	—
		Monsanto IOE Fina Rigel 6-19-87-16	1692	65	—	—	—	—	—	—	—	—
		Monsanto IOE Fina Rigel 11-19-87-16	1616	47	—	—	—	—	—	—	—	—
		Monsanto Rigel 16-19-87-16	1781	Suspended	—	—	—	—	—	—	—	—
		Monsanto Rigel 6-23-87-17	1942	100	—	—	—	—	—	—	—	—
		Monsanto Rigel 6-31-87-17	1714	46	—	—	—	—	—	—	—	—
		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	—	—	—	—	—	—	—	—

TABLE 16—PROJECT AND INDIVIDUAL WELL MPR DATA AT DECEMBER 31, 1972—*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
Stoddart	Cecil Sand	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	—	—	—	—	—	—	—	—
		Uno-Tex Triad Stoddart A11-5-86-19	1983	—	—	—	—	—	—	—	—	—
		Pool total	—	138	—	—	—	—	—	—	—	—
Wargen	Gething	Pacific et al Wargen d-37-C/94-H-6	2324	—	—	—	—	—	—	—	—	—
		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	28	1,847	8,208	1,866	10	—	6	—
		Pacific Unit 2	—	1,143	28	1,081	2,764	—	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	30	1,869	21,810	16,095	12	—	5	2
		Pool total	—	3,529	—	—	—	—	—	—	—	—

Willow	Bluesky-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 d-92-B/94-A-15	1972	37	—	—	—	—	—	—	—	—
		Baysel Sinclair Wolf d-93-B/94-A-15	1815	129	—	—	—	—	—	—	—	—
		Pool total	—	284	—	—	—	—	—	—	—	—
Other areas	Bluesky-Gething	Union HB Gulf Canuck d-39-G/94-H-1	2616	Suspended	—	—	—	—	—	—	—	—
		Union HB BA Ladyfern d-48-H/94-H-1	1433	—	—	—	—	—	—	—	—	—
	Siphon Sand	GAO Cdn Res Pintail 2-12-85-25	3157	—	—	—	—	—	—	—	—	—
	Halfway	Texaco et al N Boundary 11-30-87-14	3098	147	—	—	—	—	—	—	—	—
		Pacific SR CanDel Ptarmigan d-90-I/94-A-15	1531	Suspended	—	—	—	—	—	—	—	—
		Union et al Spruce d-62-E/94-A-16	2323	Suspended	—	—	—	—	—	—	—	—
		Union HB Drake b-82-E/94-H-1	2848	—	—	—	—	—	—	—	—	—
	Belloy	Wainoco Ft St John 11-23-84-19	3122	—	—	—	—	—	—	—	—	—

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972

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 ab'd.
Baldonnel	Pacific Airport 9-32-83-17 (97)	287	5-71	1,573	0.500	2,498	Zone ab'd.
Halfway	Pacific Airport 12-34-83-17 (10)	35	5-71	1,960	1.000	1,667	Zone ab'd.
Balsam—							
Bluesky-Gething	Union HB Balsam b-56-H/94-H-2	1889	3-70	1,030	———	———	———
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	3-69	6,001	0.500	84,000	———
	Pan Am Beaver c-45-K/94-N-16	2116	12-67	5,824	0.760	86,844	———
	Amoco Beaver d-A64-K/94-N-16	2547	3-71	5,883	0.740	50,267	———
	Pan Am Beaver River d-73-K/94-N-16	682	2-71	5,831	0.710	186,088	———
Nahanni total		———	———	———	———	———	GEP.
Beavertail—							
Bluesky-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	———	———	———	———	———
Bluesky-Gething total		———	———	———	———	———	8,758
Halfway	Pacific Sinclair Beavertail d-71-C/94-A-15	1893	———	———	———	———	———
Beg—							
Baldonnel Project (2)	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	Zone ab'd.
	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	8-70	1,221	0.577	2,202	———
	Pacific Pan Am Dome Beg a-4-D/94-G-8	766	8-68	908	0.625	15,600	———
	Pacific Pan Am Dome Beg d-15-D/94-G-8	855	6-63	1,332	0.600	3,600	Disposal.
Baldonnel Project (2) total		———	———	———	———	———	GEP.

Halfway Project (2)	Richfield Sohio Beg d-13-B/94-G-1	1268	12-72	777	0.500	4,394	———
	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	12-72	1,237	0.537	1,344	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 (2)		———	———	———	———	———	GEP.
Field total		———	———	———	———	———	GEP.
Beg West—							
Baldonnel Project (2)	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—							
Bluesky-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	8-63	1,121	1.000	640	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
	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	8-72	1,638	0.577	932	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 Sand	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, 1972—*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	8-72	1,775	0.820	1,892	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	9-72	1,121	1.000	771	Suspended.
	West Nat et al W Blueberry d-82-I/94-B-9	165	9-72	1,189	1.000	1,438	Suspended.
Baldonnel	G Basins et al W Blueberry a-7-L/94-A-12	2435	9-72	1,682	0.731	8,092	2,136
	West Nat et al W Blueberry d-19-L/94-A-12	241	8-72	1,691	0.543	1,432	Suspended.
	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-Gething	Pacific Boundary 8-15-85-14	270	7-72	964	0.687	720	Suspended.
	Texaco NFA Boundary 8-23-86-14	1125	----	----	----	----	----
Gething	Pacific Boundary Lake A16-4-85-14	655	7-71	788	0.839	3,215	Suspended.
	Pacific Boundary 12-10-85-14	352	7-72	676	0.839	5,438	2,368
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	8-72	677	0.605	2,110	2,000
	Pacific Boundary Lake 11-14-85-14	667	9-71	876	0.674	1,027	Suspended.
	Pacific Boundary 8-15-85-14	270	7-72	1,392	0.725	3,592	Suspended.
	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	8-72	817	0.850	3,560	2,000
Baldonnel total							6,454
Basal Boundary Sand	Pacific et al Boundary 14-4-85-14	1964	7-72	1,017	0.550	1,788	2,000
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							10,822
Boundary Lake North—							
Halfway	Texaco NFA N Boundary 6-3-87-14	1395	----	----	----	----	----
	Texaco NFA N Boundary 6-8-87-14	1529	5-72	920	1.000	12,580	5,133
	Texaco NFA N Boundary 10-9-87-14	1451	5-72	935	0.804	13,296	4,837
	Texaco NFA N Boundary 7-15-87-14	1881	3-72	1,291	0.850	1,675	Suspended.
Halfway total							9,970
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 (2)	Pacific Sunray Imp Bubbles b-22-I/94-G-1	467	10-71	1,445	———	———	———
	Pacific Imperial Bubbles b-39-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
Baldonnel Project (2) 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-Gething—							
Project Pool A (2)	Texaco NFA Buick c-98-L/94-A-10	1088	9-68	855	———	———	———
	Mic Mac et al Buick d-17-D/94-A-15	1286	3-70	891	0.870	3,943	2,000
Project Pool B (3)	Texaco NFA Buick c-80-D/94-A-15	1087	7-66	1,045	0.500	750	Suspended.
Project Pool C (4)	Anadarko Cdn-Sup Buick c-32-I/94-A-11	2863	3-71	1,107	0.924	4,948	2,000
Project Pool D (5)	HOL APC Buick d-93-B/94-A-14	3212	———	———	———	———	———
Dunlevy—							
Project Pool A (4)	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
	Sierra Buick c-36-I/94-A-11	3169	———	———	———	———	———
	Woods Buick a-65-I/94-A-11	2783	8-71	978	0.660	7,546	2,000
	Decalta et al Buick d-73-I/94-A-11	1344	———	———	———	———	———
	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	6-72	700	0.867	39,657	16,259
	Texaco NFA Buick d-96-I/94-A-11	787	6-72	696	0.700	9,161	3,729
	Texaco NFA Buick Creek d-98-I(1)/94-A-11	45	7-72	738	0.980	2,652	2,000
	Texaco NFA Buick Creek c-10-A(2)/94-A-14	65	8-72	888	0.506	178	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	6-72	855	0.630	735	Suspended.
Project Pool A (4) total		———	———	———	———	———	37,899
Project Pool B (5)	Texaco NFA Buick c-98-L/94-A-10	1088	6-72	781	0.566	713	2,000
	Texaco NFA Buick a-31-A/94-A-14	295	9-72	767	0.661	17,715	6,162
	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	6-72	1,203	0.694	———	Observation.
	Texaco NFA Buick c-18-D/94-A-15	1185	6-72	715	0.748	3,208	2,000
	Texaco NFA Buick c-80-D/94-A-15	1087	6-72	628	0.682	3,102	2,000
Project Pool B (5) total		———	———	———	———	———	14,162

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Buick Creek—*Continued*							
Dunlevy—*Continued*							
Project Pool C (6)	Texaco NFA Buick Creek c-79-J(6)/94-A-11	110	6-72	524	0.700	1,424	2,000
	Texaco NFA Buick Creek d-83-J(4)/94-A-11	96	7-72	449	0.898	15,083	7,512
	Texaco NFA Buick d-93-J/94-A-11	728	6-72	458	0.938	8,776	3,967
	Pacific Buick Creek b-4-B/94-A-14	457	8-72	565	0.931	1,444	2,000
	Texaco NFA Buick b-10-B/94-A-14	1179	6-72	566	0.862	594	2,000
	Pacific Buick Creek c-14-B/94-A-14	469	8-72	609	0.869	1,461	2,000
	Sun Buick c-16-B/94-A-14	744	12-72	609	0.767	1,420	2,000
	Sun Buick d-19-B/94-A-14	756	12-72	518	1.000	1,139	2,000
	Texaco NFA Buick c-40-B/94-A-14	1213	6-72	605	0.940	810	Suspended.
	HOL APC Buick a-83-B/94-A-14	3177	——	——	——	——	——
	Sun Buick d-11-C/94-A-14	818	12-72	504	0.900	4,500	2,416
	Sun et al Buick c-32-C/94-A-14	1360	12-72	392	0.996	3,539	2,367
Project Pool C (6) total							28,262
Project Pool D (7)	HOL APC Buick d-93-B/94-A-14	3212	——	——	——	——	——
Cecil Sand	Texaco NFA Buick Creek d-83-J(4)/94-A-11	96	6-66	490	0.583	1,500	Suspended.
Field total							84,323
Buick Creek North—							
Bluesky-Gething	Pacific West Prod N Buick c-22-F/94-A-14	1753	7-72[2]	537[2]	0.636[2]	6,072[2]	2,617[2]
	Pacific West Prod N Buick b-44-F/94-A-14	1799	——	——	——	——	——
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	7-72	726	0.700	1,965	2,000
	Pacific West Prod N Buick c-22-F/94-A-14	1753	7-72	(2)	(2)	(2)	Suspended.[2]
	Pacific West Prod N Buick b-44-F/94-A-14	1799	——	——	——	——	——
	Pacific West Prod N Buick b-86-F/94-A-14	1830	7-72	1,274	0.500	1,354	Suspended.
Dunlevy total							8,417
Field total							11,034
Buick Creek West—							
Dunlevy—							
Project Pool A (2)	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-14C(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 (2) total							11,772
Project Pool B (3)	Pacific West Buick Creek b-78-C(2)/94-A-14	89	8-72	799	0.712	3,738	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 (3) 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	32,100	Suspended.
	Pacific Cabin a-49-G/94-P-5	2058					
Cache Creek—							
Coplin Sand	Texcan Cache 10-20-88-22	2567	12-69	2,239	1.000	2,900	2,000
	Texcan Cache 6-28-88-22	2423	1-69	2,293			
Halfway	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/94-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
Slave Point Project (2)	Pacific Imp Clarke c-56-L/94-J-9	1833	8-72	2,470	0.552	56,572	
	Pacific Imp Clarke b-69-L/94-J-9	2240					Disposal.
	Pacific Imp Clarke b-72-L/94-J-9	2540	8-72	2,442	0.637	95,138	
	Pacific Imp Clarke a-77-L/94-J-9	3104					
	West Nat Imp Clarke Lake d-88-L/94-J-9	344	8-72	2,404	0.620	104,314	
	West Nat Imp Clarke Lake d-91-L/94-J-9	585	8-72	2,386	0.854	14,656	
	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	8-72	2,371	1.000	49,672	
	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	8-72	2,693	0.695	36,311	
	Pacific Apache Clarke b-76-G/94-J-10	1071	9-72	2,690	0.674	10,420	
	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	9-72	2,634	0.567	22,134	
	Pacific et al Clarke c-20-I/94-J-10	2107	9-72	2,619	0.535	39,990	
	Pacific et al Clarke b-38-I/94-J-10	1933	9-72	2,566			
	Pacific et al Clarke c-69-I/94-J-10	2249	9-72	2,476	0.587	50,967	
	West Nat et al Clarke b-70-I/94-J-10	688	9-72	2,497	0.655	40,979	
	West Nat et al Clarke c-78-I/94-J-10	505	9-72	2,460	1.000	124,351	
	Pacific Imp Clarke c-85-I/94-J-10	2310					Suspended.
	Pacific Imperial Clarke c-92-I/94-J-10	1554	8-72	2,411	0.500	92,006	
	Pacific Imp Clarke a-94-I/94-J-10	3073	8-72	2,412			
	Pacific et al Clarke b-22-J/94-J-10	1796	4-70	2,759			

[2] Comingled production; Bluesky-Gething and Dunlevy not segregated.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*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 (2)—*Continued*	Pacific et al Clarke b-26-J/94-J-10	2776	—	—	—	—	—
	Pacific et al Clarke c-43-J/94-J-10	2239	9-72	2,564	0.649	34,847	—
	Pacific et al Clarke b-46-J/94-J-10	2162	8-72	2,615	0.550	16,232	—
	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	9-72	2,522	0.733	22,578	—
	Pacific et al Clarke a-55-J/94-J-10	1966	8-72	2,604	0.715	91,758	—
	Pacific Imp Clarke b-6-D/94-J-16	2820	8-72	2,370	0.500	29,647	—
	West Nat Imp Clarke Lake c-8-D/94-J-16	503	8-72	2,418	1.000	125,075	—
	Pacific Imp Clarke b-10-D/94-J-16	2509	8-72	2,407	0.591	76,946	—
Slave Point Project (2) PRL	—	—	—	—	—	—	400,000
Slave Point total	—	—	—	—	—	—	422,055
Clarke Lake South—							
Slave Point	West Nat 10E S Clarke d-29-K/94-J-9	1274	8-72	2,627	0.500	133,187	Suspended.[3]
	Pacific 10E S Clarke c-50-K/94-J-9	1913	8-72	2,598	0.781	13,740	Suspended.[3]
Currant—							
Halfway	Texaco NFA Currant a-3-C/94-A-16	1607	—	—	—	—	—
Cypress—							
Baldonnel	Security Cypress a-65-C/94-B-15	1339	8-63	1,960	0.689	11,200	Suspended.
	Security Cypress d-87-C/94-B-15	1326	3-71	1,960	0.625	25,112	Suspended.
	Security 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.
	10E 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
Evergreen—							
Halfway	CDR Sun Evergreen b-43-J/94-H-2	2056	—	—	—	—	—
	CDR Sun Evergreen d-54-J/94-H-2	1918	—	—	—	—	—

Farrell Creek—							
Charlie Lake	CanDel et al Farrell a-30-L/94-A-5	2165	1-72	2,217	0.695	1,501	2,000
	CanDel et al Farrell a-41-I/94-B-8	2089	1-72	2,213	0.646	565	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	1-72	1,545	0.595	1,334	2,000
Field total							6,000
Fireweed—							
Bluesky-Gething	Sierra et al Fireweed a-43-H/94-A-13	3071	3-72	1,329	0.710	3,407	2,000
	SOC et al Fireweed b-42-A/94-A-13	3203					
Dunlevy	SOC et al Jeans 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 Jeans a-7-H/94-A-13	3152					
	Sierra et al Fireweed a-43-H/94-A-13	3071	3-72	1,321			
	CDR Union E Fireweed d-55-H/94-A-13	1201					
Baldonnel	CDR Fireweed d-31-G/94-A-13	1384					
	Sierra et al Fireweed a-61-G/94-A-13	3087					
Debolt	West Nat et al Jeans a-57-A/94-A-13	507	9-69	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 E Jeans c-A1-H/94-A-13	455					
Field total							6,000
Flatrock—							
Siphon Sand	CEGO et al Flatrock 10-27-84-16	1954	6-67	1,659	0.837	2,630	Suspended.
Halfway	Champlin Flatrock 10-9-84-16	2516	5-72	1,398	0.945	14,097	4,716
	Champlin et al Flatrock 11-17-84-16	2827	5-72	1,819	1.000	9,313	2,328
	Ballinderry Flatrock 10-33-84-16	2760	9-72	1,859	0.659	9,805	2,451
Halfway total							9,495
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	6-72	1,019	0.700	3,247	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

[3] Part of Clarke Lake Project (2) PRL.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Fort St. John—*Continued*							
Pingel Carbonate	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	6-72	523	1.000	72	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	2,000
	Pacific et al Ft St John 11-34-83-19	2138	6-72	1,668	0.833	3,842	2,000
Halfway total		----	----	----	----	----	12,000
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	6-72	431	0.542	2,416	2,000
	Pacific Ft St John 3-30-83-18 (6)	31	----	----	----	----	Disposal.
Belloy total		----	----	----	----	----	4,000
Field total		----	----	----	----	----	32,000
Fort St. John Southeast—							
Dunlevy	Pac Ft St John SE 10-31-82-17 (80)	220	6-72	1,284	0.854	1,474	Suspended.
Baldonnel	Pac Ft St John SE 13-2-83-17 (74)	213	6-72	672	0.766	2,589	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 Sand	Pacific Ft St John SE 7-3-83-17 (49)	174	6-72	1,643	----	----	----
Pingel Carbonate	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	6-72	1,486	1.000	5,254	Suspended.
	Pacific Ft St John SE 7-3-83-17 (49)	174	11-69	818	1.000	1,253	Zone ab'd.
	Pac Ft St John SE 16-3-83-17 (66)	197	6-72	439	0.795	4,949	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	6-72	1,742	1.000	1,400	Suspended.
	Pac Ft St John SE A10-10-83-17 (98)	320	6-72	686	0.845	1,889	Suspended.
Halfway total		----	----	----	----	----	5,164
Belloy	Pac Ft St John SE 11-32-82-17 (68)	201	6-72	466	0.745	5,085	4,042
	Pac Ft St John SE 10-4-83-17 (47)	173	10-72	718	0.810	5,354	3,385
	Pacific Ft St John SE 8-5-83-17 (20)	52	10-53	2,805	1.000	4,980	Zone ab'd.
	Pacific Ft St John SE 4-9-83-17 (44)	166	6-72	972	1.000	5,313	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	6-72	705	0.726	1,163	2,000
Belloy total		----	----	----	----	----	9,427
Field total		----	----	----	----	----	18,591

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
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 Sand	West Nat Gundy Creek b-69-A/94-B-16	253	4-59	1,845	1.000	8,300	Suspended.
Halfway—							
Baldonnel	West Nat et al Halfway 11-35-86-25	351	10-58	1,639	0.678	8,200	Suspended.
	West Nat et al Halfway 5-1-87-25	107	6-72	1,570	1.000	2,844	2,000
Coplin Sand	West Nat et al Halfway 8-11-87-25	182	6-70	2,035	0.781	759	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.
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.
Inga Sand (non-unit)	SOC Cardo W Jeans b-46-B/94-A-13	3156	9-72	2,135	0.734	3,647	2,000
Inga Unit 3 (6)	West Nat et al Inga d-42-J/94-A-12	2000	3-72	2,201	———	———	Observation.
	Cdn-Sup Whitehall Inga b-44-J/94-A-12	2461	3-72	2,230	———	———	Observation.
	Francana Cabot Inga b-82-J/94-A-12	2241	3-72	2,128	0.679	40,808	———
	West Nat et al Inga b-10-A/94-A-13	470	3-71	2,129	0.824	2,429	———
	Francana et al Inga a-5-B/94-A-13	2320	3-71	2,162	0.851	4,298	———
	West Nat et al Inga a-22-B/94-A-13	412	11-70	2,264	1.000	3,220	———
Unit total		———	———	———	———	———	10,000[4]
Field total		———	———	———	———	———	12,000
Inga North—							
Inga Sand	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 (2)	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	———	———	———

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

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Jedney—*Continued*							
Baldonnel Project (2)—*Continued*	Pacific Imperial Jedney b-56-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	9-72	1,057	1.000	3,266	———
	Pacific et al Jedney b-50-F/94-G-8	1907	———	———	———	———	———
Baldonnel Project (2) total		———	———	———	———	———	GEP.
Halfway Project (2)	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	———
Halfway Project (2)	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 (2) 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	Suspended.
Halfway	Pacific et al W Jedney b-84-K/94-G-1	1081	6-72	1,308	0.500	1,302	2,000
	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	1-67	2,099	———	———	———
	Sinclair Julienne Ck a-50-D(B13-2)/94-G-1	304	12-72	1,309	0.912	1,642	———
Baldonnel total		———	———	———	———	———	GEP.
Halfway	ARCo Pac Julienne b-39-D/94-G-1	658	12-72	1,479	0.674	1,336	———
	Sinclair Julienne Ck a-50-D(B13-2)/94-G-1	304	12-72	1,711	0.988	4,015	———
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	2,000
	Pacific Kobes b-24-A/94-B-9	489	8-72	900	1.000	604	2,000
Dunlevy total		———	———	———	———	———	6,000
Charlie Lake	Pacific Kobes a-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 (2)	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 (2) 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		———	———	———	———	———	14,000
Kotcho Lake—							
Slave Point	West Nat Kotcho Lake d-39-J/94-I-14	532	———	———	———	———	———
	West Nat Kotcho b-54-K/94-I-14	879	2-71	2,523	———	———	———
	Pacific Kotcho c-78-K/94-I-14	3101	———	———	———	———	———
	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	2-71	2,480	0.605	56,586	Suspended.
	Pacific Kotcho b-44-C/94-P-3	562	2-71	2,547	0.565	104,122	Suspended.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Kotcho Lake—*Continued*							
Slave Point—*Continued*	Pacific Kotcho d-70-C/94-P-3	2609	2-71	2,539	0.589	16,656	4,164
	Pacific Kotcho d-100-C/94-P-3	2823	3-71	2,537	0.500	10,845	2,711
	Pacific Kotcho c-31-E/94-P-3	2877	3-71	2,537	0.551	33,869	8,467
	Pacific Louise a-67-E/94-P-3	3082					
	Pacific Kotcho b-30-F/94-P-3	677	3-71	2,541	0.500	42,077	10,519
Slave Point Project (2)	West Nat Kotcho Lake c-67-K/94-I-14	404	2-71	2,523	0.853	803,690	
Slave Point total							25,861
LaGarde—							
Dunlevy	Texaco NFA LaGarde 7-21-87-15	145	8-71	980	0.859	2,737	2,000
Boundary Lake	Texaco NFA LaGarde 10-29-87-15	1194	8-71	1,004	0.964	9,324	3,706
Field total							5,706
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	2,000
	Pacific CIGOL Laprise c-20-L/94-H-5	2945	10-71	1,369	0.927	6,854	2,000
Baldonnel Project (2)	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	8-71	1,109	0.720	7,943	.....
	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	8-71	1,115	0.500	4,918	.....
	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	1,137	0.615	4,685	.....
	Dome Basco Laprise Ck a-35-H/94-G-8	327	8-71	1,138	0.544	7,105	.....
	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	8-71	1,159	0.580	4,212	.....
	Dome Provo Laprise d-91-H/94-G-8	809	8-71	1,144	0.579	6,458	.....
	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	6-69	1,307	0.662	12,908	.....
	Amerada Laprise d-77-D/94-H-5	1378	6-69	1,345	0.521	4,946	.....

	Pacific IOE Laprise a-85-D/94-H-5	1948	12-72	1,223	0.500	4,821	———
	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	6-69	1,397	0.500	1,142	———
	Pacific et al Laprise c-98-D/94-H-5	3182	———	———	———	———	———
	Pacific IOE Laprise d-3-E/94-H-5	1979	11-72	1,320	———	———	———
	Amerada Laprise a-7-E/94-H-5	1337	11-63	1,286	0.500	5,300	———
	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	9-71	1,107	0.649	4,432	———
	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	9-71	1,140	0.770	12,883	———
	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	7-71	1,141	0.510	5,860	———
	Pacific Imperial Laprise c-78-E/94-H-5	551	7-71	1,159	0.700	6,132	———
	Pacific Imperial Laprise a-99-E/94-H-5	1341	11-72	1,129	0.767	13,036	———
Baldonnel total		———	———	———	———	———	GEP+8,000
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—							
Bluesky-Gething	Union HB Milligan d-62-G/94-H-2	1001	12-70	1,022	———	———	2,000[5]
	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	2,000
Bluesky-Gething total		———	———	———	———	———	4,000
Halfway	Whitehall et al Milligan d-75-G/94-H-2	689	———	———	———	———	———
Field total		———	———	———	———	———	4,000
Montney—							
Bluesky-Gething	Pac Sunray Montney 16-32-86-19 (3)	119	9-58	1,123	1.000	814	Suspended.
Cecil Sand	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.
Nettle—							
Halfway	Union KCL ROC Nettle d-58-A/94-H-7	1411	———	———	———	———	———

[5] Lease fuel.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Nig Creek—							
Baldonnel	Whitehall ARCo Nig a-87-J/94-A-13	2244	----	----	----	----	----
	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
	Tenn Monsanto Nig c-A32-C/94-H-4	1484	10-64	1,589	----	----	Abandoned.
Baldonnel Project (2)	Texaco NFA Nig a-69-A/94-H-4	819	7-72	1,297	0.500	1,045	2,000
	Texaco Gulf Nig d-76-A/94-H-4	2761	7-72	1,434	0.665	2,759	----
	Texaco NFA Nig d-15-B/94-H-4	1180	7-72	1,173	0.621	7,194	2,496
	Texaco NFA Nig c-36-B/94-H-4	729	7-72	1,133	0.572	4,836	2,000
	Texaco et al Nig b-68-B/94-H-4	2784	8-72	1,162	0.665	3,682	2,000
	Texaco NFA Nig Creek b-70-B(9)/94-H-4	383	8-72	1,254	0.500	2,638	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	8-72	1,016	0.587	5,703	----
	Texaco NFA Nig a-77-B/94-H-4	1762	7-72	898	0.663	5,669	----
	Texaco NFA Nig Creek a-79-B(1)/94-H-4	61	8-72	1,038	0.591	5,230	----
	Texaco NFA Nig c-90-B/94-H-4	1161	8-72	1,081	0.594	2,844	----
	Texaco NFA Nig Creek a-31-F(7)/94-H-4	294	----	----	----	----	Disposal.
	Texaco NFA Nig Creek a-1-G/94-H-4	456	7-72	887	0.898	6,319	----
	Texaco NFA Nig Creek b-2-G/94-H-4	447	8-72	929	0.564	9,487	----
	Texaco NFA Nig a-6-G/94-H-4	1740	7-72	926	0.571	7,113	----
	Texaco NFA Nig a-8-G/94-H-4	967	8-72	995	0.806	21,530	----
	Texaco NFA Nig Creek a-12-G(6)/94-H-4	131	8-72	899	1.000	5,856	----
	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	3-72	1,459	0.530	357	----
	Texaco NFA Nig c-6-H/94-H-4	1654	8-72	1,013	0.764	3,706	----
	Texaco NFA Nig c-14-H/94-H-4	1707	8-72	1,165	0.631	3,486	Suspended.
	Texaco NFA Nig c-33-H/94-H-4	1742	7-72	1,046	0.654	3,462	----
	Texaco NFA Nig b-41-H/94-H-4	1976	7-72	1,250	1.000	372	Suspended.
Baldonnel Project (2) PRL		----	----	----	----	----	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	2,000

North Pine—							
North Pine Sand	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—							
Halfway	Woods Wainoco Oak 10-27-86-18	3201	11-72	1,842	0.947	6,465	2,000
	Woods Wainoco Oak 7-2-87-18	3216	12-72	1,788	0.947	1,080	2,000
Halfway total							4,000
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 (2)	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 PRL							20,000
Peggo—							
Slave Point	Midwest Chevron Peggo d-65-A/94-P-7	2276	———	———	———	———	———
	Dome et al Peggo d-79-A/94-P-7	2881	———	———	———	———	———
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	2,795	0.802	185,000	Suspended.
	West Nat Petitot River d-24-D/94-P-13	403	———	———	———	———	———
Red Creek—							
North Pine Sand	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.
Rigel—							
Bluesky-Gething	Imp et al Rigel 10-35-88-18	2593	(6)	(6)	(6)	(6)	(6)
	ARCo Rigel d-33-I/94-A-10	1763	11-70	1,091	———	———	———
	IOE et al Rigel d-39-J/94-A-10	2686	10-70	1,118	0.509	55	2,000
Dunlevy	IOE Fina Rigel 7-35-87-18	2707	7-72	860	0.500	9,447	Suspended.
	IOE et al Rigel d-39-J/94-A-10	2686	7-72	1,000	0.826	8,276	Suspended.
	Cabot et al Rigel a-87-K/94-A-10	2573	———	———	———	———	———
Dunlevy Project (2)	Denision Rigel 6-31-87-16	1372	7-72	1,009	0.765	4,696	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	7-72	895	0.560	3,716	———
	Pacific Rigel 6-35-87-17	1293	7-72	890	1.000	3,341	Suspended.
	Monsanto Rigel 6-36-87-17	1354	11-72	878	0.565	8,954	———
	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	7-72	773	0.553	6,865	———
	Imp Fina Rigel 6-8-88-17	1208	7-72	1,040	0.675	2,511	Suspended.
	Imp Fina Rigel 6-10-88-17	1090	7-72	784	0.582	5,799	———
	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	7-72	1,250	———	———	———

(6) Bluesky and Dunlevy, without segregation.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Rigel—*Continued*							
Dunlevy Project (2)—*Continued*	Imp et al Rigel 7-19-88-17	1107	7-72	767	0.500	12,372	———
	IOE Fina Rigel 10-25-88-17	2127	12-71	963	0.500	3,337	Suspended.
	Imp Fina Rigel 4-27-88-17	130	7-72	795	0.634	3,558	———
	Imp Fina Rigel 6-28-88-17	1385	12-71	1,281	———	———	———
	Imp et al Rigel 6-30-88-17	1032	7-72	830	0.793	12,838	———
	IOE Fina Rigel 7-1-88-18	2974	9-72	893	0.833	1,963	———
	IOE Fina Rigel 11-2-88-18	2597	7-72	848	0.837	16,695	———
	Imp Fina Rigel 11-3-88-18	1593	12-71	945	———	———	———
	Woods Rigel 10-8-88-18	2795	7-72	902	0.626	4,753	———
	IOE Fina Rigel 11-11-88-18	1494	7-72	857	0.663	11,249	———
	Imp et al Rigel 7-13-88-18	1978	7-72	812	0.669	11,656	———
	Imp Fina Rigel 10-14-88-18	1465	7-72	851	0.663	5,541	———
	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	7-72	872	0.952	5,596	———
	Imp et al Rigel 7-23-88-18	1163	7-72	864	0.693	3,804	———
	Sun Rigel 10-24-88-18	1324	9-70	1,000	0.675	6,267	———
	Imp et al Rigel 6-27-88-18	828	7-72	811	0.699	4,757	———
	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	7-72	799	0.685	7,778	———
	[6]Imp et al Rigel 10-35-88-18	2593	7-72	931	0.658	4,361	———
	Pembina Rigel 10-24-88-19	3160	———	———	———	———	———
	[6]ARCo Rigel a-27-I/94-A-10	1620	7-72	888	0.777	9,591	———
	ARCo Rigel d-33-I/94-A-10	1763	7-72	1,035	———	———	———
	IOE Fina Rigel d-57-I/94-A-10	1537	7-72	897	0.676	3,250	———
	Imp IOE Fina Rigel a-21-J/94-A-10	2054	7-72	724	0.760	11,410	———
	IOE et al Rigel c-56-J/94-A-10	2537	7-72	912	0.594	10,056	———
	IOE Fina Rigel c-60-J/94-A-10	2400	7-72	912	0.622	10,052	———
	IOE Fina Rigel a-89-J/94-A-10	2354	7-72	1,043	0.788	1,515	Suspended.
	Imp et al Rigel b-22-K/94-A-10	1003	———	———	———	———	———
	Texaco NFA Rigel a-28-K/94-A-10	1370	7-72	826	0.660	1,268	———
	IOE Fina Rigel d-71-K/94-A-10	2726	7-72	956	0.734	9,848	———
Dunlevy Project (2) total		———	———	———	———	———	GEP.
Field total		———	———	———	———	———	GEP+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
Shekilie—							
Slave Point	Pacific Shekilie b-24-A/94-I-16	1816	———	———	———	———	———
	Pacific Sinclair Shekilie b-46-A/94-I-16	2038	———	———	———	———	———
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	63,540
	Socony Mobil Sierra c-91-D/94-I-14	1659	5-72	3,330	0.500	69,182	17,635
Pine Point total		———	———	———	———	———	81,175
Siphon—							
Dunlevy	Pacific Westcoast Siphon 11-28-86-16	3133	6-72	1,420	0.656	34,544	8,639
	Pacific Westcoast Siphon A7-33-86-16	3118	6-72	1,421	0.843	28,647	7,162
	Pacific West Prod Siphon 7-34-86-16	2581	2-72	1,395	0.500	15,952	3,980
	Kissinger Vaughey Siphon 6-2-87-16	2952	2-72	1,426	1.000	6,408	2,000
	Kissinger Vaughey Siphon 7-3-87-16	3077	2-72	1,428	0.900	44,918	11,230
Dunlevy total		———	———	———	———	———	33,011
Baldonnel	Pacific et al Siphon 11-27-86-16	444	10-69	1,430	———	———	2,000
	Dome Siphon 10-12-87-16	2446	1-70	1,381	0.966	1,550	2,000
Baldonnel total		———	———	———	———	———	4,000
Siphon Sand	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	2-72	1,493	0.855	3,511	2,000
	Kissinger Vaughey Siphon 6-11-87-16	3100	3-72	1,533	0.827	3,116	2,000
	Dome Siphon 10-12-87-16	2446	———	———	———	———	———
Siphon Sand total		———	———	———	———	———	6,000
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	6-72	1,708	0.763	27,454	6,864
	Woods Anadarko Siphon 7-31-86-16	3055	———	———	———	———	———
	Kissinger Vaughey Siphon 7-33-86-16	2972	2-72	1,719	0.930	3,802	2,000
	Kissinger Vaughey Siphon 6-2-87-16	2952	3-72	1,684	1.000	1,454	2,000
Halfway total		———	———	———	———	———	12,864
Field total		———	———	———	———	———	55,875
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	8-69	2,326	0.747	6,600	2,000
	Apache Dunbar Stoddart 11-23-85-19	2548	10-69	2,384	0.920	3,140	Zone ab'd.
	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

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Stoddart—*Continued*							
Belloy—*Continued*	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	10-72	1,232	0.654	10,169	4,106
	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	10-72	1,151	0.927	18,732	8,735
Belloy Total		———	———	———	———	———	62,798
Stoddart West—							
Halfway	Pacific Stoddart 6-22-86-20	2999	1-72	1,928	0.597	9,972	2,493
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	2,000
	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		———	———	———	———	———	15,715
Field total		———	———	———	———	———	18,208
Sunrise—							
Paddy	Horizon Sunrise 11-6-79-16	2560	———	———	———	———	———
	Pacific Sunrise 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	2,000
	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 Sunrise 7-12-79-17	2772	———	———	———	———	———
Cadotte total		———	———	———	———	———	4,000

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	———	———	2,000
Siphon Sand	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		———	———	———	———	———	15,377
Velma—							
Bluesky-Gething	Decalta et al Velma a-7-E/94-H-8	3069	———	———	———	———	———
	GraMic Forest Buttes Velma d-15-E/94-H-8	2869	———	———	———	———	———
"A" Sand	GraMic et al Velma b-70-C/94-H-8	3053	———	———	———	———	———
	HB et al Velma b-66-D/94-H-8	3113	———	———	———	———	———
Weasel—							
Baldonnel	Sinclair Pacific Weasel d-93-J/94-A-15	1790	12-65	1,113	0.675	6,050	2,000
Charlie Lake	Tenn Ashland Weasel d-27-B/94-H-2	1703	10-65	1,248	0.754	1,070	Suspended.
Wilder—							
Halfway Project (2)	Wainoco Woods Wilder 10-19-83-19	2793	10-72	1,875	0.730	29,258	———
	Wainoco Woods Wilder 7-30-83-19	2773	10-72	1,786	0.866	17,266	———
Halfway Project (2) PRL		———	———	———	———	———	12,500
Belloy	Amerada Pac Wilder 11-17-83-19	697	———	———	———	———	———
	Wainoco Woods Wilder 11-20-83-19	2708	8-70	2,602	1.000	1,132	2,000
Unit total		———	———	———	———	———	14,500
Wildmint—							
Bluesky	Union HB Wildmint d-25-A/94-H-2	919	11-72	1,041	———	———	———
Willow—							
Bluesky-Gething	Union HB Willow d-29-H/94-H-2	1878	———	———	———	———	———
Halfway	Union HB Willow d-11-G/94-H-2	1292	12-69	1,182	0.741	6,522	2,000
	Union HB Willow b-10-H/94-H-2	830	7-72	721	0.510	17,107	7,475
Halfway total		———	———	———	———	———	9,475
Wolf—							
Halfway	Pembina Frontier Wolf d-14-G/94-A-15	2062	———	———	———	———	———
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	3-71	2,761	0.536	15,012	3,753
	BVX Mesa Redwater Yoyo b-86-H/94-I-13	2907	———	———	———	———	———
	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.
	West Nat Yoyo b-98-E/94-I-14	1405	3-71	2,774	0.533	110,293	28,399
	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	3-71	2,741	0.600	112,500	29,110
	Placid Frontier Yoyo b-10-L/94-I-14	1569	3-65	3,021	0.643	63,000	Suspended.

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Yoyo—*Continued*							
Pine Point—*Continued*	Frontier Yoyo c-18-L/94-I-14	1431	3-71	2,777	0.596	243,595	62,877
	West Nat et al Yoyo b-24-L/94-I-14	1313	3-71	2,745	0.524	104,838	27,120
	Tenn Altair Yoyo a-47-L/94-I-14	1831	7-72	2,661	0.693	209,828	56,047
	Hamilton Uno-Tex Yoyo a-49-L/94-I-14	2068	3-71	2,761	1.000	288,903	72,226
Pine Point total							365,109
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-Gething	Pacific Westcoast Pouce 7-30-80-13	2995					
	Texaco NFA Junction b-9-F(12)/94-A-15	300	6-72	1,037	0.539	10,024	2,506
	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					
Bluesky-Gething total							4,506
Gething	Texcan N Nancy d-26-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	Quasar et al Grizzly b-62-G/93-I-15	3180	12-72	2,010	0.500	12,336	3,084
	Texaco NFA E Osborn a-45-J/94-A-9	1257					
	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			Zone ab'd.
	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.
	Texaco NFA E Osborn 6-33-88-14	1319	1-69	1,309	0.746	1,168	2,000
	TGS Falls c-32-F/93-0-9	2230					

	Hunt Sands Sun Falls c-18-G/93-0-9	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	Suspended.
	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					
	Security 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 Sand	Union HB Alder c-39-I/94-H-2	721	3-70	907			
Coplin Sand	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					
	Texaco NFA Redeye d-69-I/94-H-6	1549					
Inga Sand	Westcoast et al Goose 6-5-85-21	2989	11-72	1,857	0.814	6,551	2,000
Pingel Carbonate	Pacific et al Pingel 13-17-81-17 (1)	36					Suspended.
	Pacific Pingel Creek 5-26-81-18 (2)	66					
"A" Sand	Dome Drake b-48-F/94-H-1	3141					
Halfway	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					
	Baysel SR CanDel Osprey d-83-G/94-A-15	2071					
	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-E/94-A-16	2664					
	ARCo et al E Bulrush d-93-F/94-A-16	2603					
	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					
	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					

TABLE 17—GAS-WELL TEST AND ALLOWABLE DATA, DECEMBER 31, 1972—*Continued*

Field/Pool/Project	Well Name	Well Authorization No.	Date	Pws (Psia)	"n"	AOFP (MSCF/D)	PRL (MSCF/D)
Other areas—*Continued*							
Halfway—*Continued*	Bracell et al Harrier d-18-B/94-H-2	2789	12-70	1,278	—	—	—
	Sun Texaco W Willow d-95-B/94-H-2	1775	—	—	—	—	—
	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	—	—	—	—	—
	Pan Am Redeye d-89-D/94-H-10	2442	1-69	939	0.966	27,385	6,846
Halfway total			—	—	—	—	8,846
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 Stoddart 10-13-87-21	2777	9-71	2,291	0.721	996	2,000
Mississippian	Pacific et al Jackfish c-97-H/94-I-7	3097	—	—	—	—	—
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	—	—	—	—	—
Debolt	Sinclair et al Lily d-12-K(XB 16-1)/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	—	—	—	—	—
	ARCo Bivouac d-38-C/94-I-8	3137	—	—	—	—	—
	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.
	Texaco NFA Judy c-53-D/94-P-6	717	—	—	—	—	—
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
	Pacific Gunnel c-95-L/94-I-12	1239	2-63	2,648			
	Cdn Res Quintana Kotcho b-43-J/94-I-14	3107	12-72	2,532	0.500	78,988	19,747
	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	11-71	2,820	0.577	57,237	14,309
	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	(7)	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							42,692
Sulphur Point	Clark Can et al Trutch c-34-A/94-G-15	3022					
	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			
	Pacific IOE Clarke a-23-I/94-J-10	2870					Suspended.
	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.
	Pan Am A-1 Komie a-51-A/94-O-8	527	3-70	3,713			
	Texaco NFA Missie d-34-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							121,068

[7] Not available.

TABLE 18—HYDROCARBON AND BY-PRODUCT RESERVES, DECEMBER 31, 1972

	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	1,201,004	20,541	15,108.2	2,524.0	(1)	(1)	(1)	(1)
			Established					
Ultimate recovery, current estimate	356,111	151,937	13,592.6		11,885.6	12,288.9	173,544	5,344
Cumulative production to December 31, 1971	184,467	———	2,602.6		2,313.8	2,455.5	56,957	1,025
Reserves estimated at December 31, 1971	183,176	147,584	9,908.7		8,604.0	8,835.2	111,838	4,046
Revisions in 1972	−14,113	+3,778	+401.4		+370.1	+375.0	−3,896	+40
Drilling in 1972	+2,580	+575	+679.9		+597.7	+623.2	+8,646	+233
Production in 1972	−23,840	———	−439.3		−380.2	−391.2	−5,466	−146
Cumulative production adjustments[2]	+1	———	−0.3		+0.3	−0.5	+60	———
Reserves at December 31, 1972	147,803	151,937	10,550.4		9,191.3	9,441.7	111,182	4,173

NOTES:

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

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

MLT=Thousands of 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 1972 was 367.9 BSCF, and actually extracted quantities of NGL and sulphur were 1,839,053 barrels and 66,396 long tons respectively. In addition, 96,055 barrels of NGL were removed at the wellhead.

[1] Not available.

[2] Adjustment to cumulative production carried in 1971 reserves report. The gas data reflect the expected early implementation of gas sales from Inga Units 4 and 5. In previous years no gas reserve was carried; consequently, the cumulative production data shown in the 1971 reserves report did not include gas flared from these projects.

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 (Psia)	Combination Formation Volume Factor at Saturation 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	2,238	1,971	130	1,954	1.160	544	----
Beatton River	Halfway A—B.P. 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	1.1517	277	1.149
	Halfway C	Sandstone/Triassic	Structural/ Stratigraphic	Depletion	O/W 1192	1,170	1,172	129	1,170	1.155	280[2]	1.149
	Halfway D	Sandstone/Triassic	Structural/ Stratigraphic	Depletion/ Gas cap	G/O 1154, O/W 1160	1,157	(3)	129	1,179	1.158	284	1.149
	Halfway E	Sandstone/Triassic	Structural/ Stratigraphic	Depletion	O/W 1188	1,177	1,172	129	1,170	1.155	280[2]	1.149
Beatton River West	Bluesky-Gething	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	Sandstone/Triassic	Stratigraphic	Depletion/ Gas cap	G/O 1380	1,380	1,358	127	1,358	1.201	364	----
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/ Missippian	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	(3)	1,698	1.216[1]	455[1]	(3)
	Cecil B	Sandstone/Triassic	Stratigraphic	Depletion	None	1,673	1,698	(3)	1,698	1.216	455[2]	(3)

1 Standing's correlation.
2 Estimated.
3 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 Saturation Pressure (RB/STB)	Initial Solution Gas-Oil Ratio (SCF/STB)	Initial Oil Viscosity (Cp)
							Pressure (Psig)	Temp. (°F)				
Boundary Lake—*Cont.*	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.								
	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[2]	1.197	352	0.951
Cecil	North Pine	Sandstone/Triassic	Stratigraphic	Gas cap	G/O 2167	2,167	1,921	128	1,921	1.338[1]	650[1]	----
Charlie Lake	Gething	Sandstone/Lower Cretaceous	Stratigraphic	Depletion		1,020	1,096	116	(3)	1.200[2]	(3)	----
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 area	Belloy	Carbonate/Permian	Stratigraphic	Depletion		3,800	2,442	155	1,400[1]	1.188[1]	350[2]	----
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[1]	----

Flatrock	Boundary Lake	Carbonate/Triassic	Stratigraphic	Depletion		2,015	1,693	133	1,320[1]	1.160[1]	320[2]	----
	Halfway C	Sandstone/Triassic	Stratigraphic	Depletion	O/W 2514	2,502	1,967	135	1,876[1]	1.242[1]	500[2]	----
Fort St. John	Pingel	Sandstone/Triassic	Stratigraphic	Gas cap	G/O 2290, O/W 2343	2,332	1,921	125	1,905	1.156	534	0.600
	Belloy	Carbonate/Permian	Structural/ Stratigraphic	Depletion		4,160	2,769	155	----	1.334[2]	----	----
Halfway	Blueberry	Sandstone/Triassic	Stratigraphic	Depletion		2,157	2,112	130	2,112[2]	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	([3])[4]	([3])[4]	([3])[4]
	Unit 4	Sandstone/Triassic	Structural/ Stratigraphic		G/O 2405	2,519	2,333	140	2,310	1.348	676	0.440
	Unit 5	Sandstone/Triassic	Structural/ Stratigraphic		G/O 2405	2,519	2,333	140	2,310	1.348	676	0.440
Milligan Creek	Halfway—Unit 1	Sandstone/Triassic	Structural/ Stratigraphic	Waterflood	G/O 1171, G/O 1127, O/W 1200	1,170	1,167	132	1,152	1.1597	281	0.832
Moberly Lake	Pingel	Sandstone/Triassic	Structural/ Stratigraphic	Depletion		2,233	2,291	130	2,291[2]	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[2]	0.730
Osprey	Halfway	Sandstone/Triassic	Stratigraphic	Depletion	G/O 1525	1,525	1,418	128	1,418	1.205	380	1.040
Parkland area	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	----

[1] Standing's correlation.
[2] Estimated.
[3] Not available.
[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 Saturation Pressure (RB/STB)	Initial Solution Gas-Oil Ratio (SCF/STB)	Initial Oil Viscosity (Cp)
							Pressure (Psig)	Temp. (°F)				
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
Rigel	Dunlevy A	Sandstone/Lower Cretaceous	Stratigraphic	Depletion/ Gas cap	G/O 1237	1,237	1,280	118	1,280	1.148[1]	267[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	Depletion/ Gas cap	G/O 1303	1,303	1,288	118	1,288	1.148[1]	320[1]	----
	Dunlevy E	Sandstone/Lower Cretaceous	Stratigraphic	Depletion/ Gas cap	G/O 1220	1,231	1,291	118	1,287	1.148	320	----
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[2]	----
	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 1345, 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
Weasel West	Halfway	Sandstone/Triassic	Stratigraphic	Depletion	G/O 1357, O/W 1364	1,357	1,278	133	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-HB 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-HB C Project	Sandstone/Triassic	Structural/ Stratigraphic	Depletion	None	1,327	1,264	132	1,264	1.190	330[2]	1.05
	Union-HB D Project	Sandstone/Triassic	Structural/ Stratigraphic	Depletion	None	1,303	1,256	132	1,208	1.170	300[2]	1.05
	Union-HB E Project	Sandstone/Triassic	Structural/ Stratigraphic	Depletion	None	1,272	1,217	132	1,210	1.148	259	1.05
	Union-HB F Project	Sandstone/Triassic	Structural/ Stratigraphic	Depletion/ Gas cap	G/O 1344	1,344	1,294	132	1,294	1.195	345	.....
Willow	Bluesky-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 1680, O/W 1690	1,680	1,494	143	1,494	1.211	404	0.832[2]

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

TABLE 20—GASFIELD RESERVOIR FLUID DATA

Field/Area	Pool/Project	Rock Type and Age	Trapping	Fluid Contacts G/W (Feet SS)	Datum Depth (Feet 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
Beaver River	Nahanni	Carbonate/Devonian	Structural	11,925	10,500	0.642	698	356
Beavertail	Bluesky-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	Bluesky-Gething	Sandstone/Lower Cretaceous	Structural/Stratigraphic	——	842	0.644	670	372
Blueberry	Dunlevy A	Sandstone/Lower Cretaceous	Structural	——	1,200	0.659	675	369
	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-Gething A	Sandstone/Lower Cretaceous	Structural/Stratigraphic	——	1,095	0.634	669	365
	Bluesky-Gething 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	——	1,339	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
Boundary Lake North	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	.....	1,115	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	.....	1,240	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	Bluesky-Gething	Sandstone/Lower Cretaceous	Structural/Stratigraphic	.....	1,100	0.685	672	386
	Dunlevy	Sandstone/Lower Cretaceous	Structural/Stratigraphic	1,238	1,225	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
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
	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	1,555	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
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	Sandstone/Triassic	Structural	.....	3,325	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
	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	.....	2,511	0.650	681	375
	Halfway B	Sandstone/Triassic	Stratigraphic	.....	2,429	0.670	705	383
Fort St. John	Dunlevy	Sandstone/Lower Cretaceous	Structural	1,045	980	0.581	680	347

TABLE 20—GASFIELD RESERVOIR FLUID DATA—*Continued*

Field/Area	Pool/Project	Rock Type and Age	Trapping	Fluid Contacts G/W (Feet SS)	Datum Depth (Feet SS)	Specific Gravity of Gas	Critical Value	
							Pressure (Psia)	Temperature (°R)
Fort St. John—*Continued*	Baldonnel	Carbonate/Triassic	Structural	1,765	1,050	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
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	1,791	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
	Slave Point C	Carbonate/Devonian	Stratigraphic	None	4,410	0.670	722	361
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 Lake	Bluesky-Gething A	Sandstone/Lower Cretaceous	Stratigraphic	.....	800	0.669	677	380
	Bluesky-Gething B	Sandstone/Lower Cretaceous	Stratigraphic	.....	762	0.669	677	380
Montney	Bluesky-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	.....	2,332	0.701	680	387
Nettle	Bluesky-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	383
Oak	Cecil	Sandstone/Triassic	Stratigraphic	1,807	1,805	0.664	657	372
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
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

TABLE 20—GASFIELD RESERVOIR FLUID DATA—*Continued*

Field/Area	Pool/Project	Rock Type and Age	Trapping	Fluid Contacts G/W (Feet SS)	Datum Depth (Feet SS)	Specific Gravity of Gas	Critical Value	
							Pressure (Psia)	Temperature (°R)
Siphon—*Continued*	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
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	0.650	677	372
	"A" Sand	Sandstone/Triassic	Stratigraphic	None	719	0.643	676	370
Weasel	Baldonnel	Carbonate/Triassic	Structural	———	975	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
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
Wolf	Halfway B	Sandstone/Triassic	Structural	———	1,660	0.645	682	370
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, 1972

Well Authorization No.	Well Name	Date Spudded	Date Rig Released	Total Depth	Status at December 31, 1972
3137	ARCo Bivouac d-68-C	Mar. 22, 1972	Apr. 6, 1972	2,200	Debolt gas.
3266	ARCo Bivouac c-54-C	Dec. 29, 1972	———	———	Drilling.
2959	ARCo Pink d-71-D	Aug. 8, 1971	Jan. 27, 1972	9,950	Abandoned—dry.
3012	ARCo Pacific Robertson b-71-K	Dec. 18, 1971	Jan. 28, 1972	3,930	Abandoned—dry.
3123	Altana Terra Flatrock 10-35-84-17	Mar. 23, 1972	Apr. 3, 1972	4,988	Abandoned—dry.
3145	Altana Terra Flatrock 6-1-85-17	June 3, 1972	June 13, 1972	5,010	Abandoned—dry.
3219	AmMin Boundary A16-24-85-14	Nov. 9, 1972	Nov. 17, 1972	4,652	Halfway oil.
3129	AmMin Shannon a-79-B	Apr. 1, 1972	Oct. 27, 1972	15,674	Abandoned—dry.
3150	Amoco Inga 14-32-85-23	June 7, 1972	June 23, 1972	5,517	Abandoned—dry.
3198	Amoco Inga 14-31-87-23	Nov. 15, 1972	Nov. 27, 1972	5,500	Water injection.
3231	Amoco et al Sundown a-10-A	Dec. 28, 1972	———	———	Drilling.
3120	Amoco Redeye d-59-D	Mar. 19, 1972	Mar. 28, 1972	3,490	Abandoned—dry.
3165	Anadarko Cdn-Sup Buick a-29-L	July 28, 1972	Aug. 8, 1972	3,792	Dunlevy gas.
3237	Anadarko Cdn-Sup Buick c-38-I	Dec. 12, 1972	Dec. 20, 1972	3,588	Abandoned—dry.
3178	Anadarko Cdn-Sup Buick 10-22-88-19	Aug. 15, 1972	Aug. 24, 1972	3,800	Abandoned—dry.
3265	Anadarko Cdn-Sup Buick 12-34-88-19	Dec. 27, 1972	———	———	Drilling.
3168	Anadarko W Weasel d-95-C	Aug. 8, 1972	Aug. 20, 1972	3,855	Abandoned—dry.
3033	Andex Flatrock 6-11-84-16	Dec. 21, 1971	Jan. 14, 1972	6,125	Abandoned—dry.
3013	Aquit Elf Julia b-14-A	Dec. 10, 1971	Feb. 16, 1972	8,253	Abandoned—dry.
3081	Aquit et al Tattoo b-85-H	Feb. 22, 1972	Mar. 20, 1972	4,787	Abandoned—dry.
3195	Ashland Pacific Osprey d-27-J	Oct. 24, 1972	Nov. 3, 1972	3,975	Abandoned—dry.
3139	Ashland Numac Squirrel 10-27-87-19	Mar. 24, 1972	Apr. 8, 1972	5,125	Abandoned—dry.
3037	Atkinson Phillips Pesh c-76-I	Dec. 30, 1971	Jan. 27, 1972	6,369	Abandoned—dry.
3052	BP W Beatton d-47-K	Dec. 31, 1971	Jan. 8, 1972	3,451	Water injection.
3061	BP Elder d-91-D	Jan. 10, 1972	Jan. 21, 1972	3,991	Abandoned—dry.
3063	BP et al Gote d-37-D	Jan. 11, 1972	Mar. 9, 1972	7,628	Sulphur Point gas.
3188	BP et al Inga 16-13-86-24	Sept. 12, 1972	Sept. 27, 1972	5,425	Water injection.
3161	BVX et al Parkland 10-29-81-16	July 28, 1972	Aug. 28, 1972	7,280	Abandoned—dry.
3127	Bralorne S Currant d-62-K	Mar. 25, 1972	Apr. 3, 1972	4,140	Abandoned—dry.
3057	CIGOL BP Argus 5-8-83-15	Jan. 9, 1972	Jan. 31, 1972	5,220	Abandoned—dry.
3112	CIGOL Ashland Beatton d-99-G	Mar. 1, 1972	Mar. 9, 1972	3,805	Halfway gas.
3135	CIGOL S Milligan d-24-G	Mar. 11, 1972	Mar. 20, 1972	3,770	Halfway gas.
3109	CIGOL et al Rigel b-84-K	Mar. 21, 1972	Mar. 29, 1972	3,610	Dunlevy oil.
3262	Cdn Res Quintana Adsett b-14-G	Dec. 31, 1972	———	———	Drilling.
3032	Cdn Res Quintana Adsett a-36-G	Dec. 23, 1971	Mar. 5, 1972	8,630	Slave Point gas.
3111	Cdn Res Quintana Datcin c-65-G	Feb. 23, 1972	Mar. 23, 1972	6,350	Abandoned—dry.
3107	Cdn Res Quintana Kotcho b-43-J	Feb. 18, 1972	———	———	Drilling.
3263	Cdn Res Quintana Pac Kotcho g-66-I	Dec. 25, 1972	———	———	Drilling.
3146	Cdn-Sup Inga d-7-J	June 8, 1972	June 21, 1972	5,340	Inga oil.
3223	Cdn-Sup Inga 8-5-88-23	Dec. 10, 1972	———	———	Drilling.

TABLE 21—WELLS DRILLED AND DRILLING, 1972—*Continued*

Well Authorization No.	Well Name	Date Spudded	Date Rig Released	Total Depth	Status at December 31, 1972
3224	Cdn-Sup Inga 14-18-88-23	Nov. 24, 1972	Dec. 7, 1972	5,520	Inga oil.
3080	Cdn-Sup Septimus 16-30-81-18	Jan. 25, 1972	Apr. 26, 1972	12,763	Abandoned—dry.
3041	Cdn-Sup Sun Steamboat a-69-J	Jan. 9, 1972	Apr. 10, 1972	11,562	Abandoned—dry.
3022	Clark Can et al Trutch c-34-A	Dec. 25, 1971	Apr. 15, 1972	9,800	Sulphur Point gas.
3007	Cockrell Corp Cheves d-92-G	Dec. 19, 1971	Feb. 24, 1972	9,369	Abandoned—dry.
3069	Decalta et al Velma a-7-E	Jan. 26, 1972	Feb. 3, 1972	3,635	Bluesky-Gething gas.
3142	Dome Antelope a-63-L	Mar. 26, 1972	Apr. 2, 1972	3,565	Bluesky-Gething gas.
3183	Dome Drake a-45-F	Sept. 3, 1972	Sept. 12, 1972	3,530	Abandoned—dry.
3141	Dome Drake b-48-F	Mar. 28, 1972	Apr. 6, 1972	3,565	Charlie Lake gas.
3143	Dome Nettle a-21-A	Apr. 4, 1972	Apr. 11, 1972	3,767	Abandoned—dry.
3126	Dome Nettle b-44-A	Mar. 9, 1972	Mar. 19, 1972	3,785	Multiple Bluesky-Gething and Halfway gas.
3215	Dome et al Ritchie c-62-G	Dec. 21, 1972	.....	.....	Drilling.
3199	Elf Ft St John 10-27-84-19	Oct. 17, 1972	Nov. 9, 1972	5,192	Abandoned—dry.
3034	Elf et al Martin b-50-A	Jan. 4, 1972	Jan. 16,1972	3,912	Abandoned—dry.
3240	Fina Bearberry d-95-L	Dec. 30, 1972	.....	.....	Drilling.
3064	Fina HB July c-33-A	Jan. 12, 1972	Feb. 13, 1972	7,150	Abandoned—dry.
3065	Fina Amoco Kimea c-88-B	Jan. 16, 1972	Mar. 27, 1972	6,470	Abandoned—dry.
3039	GAO GEOG Helmet c-94-L	Dec. 29, 1971	Jan. 18, 1972	5,950	Abandoned—dry.
3157	GAO Cdn Res Pintail 2-12-85-25	July 9, 1972	Aug. 31, 1972	7,750	Charlie Lake oil.
3091	GAO Champlin Wildboy d-71-B	Feb. 7, 1972	Feb. 27, 1972	6,196	Abandoned—dry.
3230	GPD et al Gleam c-16-J	Dec. 8, 1972	Dec. 21, 1972	4,020	Abandoned—dry.
3108	GPD et al Gleam d-90-J	Feb. 28, 1972	Mar. 21, 1972	4,112	Bluesky-Gething gas.
3134	GraMic Pac Highland d-95-E	Mar. 18, 1972	Mar. 29, 1972	3,736	Abandoned—dry.
3053	GraMic et al Velma b-70-C	Jan. 11, 1972	Jan. 24, 1972	3,590	Charlie Lake gas.
3054	GraMic et al Velma b-2-E	Jan. 25, 1972	Feb. 6, 1972	4,005	Abandoned—dry.
3185	HALB Nig b-44-F	Sept. 29, 1972	Oct. 13, 1972	4,460	Abandoned—dry.
3186	HALB Sojer c-40-K	Sept. 5, 1972	Sept. 24, 1972	4,395	Abandoned—dry.
3151	HB Phillips Getty Evie b-11-E	July 14, 1972	Aug. 9, 1972	8,089	Abandoned—dry.
3110	HB IOE Gutah d-42-A	Feb. 26, 1972	Mar. 4, 1972	2,850	Abandoned—dry.
3028	HB et al July b-15-F	Jan. 5, 1972	Feb. 6, 1972	6,541	Abandoned—dry.
3174	HB et al Moberly 16-20-79-25	Aug. 25, 1972	.....	.....	Drilling.
3026	HB et al Pocketknife a-7-L	Dec. 29, 1971	Mar. 24, 1972	5,696	Abandoned—dry.
3128	HB Union Roger d-10-A	Mar. 7, 1972	Apr. 2, 1972	7,090	Abandoned—dry.
3067	HB et al Trail c-2-H	Feb. 5, 1972	Apr. 3, 1972	10,330	Abandoned—dry.
3113	HB et al Velma b-66-D	Mar. 6, 1972	Mar. 15, 1972	3,583	Charlie Lake gas.
3212	HOL APC Buick d-93-B	Oct. 24, 1972	Nov. 5, 1972	3,920	Multiple Bluesky-Gething and Dunlevy gas.
3177	HOL APC Buick a-83-B	Aug. 15, 1972	Aug. 25, 1972	3,968	Multiple Bluesky-Gething and Dunlevy gas.
3218	HOL et al Cecil 11-27-84-17	Oct. 28, 1972	Nov. 21, 1972	6,200	Abandoned—dry.
3031	Heritage Yoyo b-4-I	Dec. 22, 1971	Jan. 29, 1972	7,610	Abandoned—dry.
3162	Home et al Attachie 7-22-84-22	Aug. 11, 1972	Oct. 27, 1972	7,200	Abandoned—dry.

3238	Home et al Farmington 10-24-80-16	Dec. 25, 1972	.....	.....	Drilling.
3116	Home Ft St John 7-28-83-19	Feb. 28, 1972	Mar. 24, 1972	6,600	Abandoned—dry.
3232	Home et al Minaker a-83-J	Dec. 8, 1972	.....	.....	Drilling.
3056	Huber Quintana Amoco Hostli d-81-G	Jan. 1, 1972	Feb. 2, 1972	5,504	Slave Point gas.
2977	Imp et al Boundary 5-26-84-14	Feb. 7, 1972	Feb. 20, 1972	4,210	Charlie Lake oil.
2745	Imp et al Boundary 5-36-84-14	Mar. 14, 1972	Mar. 24, 1972	4,270	Boundary Lake oil.
3106	Imp et al Boundary A7-3-85-14	Feb. 22, 1972	Mar. 12, 1972	4,065	Boundary Lake oil.
3182	Imp et al Boundary 3-11-85-14	Aug. 29, 1972	Sept. 7, 1972	4,203	Boundary Lake oil.
3211	Imp et al Boundary 11-11-85-14	Nov. 9, 1972	Nov. 19, 1972	4,270	Boundary Lake oil.
3191	Imp et al Boundary 5-13-85-14	Oct. 19, 1972	Oct. 28, 1972	4,327	Boundary Lake oil.
3210	Imp et al Boundary 7-14-85-14	Oct. 30, 1972	Nov. 7, 1972	4,310	Boundary Lake oil.
3179	Imp et al Boundary 12-14-85-14	Sept. 30, 1972	Oct. 16, 1972	4,244	Water injection.
3189	Imp et al Boundary 2-15-85-14	Sept. 10, 1972	Sept. 27, 1972	4,176	Water injection.
3124	Ipex et al Boundary 7-20-87-13	Mar. 15, 1972	Mar. 25, 1972	4,875	Abandoned—dry.
3099	Ipex Cox et al Woodrush d-48-H	Feb. 20, 1972	Feb. 27, 1972	3,725	Abandoned—dry.
3077	Kissinger Vaughey Siphon 7-3-87-16	Jan. 26, 1972	Feb. 7, 1972	4,612	Dunlevy gas.
3100	Kissinger Vaughey Siphon 6-11-87-16	Feb. 12, 1972	Feb. 24, 1972	4,474	Charlie Lake gas.
2975	LRI Grassy d-52-A	Oct. 12, 1971	Jan. 12, 1972	6,924	Abandoned—dry.
3255	Mic Mac Ashland Buick d-37-D	Dec. 31, 1972	.....	.....	Drilling.
3000	Mobil et al W Evie d-99-G	Nov. 18, 1971	Jan. 22, 1972	7,300	Abandoned—dry.
3048	Mobil et al Donnamarie b-21-G	Jan. 6, 1972	Mar. 17, 1972	9,500	Abandoned—dry.
3062	Mobil et al Valiant a-5-K	Jan. 29, 1972	Mar. 28, 1972	8,115	Abandoned—dry.
2973	Monkman Pass PRP Grizzly c-36-A	Oct. 9, 1971	Jan. 4, 1972	9,007	Dunlevy gas.
3242	Murphy N Boundary 8-31-87-14	Dec. 22, 1972	.....	.....	Drilling.
3175	NCO Dome Buick a-89-A	Aug. 10, 1972	Aug. 20, 1972	3,843	Abandoned—dry.
3225	PATP et al Weasel d-29-A	Nov. 9, 1972	Nov. 19, 1972	3,750	Halfway oil.
3083	POOC CAEL Teal 10-32-87-21	Feb. 12, 1972	Mar. 1, 1972	6,515	Abandoned—dry.
3092	POR Beatton b-7-J	Feb. 6, 1972	Feb. 16, 1972	3,854	Abandoned—dry.
3153	Pacific CIGOL N Bubbles c-36-G	July 14, 1972	Aug. 5, 1972	5,290	Halfway gas.
3228	Pacific et al Clarke c-52-F	Nov. 25, 1972	.....	.....	Drilling.
3163	Pacific Imp Clarke d-74-L	July 20, 1972	Aug. 17, 1972	6,519	Abandoned—dry.
3104	Pacific Imp Clarke a-77-L	Feb. 20, 1972	Mar. 26, 1972	6,421	Slave Point gas.
3011	Pacific Imp Clarke c-92-L	Dec. 13, 1971	Jan. 19, 1972	6,389	Slave Point gas.
3072	Pacific et al Clarke c-26-I	Jan. 26, 1972	Mar. 1, 1972	6,633	Abandoned—dry.
3073	Pacific Imp Clarke a-94-I	Jan. 19, 1972	Feb. 16, 1972	6,368	Slave Point gas.
3136	Pacific Imp S Clarke d-30-K	Mar. 18, 1972	Apr. 7, 1972	6,611	Abandoned—dry.
3125	Pacific et al Coyote d-51-C	Mar. 10, 1972	Mar. 18, 1972	4,050	Baldonnel gas.
3254	Pacific West Prod Dot c-20-E	Dec. 20, 1972	Dec. 31, 1972	4,500	Abandoned—dry.
3006	Pacific Dot d-69-L	Jan. 3, 1972	Jan. 18, 1972	4,300	Abandoned—junked.
3200	Pacific WP Ft St John 15-11-84-19	Oct. 31, 1972	Nov. 19, 1972	5,020	Abandoned—dry.
3173	Pacific et al W Inga 10-11-86-24	Aug. 4, 1972	Aug. 25, 1972	6,190	Abandoned—dry.
3097	Pacific et al Jackfish c-97-H	Mar. 3, 1972	Apr. 17, 1972	7,797	Mississippian gas.
3101	Pacific Kotcho c-78-K	Feb. 20, 1972	Mar. 29, 1972	6,662	Slave Point gas.
3043	Pacific Kotcho d-67-C	Jan. 9, 1972	Feb. 14, 1972	7,329	Abandoned—dry.
3038	Pacific et al Laprise a-69-C	Dec. 27, 1971	Jan. 5, 1972	4,040	Baldonnel gas.
3042	Pacific et al Laprise b-88-D	Jan. 8, 1972	Jan. 20, 1972	4,285	Baldonnel gas.

TABLE 21—WELLS DRILLED AND DRILLING, 1972—*Continued*

Well Authorization No.	Well Name	Date Spudded	Date Rig Released	Total Depth	Status at December 31, 1972
3192	Pacific et al Laprise c-98-D	Oct. 9, 1972	Oct. 20, 1972	4,445	Baldonnel gas.
3082	Pacific Louise a-67-E	Feb. 3, 1972	Mar. 17, 1972	6,915	Slave Point gas.
3075	Pacific et al W Milo b-76-H	Jan. 19, 1972	Feb. 28, 1972	8,125	Abandoned—dry.
3095	Pacific et al Peejay b-75-H	Feb. 9, 1972	Feb. 18, 1972	3,935	Halfway oil.
3093	Pacific et al Peejay b-77-H	Feb. 29, 1972	Mar. 8, 1972	3,935	Halfway oil.
3094	Pacific et al Peejay b-85-H	Feb. 20, 1972	Feb. 28, 1972	3,930	Halfway oil.
3096	Pacific et al Peejay b-39-E	Feb. 27, 1972	Mar. 8, 1972	3,970	Halfway oil.
3086	Pacific et al Peejay b-57-E	Feb. 8, 1972	Feb. 15, 1972	3,920	Halfway oil.
3085	Pacific et al Peejay b-80-E	Feb. 17, 1972	Feb. 25, 1972	3,900	Halfway oil.
3148	Pacific Westcoast Pingel 7-27-81-18	June 17, 1972	Aug. 26, 1972	12,893	Abandoned—dry.
3074	Pacific Westcoast Pouce 6-26-80-14	Jan. 21, 1972	Feb. 2, 1972	4,880	Abandoned—dry.
3119	Pacific CROG Sextet b-8-J	Mar. 6, 1972	Apr. 2, 1972	6,870	Abandoned—dry.
3133	Pacific Westcoast Siphon 11-28-86-16	Mar. 13, 1972	Mar. 28, 1972	4,647	Multiple Dunlevy and Halfway gas.
3118	Pacific Westcoast Siphon A7-33-86-16	Mar. 3, 1972	Mar. 12, 1972	3,778	Dunlevy gas.
3030	Pacific Spangler a-67-I	Dec. 17, 1971	Jan. 1, 1972	4,530	Abandoned—dry.
3159	Pacific Umbach c-99-G	Aug. 6, 1972	Aug. 17, 1972	4,670	Abandoned—dry.
3044	Pacific Westcoast Wargen d-48-C	Jan. 24, 1972	Feb. 4, 1972	3,740	Gething oil.
3131	Pacific et al Wolverine c-30-G	Mar. 10, 1972	Mar. 16, 1972	3,967	Abandoned—dry.
3166	Pan Ocean Gopher 6-9-86-16	July 27, 1972	Aug. 17, 1972	5,750	Abandoned—dry.
3167	Pembina Laprise d-55-I	Sept. 2, 1972	Oct. 21, 1972	4,580	Baldonnel gas.
3160	Pembina Rigel 10-24-88-19	Aug. 1, 1972	Aug. 12, 1972	3,700	Dunlevy gas.
3235	Penzl Mesa Clarke a-36-C	Dec. 10, 1972	———	———	Drilling.
3268	Penzl Mesa Fontas d-77-H	Dec. 31, 1972	———	———	Drilling.
3046	Placid Crest a-38-F	Jan. 29, 1972	Mar. 2, 1972	8,575	Abandoned—dry.
3090	Placid Banner Sandy c-36-G	Feb. 9, 1972	Feb. 18, 1972	3,725	Abandoned—dry.
3259	Quasar et al Ebony d-15-C	Dec. 18, 1972	Dec. 28, 1972	3,930	Abandoned—dry.
3194	Quasar Mobil Flatbed d-57-D	Nov. 26, 1972	———	———	Drilling.
3180	Quasar et al Grizzly b-62-G	Aug. 31, 1972	———	———	Drilling.
2966	Quasar Grizzly a-74-G	Sept. 18, 1971	Aug. 8, 1972	12,861	Finished drilling.
3181	Quasar Grizzly a-85-G	Aug. 31, 1972	———	———	Drilling.
3187	Quasar et al Grizzly b-30-H	Oct. 9, 1972	Dec. 1, 1972	3,582	Abandoned—junked.
3233	Quasar et al Grizzly d-30-H	Dec. 11, 1972	———	———	Drilling.
3051	Quintana Pacific Shekilie c-76-A	Jan. 13, 1972	Jan. 31, 1972	5,540	Abandoned—dry.
3158	SOC et al Graham b-21-D	Sept. 4, 1972	Dec. 30, 1972	9,620	Debolt gas.
3203	SOC et al Jeans b-42-A	Nov. 1, 1972	Dec. 20, 1972	6,530	Dunlevy gas.
3152	SOC et al Jeans a-7-H	July 8, 1972	Aug. 5, 1972	6,810	Multiple Dunlevy and Debolt gas.
3156	SOC Cardo W Jeans b-46-B	June 30, 1972	Aug. 30, 1972	6,920	Inga gas.
3227	SOC et al W Jeans c-78-B	Nov. 24, 1972	Dec. 29, 1972	6,620	Dunlevy gas.
3147	Scurry CAEL Cecil 6-19-84-17	May 27, 1972	June 18, 1972	4,925	Charlie Lake gas.
3184	Scurry CAEL Cecil 6-13-84-18	Sept. 1, 1972	Sept. 24, 1972	4,140	Multiple Cecil Lake, Charlie Lake, and Halfway gas.

3202	Scurry CAEL Cecil 6-23-84-18	Oct. 7, 1972	Oct. 27, 1972	3,780	Abandoned—dry.
3140	Scurry CAEL Cecil 4-24-84-18	Mar. 24, 1972	Apr. 5, 1972	4,500	Charlie Lake oil.
3045	Scurry ML CAEL Cecil 10-24-84-18	Jan. 18, 1972	Feb. 11, 1972	6,344	Charlie Lake oil.
3114	Scurry Cecil 6-25-84-18	Feb. 28, 1972	Mar. 15, 1972	5,033	Abandoned—dry.
3214	Scurry Bracell NOEL N Pine 6-17-85-18	Oct. 21, 1972	Nov. 9, 1972	6,360	Abandoned—dry.
3169	Sierra Buick c-36-I	Aug. 9, 1972	Aug. 18, 1972	3,555	Dunlevy gas.
3087	Sierra et al Fireweed a-61-G	Feb. 6, 1972	Feb. 18, 1972	4,308	Baldonnel gas.
3071	Sierra et al Fireweed a-43-H	Jan. 21, 1972	Feb. 2, 1972	3,967	Multiple Bluesky-Gething and Dunlevy gas.
3197	Stonehenge Stoddart 7-30-86-19	Oct. 3, 1972	Oct. 20, 1972	6,005	Abandoned—dry.
3155	Sun Coplin 16-20-85-23	June 26, 1972	July 13, 1972	4,950	Abandoned—dry.
3229	Sundance et al Flatrock 11-23-85-15	Nov. 22, 1972	Dec. 7, 1972	4,728	Abandoned—dry.
3226	Sundance et al Flatrock 11-1-85-16	Nov. 6, 1972	Nov. 18, 1972	5,022	Abandoned—dry.
3138	TCGP et al Elm b-73-C	Mar. 27, 1972	Apr. 4, 1972	3,900	Abandoned—dry.
3105	TLI Fina Inga 6-15-86-23	Feb. 22, 1972	Mar. 14, 1972	5,367	Abandoned—dry.
3015	TLI Amoco Varrick c-71-L	Dec. 17, 1971	Mar. 20, 1972	10,665	Abandoned—dry.
3070	TPPL et al W Inga 6-11-87-24	Jan. 18, 1972	Feb. 6, 1972	4,754	Charlie Lake gas.
3121	TPPL et al W Inga 10-17-87-24	Mar. 7, 1972	Mar. 28, 1972	5,060	Charlie Lake gas.
3078	Tenn et al W Weasel d-72-C	Jan. 28, 1972	Feb. 4, 1972	3,863	Halfway oil.
3144	Tenn Monsanto W Weasel d-82-C	June 20, 1972	June 26, 1972	3,877	Halfway oil.
3115	Tenn et al W Weasel d-83-C	Mar. 9, 1972	Mar. 21, 1972	3,850	Halfway oil.
3036	Texaco et al Boundary 3-19-85-13	Jan. 22, 1972	Jan. 28, 1972	4,304	Boundary Lake oil.
3035	Texaco et al Boundary 11-19-85-13	Jan. 14, 1972	Jan. 21, 1972	4,291	Boundary Lake oil.
3017	Texaco et al Boundary 3-27-85-14	Dec. 29, 1971	Jan. 5, 1972	4,382	Boundary Lake oil.
3024	Texaco et al Boundary 3-6-86-13	Jan. 6, 1972	Jan. 12, 1972	4,379	Boundary Lake oil.
3018	Texaco et al Boundary 3-7-86-13	Jan. 23, 1972	Feb. 1, 1972	4,343	Boundary Lake oil.
3019	Texaco et al Boundary 11-7-86-13	Feb. 2, 1972	Feb. 8, 1972	4,307	Boundary Lake oil.
3016	Texaco et al Boundary 3-18-86-13	Dec. 17, 1971	Jan. 1, 1972	4,290	Boundary Lake oil.
3029	Texaco et al Boundary 3-12-86-14	Jan. 12, 1972	Jan. 20, 1972	4,340	Boundary Lake oil.
3025	Texaco et al Boundary 11-12-86-14	Jan. 3, 1972	Jan. 10, 1972	4,315	Boundary Lake oil.
3068	Texaco et al N Boundary 11-2-87-14	Mar. 5, 1972	Mar. 20, 1972	4,690	Abandoned—dry.
3098	Texaco et al N Boundary 11-30-87-14	Feb. 14, 1972	Mar. 2, 1972	4,484	Halfway oil.
3008	Texaco et al S Tsea d-95-F	Dec. 17, 1971	Jan. 22, 1972	7,320	Abandoned—dry.
3020	Texcan Cheves a-A90-L	Dec. 28, 1971	Feb. 12, 1972	7,960	Abandoned—dry.
3196	Texex Siphon 10-22-86-16	Oct. 20, 1972	Nov. 12, 1972	4,755	Multiple Dunlevy and Baldonnel gas.
3066	Union Aitken a-5-L	Jan. 16, 1972	Feb. 1, 1972	4,610	Abandoned—dry.
3190	Union Sierra Fireweed c-76-H	Nov. 11, 1972	Nov. 28, 1972	4,250	Abandoned—dry.
3059	Union W Nig b-82-D	Jan. 14, 1972	Feb. 6, 1972	4,691	Abandoned—dry.
3103	Union et al Peejay c-81-D	Mar. 3, 1972	Mar. 11, 1972	3,945	Halfway oil.
3102	Union et al Peejay a-34-E	Mar. 13, 1972	Mar. 19, 1972	3,891	Halfway oil.
3170	Union Silverberry 10-10-88-20	Aug. 11, 1972	Aug. 24, 1972	4,732	Abandoned—dry.
3076	Union Silverberry 6-16-88-20	Feb. 9, 1972	Mar. 1, 1972	5,100	Charlie Lake gas.
3084	Union et al Thunder c-22-B	Feb. 5, 1972	Mar. 5, 1972	5,150	Abandoned—dry.
3088	Uno-Tex et al Lily d-67-K	Feb. 6, 1972	Apr. 3, 1972	7,583	Baldonnel gas.
3149	Vieco Texacal Punchaw c-38-J	June 4, 1972	June 29, 1972	4,192	Abandoned—dry.
3236	Wainoco Sierra E Bulrush d-15-K	Dec. 6, 1972	Dec. 18, 1972	3,760	Abandoned—dry.
3221	Wainoco et al Flatrock 6-13-84-17	Oct. 29, 1972	Nov. 16, 1972	4,816	Halfway oil.

TABLE 21—WELLS DRILLED AND DRILLING, 1972—*Continued*

Well Authorization No.	Well Name	Date Spudded	Date Rig Released	Total Depth	Status at December 31, 1972
3122	Wainoco Ft St John 11-23-84-19	Mar. 10, 1972	Apr. 2, 1972	6,545	Multiple Baldonnel gas and Belloy oil.
3060	Wainoco Ft St John 6-24-84-19	Feb. 4, 1972	Mar. 7, 1972	6,325	Halfway gas.
3023	Wainoco Pennzoil Kyklo d-68-G	Dec. 16, 1971	Jan. 13, 1972	6,340	Abandoned—dry.
3049	Wainoco Pennzoil Kyklo c-80-H	Jan. 19, 1972	Feb. 2, 1972	6,273	Abandoned—dry.
3249	Wainoco et al Kyklo c-12-I	Dec. 27, 1972	———	———	Drilling.
3050	Wainoco Pennzoil Kyklo c-79-I	Feb. 15, 1972	Mar. 8, 1972	6,450	Debolt gas.
3217	Wainoco et al Laprise d-95-C	Oct. 31, 1972	Nov. 15, 1972	4,350	Abandoned—dry.
3248	Wainoco et al Lichen c-54-A	Dec. 21, 1972	———	———	Drilling.
3222	Wainoco et al Martin d-33-F	Nov. 7, 1972	Nov. 21, 1972	4,605	Abandoned—dry.
3027	Wainoco E Osborn d-37-I	Dec. 21, 1971	Jan. 8, 1972	5,158	Abandoned—dry.
3252	Wainoco et al E Osborn b-64-I	Dec. 23, 1972	———	———	Drilling.
3047	Wainoco Francana Pluto 11-35-85-17	Dec. 30, 1971	Jan. 31, 1972	6,125	Abandoned—dry.
3220	Wainoco Red 7-24-86-22	Oct. 29, 1972	Nov. 21, 1972	5,680	Abandoned—dry.
3040	Westcoast et al Goose 11-27-84-21	Dec. 31, 1971	Feb. 8, 1972	6,728	Abandoned—dry.
3079	Westcoast et al Suhm d-47-I	Feb. 5, 1972	Mar. 23, 1972	7,185	Abandoned—dry.
3172	Woods et al Junction b-22-E	Aug. 16, 1972	Aug. 24, 1972	3,625	Abandoned—dry.
3204	Woods Wainoco Oak 11-31-86-17	Oct. 16, 1972	Oct. 29, 1972	4,530	Abandoned—dry.
3201	Woods Wainoco Oak 10-27-86-18	Oct. 7, 1972	Oct. 19, 1972	4,615	Halfway gas.
3171	Woods Wainoco Oak 6-35-86-18	Aug. 12, 1972	Aug. 25, 1972	4,626	Halfway gas.
3216	Woods Wainoco Oak 7-2-87-18	Oct. 22, 1972	Nov. 4, 1972	4,694	Halfway gas.
3193	Woods Anadarko Siphon 10-30-86-16	Sept. 14, 1972	Sept. 25, 1972	4,495	Abandoned—dry.
3055	Woods Anadarko Siphon 7-31-86-16	Dec. 31, 1971	Jan. 11, 1972	4,524	Halfway gas.
3267	Woods Anadarko Siphon 6-5-87-16	Dec. 30, 1972	———	———	Drilling.
3058	Woods Tea 11-5-84-19	Jan. 6, 1972	Jan. 24, 1972	5,275	Abandoned—dry.

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1972

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	4
						Pacific Airport 12-34-83-17 (10), gas	9
						Pacific Airport 9-32-83-17 (97), gas	5
Aitken Creek	Feb. 15, 1960	Jan. 1, 1961 Oct. 1, 1963 Apr. 1, 1971	N.T.S. 94-A-13	3 3	10 —	Union Aitken Creek b-42-L, oil Union HB Aitken d-57-L, gas	3 3
Balsam	Dec. 31, 1971	Mar. 31, 1972	N.T.S. 94-H-2	9	3	Union HB Balsam d-77-H, gas	9
						Ipex Cox Hamilton Balsam d-47-H, oil	9
						Union HB Balsam b-56-H, gas	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 Apr. 1, 1971	N.T.S. 94-H-2	9	16	Triad Beatton d-60-J, gas	9
						Triad Beatton River b-38-J, oil	9
Beatton River West	Aug. 7, 1959	Jan. 1, 1962 Oct. 1, 1964 Apr. 1, 1969 July 1, 1970 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	9
						Tenn Beaverdam d-38-L, oil	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	2, 9	4	Pacific Sinclair Beavertail d-71-C, gas	2, 9
Beg	July 1, 1961	Jan. 1, 1962 Apr. 1, 1962 July 1, 1962 Apr. 1, 1963 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	5
						Pacific et al Beg d-10-G, gas	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	2	1	West Nat et al Bernadet 8-1-88-25, gas	2
Blueberry	Feb. 7, 1958	Dec. 22, 1958 Feb. 15, 1960 May 27, 1960 Oct. 1, 1961 Jan. 1, 1963	N.T.S. 94-A-12, 94-A-13 Tp.88, R. 25, W6M	4, 5, 6, 9 11	34	West Nat et al Blueberry b-22-D, gas	9
						West Nat et al Blueberry b-32-D, gas	4
						West Nat et al Blueberry d-87-D, gas	5
						West Nat et al Blueberry a-61-L, gas	6
						West Nat et al Blueberry d-82-L, oil	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	5, 9
						West Nat et al E Blueberry b-36-C, gas	11
Blueberry West	Feb. 7, 1958	July 1, 1961 Oct. 1, 1969	N.T.S. 94-A-12, 94-B-9, 94-B-16 Tp. 88, R. 25, W6M	4, 5	5	West Nat et al W Blueberry d-82-L, gas	4
						West Nat et al W Blueberry d-19-L, gas	5

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1972—*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 Aug. 7, 1959 Feb. 15, 1960 Jan. 1, 1961 Apr. 1, 1961 July 1, 1961 Jan. 1, 1962 Apr. 1, 1962 Oct. 1, 1963 Oct. 1, 1964 Jan. 1, 1965 Oct. 1, 1965 Jan. 1, 1966 Apr. 1, 1966	Tp. 84–87, R. 13, W6M Tp. 83–86, R. 14, 15, W6M	2, 3, 4, 5 8, 9	334	Pacific Boundary 8-15-85-14, gas and oil Pacific Boundary 12-10-85-14, gas Amerada Boundary 8-5-85-14, gas Texaco NFA Boundary L 6-6-85-14 (1), oil Sun Boundary Lake 6-23-85-14, oil Texaco NFA Boundary 16-31-86-13, gas	2, 4, 5 3 4 8 9 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 May 27, 1960 Jan. 1, 1961	N.T.S. 94-G-1, 94-G-8, 94-H-4	5	11	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 Jan. 1, 1961 July 1, 1961 Oct. 1, 1963 Jan. 1, 1965 Apr. 1, 1970 Sept. 30, 1972 Dec. 31, 1972	N.T.S. 94-A-11, 94-A-14 N.T.S. 94-A-10, 94-A-15 Tp. 88, R. 19, W6M	2, 4, 6	39	MicMac et al Buick d-17-D, gas Texaco NFA Buick Creek d-98-I (1), gas Texaco NFA Buick Creek d-83-J (4), gas	2 4 6
Buick Creek North	Apr. 1, 1967		N.T.S. 94-A-14	2, 4	8	Pacific West Prod N Buick c-22-F, gas	2, 4
Buick Creek West	Feb. 7, 1958	Jan. 6, 1959 Feb. 15, 1960 Jan. 1, 1963	N.T.S. 94-A-11, 94-A-14	3, 4, 5, 9	14	Pacific West Buick Creek c-2-E (6), gas Pacific W Buick Creek c-83-K (13A), oil Pacific West Buick Creek b-78-C (2), gas Pacific West Buick Creek c-58-C (8), gas Pacific West Buick Creek b-23-E (1), gas	3 4 4 5 9
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		Tp. 88, R. 22, W6M 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 6	7 —	Scurry ML Cecil 6-31-84-17, gas Scurry ML CAEL Cecil 10-24-84-18, oil	6 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 Jan. 1, 1961 Apr. 1, 1962 Apr. 1, 1965 Apr. 1, 1966 Jan. 1, 1967 Apr. 1, 1967 July 1, 1967 July 1, 1968 July 1, 1969 July 1, 1970	N.T.S. 94-J-9, 94-J-10, 94-J-15, 94-J-16	13	33	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 Oct. 1, 1968	N.T.S. 94-A-16	9	9	Union et al Crush d-28-F, oil — 9
Currant	Oct. 1, 1965		N.T.S. 94-A-9, 94-A-16	9	9	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, W 6M	1	2	Pac Sc Dawson Ck 1-15-79-15 (1), gas — 1
Eagle	Dec. 31, 1971		Tp. 84, R. 18, W6M	10	2	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 Tp. 85, R. 26, W6M 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	11 4	12 —	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 Sept. 30, 1972 Dec. 31, 1972	Tp. 84, R. 16, 17, W6M	9	6	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 Feb. 15, 1960 Jan. 1, 1961 Oct. 1, 1968 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
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

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1972—*Continued*

Field	Date Designated	Date(s) Revised	Field Location	Pool(s)	Number of Wells Capable of Production	Discovery Well(s)	Pool(s) Discovered
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	FPC 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
		Apr. 1, 1968				Pacific Highway b-25-I (1), gas	5
		July 1, 1968				Pacific Highway a-90-I (4), gas	11
		Oct. 1, 1968	Tp. 85, R. 23, W6M			Cdn-Sup et al Inga 10-25-88-24, oil	7
		Jan. 1, 1969	Tp. 86, R. 23, 24, W6M			Hunt Sands Pac Imp Inga 7-16-86-23, oil	5
Inga	Jan. 1, 1967	Apr. 1, 1969	Tp. 87, R. 23, 24, W6M	5, 6, 7	83	Texaco Inga 6-25-87-24, oil	6
		July 1, 1970	Tp. 88, R. 23, 24, W6M			Pacific Inga 6-29-86-23, gas	5
		Oct. 1, 1970	N.T.S. 94-A-12			Tenn Cdn-Sup et al Inga 13-7-88-23, gas	7
		Jan. 1, 1971	N.T.S. 94-A-13				
		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
		Nov. 24, 1959					
		Feb. 15, 1960				Pacific Imperial Jedney a-95-C, gas	3
Jedney	Aug. 7, 1959	Jan. 1, 1961	N.T.S. 94-G-1, 94-G-8	3, 5, 9	44	Pacific et al Jedney b-88-J, gas	5
		Apr. 1, 1961				Pacific Imp Jedney d-99-J, gas	9
		Apr. 1, 1963					
		Oct. 1, 1963					
Jedney West	July 1, 1964		N.T.S. 94-G-1, 94-G-8	5, 9	3	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
						Pacific Kobes a-3-A (4), gas	4
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-94-I (1), gas	6, 9
		Apr. 1, 1967				Pacific Townsend a-20-H (A-1), gas	11
Kotcho Lake	Apr. 1, 1962	June 30, 1972	N.T.S. 94-I-14, 94-P-3	4, 8	12	West Nat Kotcho Lake c-67-K, gas	13
		Apr. 1, 1971					
		Dec. 31, 1972					
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
		Jan. 1, 1961					
		Apr. 1, 1961					
		Apr. 1, 1963					
Laprise Creek	Feb. 15, 1960	Jan. 1, 1964	N.T.S. 94-G-8, 94-H-4, 94-H-5	5	47	Dome Basco Laprise Ck a-35-H, gas	5
		Apr. 1, 1964					
		Mar. 31, 1972					
		Dec. 31, 1972					

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 Feb. 15, 1960 Jan. 1, 1961 Apr. 1, 1962 July 1, 1963 Jan. 1, 1970 Apr. 1, 1970	N.T.S. 94-H-2	2, 9	29	Union HB Milligan Creek d-73-G, oil Union HB Milligan d-62-G, gas Whitehall et al Milligan d-75-G, gas	9 2 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 Jan. 1, 1962	Tp. 87, R. 18, W6M Tp. 86, 87, R. 19, W6M	2, 6, 9	4	Pac Sunray Montney 16-32-86-19 (3), gas Pac Sunray Montney 14-36-86-19 (2), gas Pac Sunray Montney 14-31-86-19 (5), gas	2 6 9
Nettle	Apr. 1, 1966		N.T.S. 94-H-7	2	5	Union KCL ROC Nettle d-67-A, oil Union KCL ROC Nettle d-76-A, gas	2 2
Nig Creek	Aug. 7, 1959	Feb. 15, 1960 Jan. 1, 1961 Apr. 1, 1961 Jan. 1, 1962 Apr. 1, 1962 Apr. 1, 1965 July 1, 1965 Apr. 1, 1966	N.T.S. 94-A-13, 94-H-3, 94-H-4	5	31	Texaco NFA Nig Creek a-79-B (1), gas Texaco NFA Nig d-87-A, oil	5 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	3	Texaco N Pine 6-15-85-18, oil Pacific et al N Pine 6-27-85-18, gas	6 6
Oak	Dec. 31, 1972		Tp. 86, 87, R. 18, W6M	9	3	Woods Wainoco Oak 6-35-86-18, gas	9
Osprey	Apr. 1, 1966	Apr. 1, 1970	N.T.S. 94-A-15	9	4	Pacific SR CanDel Osprey d-4-J, oil Tenn Osprey d-13-L, gas	9 9
Parkland	Feb. 7, 1958	July 1, 1963 June 30, 1972 May 27, 1960 Jan. 1, 1961 Jan. 1, 1962 Apr. 1, 1962 July 1, 1965 Oct. 1, 1965	Tp. 81, R. 15, 16, W6M	12	4	Pacific Imp Parkland 6-29-81-15, gas	12
Peejay	Feb. 15, 1960	Jan. 1, 1966 Apr. 1, 1966 July 1, 1966 Oct. 1, 1966 Apr. 1, 1967 July 1, 1967 Jan. 1, 1968	N.T.S. 94-A-15, 94-A-16	9	106	Pacific SR West Cdn Peejay d-52-L, gas Pacific Sinclair Peejay d-39-E, oil	9 9
Peejay West	Jan. 1, 1963		N.T.S. 94-A-15	9	2	Pacific SR West Cdn W Peejay d-54-G, oil	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

TABLE 22—OILFIELDS AND GASFIELDS DESIGNATED AT DECEMBER 31, 1972—*Continued*

Field	Date Designated	Date(s) Revised	Field Location	Pool(s)	Number of Wells Capable of Production	Discovery Well(s)	Pool(s) Discovered
Red Creek	Feb. 7, 1958	Aug. 7, 1959 Feb. 15, 1960 Jan. 1, 1963 Apr. 1, 1963 Jan. 1, 1964 Oct. 1, 1964 Oct. 1, 1965 Jan. 1, 1967 July 1, 1967 July 1, 1968 Oct. 1, 1968 Jan. 1, 1969 July 1, 1969 Apr. 1, 1970 Jan. 1, 1971	Tp. 85, R. 21, W6M N.T.S. 94-A-10 Tp. 87, 88, R. 16, W6M Tp. 87, 88, R. 17, W6M Tp. 87, 88, R. 18, W6M Tp. 88, R. 19, W6M	6, 9 4	2 64	Pacific Red Creek 5-27-85-21 (36), gas Monsanto Rigel 6-13-87-17, oil Imp Fina Rigel 4-27-88-17, gas	6, 9 4 4
Rigel East	Dec. 31, 1971		Tp. 88, R. 16, W6M	9, 4	3	Texaco NFA E Rigel 13-26-88-16, gas Texaco NFA E Rigel 10-12-88-16, gas	9 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 Dec. 31, 1971 Mar. 31, 1972 June 30, 1972 Dec. 31, 1972	Tp. 86, 87, R. 16, W6M	4, 5, 6, 9	17	Pacific West Prod Siphon 7-34-86-16, gas Pacific et al Siphon 11-27-86-16, gas	4 5, 6, 9
Stoddart	Jan. 6, 1959	Feb. 15, 1960 Apr. 1, 1965 Jan. 1, 1966 Apr. 1, 1967 Apr. 1, 1968 Apr. 1, 1969 Oct. 1, 1969 July 1, 1970 Jan. 1, 1971 Mar. 31, 1972	Tp. 85, R. 18, 19, 20, W6M Tp. 86, R. 19, 20, W6M	6, 10	21	Pacific Stoddart 4-24-86-20 (85), gas Uno-Tex et al Stoddart 10-31-85-19, oil Chant Dunbar Stoddart 11-23-85-19, oil	10 10 6
Stoddart West	Apr. 1, 1964	July 1, 1970 Jan. 1, 1971 Apr. 1, 1971 Dec. 31, 1972	Tp. 86, R. 20, 21, W6M Tp. 87, R. 20, W6M	9, 10	9	Pacific W Stoddart 6-22-86-20, gas Pacific W Stoddart 11-10-86-20, gas	9 10

Sunrise	Feb. 7, 1958	Jan. 1, 1961 Apr. 1, 1965 Oct. 1, 1969 Jan. 1, 1971	Tp. 78, R. 16, W6M Tp. 79, R. 16, 17, W6M	1	11	Pacific Sunrise 10-7-79-16 (3), gas	1
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
						Champlin et al Two Rivers 6-9-83-16, gas	5, 9
Velma	Dec. 31, 1972		N.T.S. 94-H-8	2, 6	4	GraMic Forest Buttes Velma d-15-E, gas	2
						GraMic et al Velma b-70-C, gas	6
Wargen	Dec. 31, 1971		N.T.S. 94-H-6	2	3	Imp Pac Sunray Wargen c-58-C, gas	2
						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
						Sinclair Pacific Weasel d-93-J, gas	5
						Pacific Sinclair Weasel d-50-A, gas	9
Weasel West	Apr. 1, 1971	Mar. 31, 1972	N.T.S. 94-H-2	9	4	Tenn et al W Weasel d-71-C, oil	9
Wilder	Jan. 1, 1971		Tp. 83, R. 19, W6M	9, 10	4	Amerada Pac Wilder 11-17-83-19, gas	9, 10
						Wainoco Woods Wilder 7-30-83-19, gas	4, 9
Wildmint	Jan. 1, 1962	July 1, 1962 Jan. 1, 1963 Apr. 1, 1964 Jan. 1, 1966	N.T.S. 94-A-15, 94-H-2	9	28	Union HB Wildmint d-46-A, oil	9
						Tenn Wildmint d-4-A, gas	9
Willow	July 1, 1963	Apr. 1, 1970	N.T.S. 94-H-2	2, 9	4	Union HB Willow b-10-H, gas	9
						Union HB Willow d-20-H, oil	2
Wolf	Apr. 1, 1967		N.T.S. 94-A-15	9	5	Baysel Sinclair Wolf d-93-B, oil	9
						Baysel Sinclair Wolf d-3-G, gas	9
Yoyo	Apr. 1, 1965	Apr. 1, 1967 Jan. 1, 1967 Jan. 1, 1968 Oct. 1, 1970 July 1, 1971	N.T.S. 94-I-13, 94-I-14	13, 14	15	West Nat et al Yoyo b-24-L, gas	14
						West Nat et al Yoyo b-29-I, gas	13

Numerical list of pools:

1. Lower Cretaceous Cadotte sandstone.
2. Lower Cretaceous Bluesky-Gething 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, 1972[1]

Field and Pool	Oil Wells		Gas Wells	
	Capable	Operating	Capable	Operating
Aitken Creek field—Gething	6	2	4	3
Balsam field—				
Bluesky-Gething	—	—	1	—
Halfway	1	—	1	—
Field totals	1	—	2	—
Bear Flat field—Charlie Lake	2	2	—	—
Beatton River field—Halfway	15	11	1	—
Beatton River West field—Bluesky-Gething	15	10	—	—
Beaverdam field—Halfway	1	—	2	1
Beaver River field—Nahanni	—	—	5	5
Beavertail field—				
Bluesky-Gething	—	—	3	2
Halfway	—	—	1	—
Field totals	—	—	4	2
Beg field—				
Baldonnel	—	—	14	10
Halfway	—	—	16	13
Field totals	—	—	30	23
Beg West field—Baldonnel	—	—	3	—
Bernadet field—Bluesky-Gething	—	—	1	—
Blueberry field—				
Dunlevy	—	—	7	4
Baldonnel	—	—	4	—
Charlie Lake	—	—	2	—
Halfway	—	—	1	—
Debolt	20	18	—	—
Field totals	20	18	14	4
Blueberry East field—				
Baldonnel	—	—	1	—
Debolt	—	—	1	—
Field totals	—	—	2	—
Blueberry West field—				
Dunlevy	—	—	2	—
Baldonnel	—	—	3	1
Field totals	—	—	5	1
Boundary Lake field—				
Bluesky-Gething	—	—	2	1
Gething	—	—	2	1
Dunlevy	1	—	1	—
Baldonnel	—	—	6	3
Charlie Lake	2	1	—	—
Boundary Lake	312	286	—	—
Basal Boundary Lake	—	—	1	1
Halfway	6	4	1	—
Field totals	321	291	13	6
Boundary Lake North field—Halfway	—	—	4	2
Bubbles field—Baldonnel	—	—	11	7
Bubbles North field—Halfway	—	—	3	—
Buick Creek field—				
Bluesky-Gething	—	—	5	2
Dunlevy	2	1	30	21
Charlie Lake	—	—	1	—
Confidential	—	—	1	—
Field totals	2	1	37	23
Buick Creek West field—				
Dunlevy	2	—	9	6
Baldonnel	—	—	2	1
Halfway	—	—	1	—
Field totals	2	—	12	7
Buick Creek North field—				
Bluesky-Gething	—	—	2	1
Dunlevy	—	—	6	3
Field totals	—	—	8	4

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

TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1972[1]—*Continued*

Field and Pool	Oil Wells		Gas Wells	
	Capable	Operating	Capable	Operating
Bulrush field—Halfway	4	3	—	—
Bulrush East field—Halfway	1	—	—	—
Cabin field—Slave Point	—	—	5	—
Cache Creek field—				
Charlie Lake	—	—	2	—
Halfway	—	—	1	—
Field totals	—	—	3	—
Cecil Lake field—				
Charlie Lake	2	2	3	—
Confidential	—	—	2	—
Field totals	2	2	5	—
Charlie Lake field—Gething	1	—	—	—
Clarke Lake field—Slave Point	—	—	33	23
Clarke Lake South field—Slave Point	—	—	2	—
Crush field—Halfway	8	6	1	—
Currant field—Halfway	5	4	4	—
Cypress field—Baldonnel	—	—	3	—
Dahl field—Bluesky-Gething	—	—	7	—
Dawson Creek field—				
Dunvegan	—	—	1	—
Cadotte	—	—	1	—
Field totals	—	—	2	—
Eagle field—Belloy	2	—	—	—
Elm field—Halfway	1	—	1	—
Evergreen field—Halfway	—	—	2	—
Farrell Creek field—				
Charlie Lake	—	—	2	2
Halfway	—	—	3	1
Field totals	—	—	5	3
Fireweed field—				
Dunlevy	—	—	4	—
Baldonnel	—	—	2	—
Debolt	—	—	4	—
Confidential	—	—	2	—
Field totals	—	—	12	—
Flatrock field—				
Charlie Lake	—	—	1	—
Boundary Lake	1	1	—	—
Halfway	1	—	3	3
Field totals	2	1	4	3
Fort St. John field—				
Dunlevy	—	—	2	—
Baldonnel	—	—	12	8
Charlie Lake	4	2	1	—
Halfway	—	—	7	5
Belloy	1	—	2	2
Field totals	5	2	24	15
Fort St. John Southeast field—				
Dunlevy	—	—	1	—
Baldonnel	—	—	2	2
Charlie Lake	—	—	2	—
Halfway	—	—	5	2
Belloy	—	—	5	1
Field totals	—	—	15	5
Grizzly field—Dunlevy	—	—	2	—
Gundy Creek field—				
Baldonnel	—	—	4	—
Charlie Lake	—	—	1	—
Field totals	—	—	5	—
Halfway field—				
Baldonnel	—	—	2	—
Charlie Lake	1	—	1	—
Field totals	1	—	3	—

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

TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1972[1]—*Continued*

Field and Pool	Oil Wells		Gas Wells	
	Capable	Operating	Capable	Operating
Helmet field—Slave Point	—	—	2	—
Highway field—				
Dunlevy	—	—	1	—
Baldonnel	—	—	4	—
Debolt	—	—	1	—
Field totals	—	—	6	—
Inga field—				
Baldonnel	1	—	3	—
Inga	73	60	6	2
Field totals	74	60	9	2
Inga North field—Inga	—	—	3	—
Jedney field—				
Gething	—	—	1	—
Baldonnel	—	—	20	16
Halfway	—	—	23	18
Field totals	—	—	44	34
Jedney West field—				
Baldonnel	—	—	1	—
Halfway	—	—	2	—
Field totals	—	—	3	—
Julienne Creek field—				
Baldonnel	—	—	2	1
Halfway	—	—	2	2
Field totals	—	—	4	3
Kobes Townsend field—				
Dunlevy	—	—	3	3
Charlie Lake	—	—	6	3
Halfway	—	—	2	2
Debolt	—	—	2	1
Field totals	—	—	13	9
Kotcho Lake field—Slave Point	—	—	12	3
Lagarde field—				
Dunlevy	—	—	1	—
Boundary Lake	—	—	1	—
Field totals	—	—	2	—
Laprise Creek field—Baldonnel	—	—	47	30
Laprise Creek West field—Baldonnel	—	—	2	—
Louise field—Slave Point	—	—	2	—
Milligan field—				
Bluesky-Gething	—	—	3	1
Halfway	25	19	1	—
Field totals	25	19	4	1
Moberly Lake field—Charlie Lake	2	—	—	—
Montney field—				
Bluesky-Gething	—	—	1	—
Charlie Lake	—	—	1	—
Halfway	—	—	2	—
Field totals	—	—	4	—
Nettle field—				
Bluesky-Gething	3	—	1	—
Halfway	—	—	1	—
Field totals	3	—	2	—
Nig Creek field—Baldonnel	1	1	30	21
Nig Creek West field—Baldonnel	—	—	2	—
North Pine field—Charlie Lake	1	1	2	1
Oak field—				
Halfway	—	—	2	—
Confidential	—	—	1	—
Field totals	—	—	3	—
Osprey field—Halfway	3	1	1	—

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

TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1972[1]—*Continued*

Field and Pool	Oil Wells		Gas Wells	
	Capable	Operating	Capable	Operating
Parkland field—				
Belloy	—	—	2	—
Wabamun	—	—	2	2
Field totals	—	—	4	2
Peejay field—Halfway	102	86	4	—
Peejay West field—Halfway	2	—	—	—
Peggo field—Slave Point	—	—	2	—
Petitot River field—Slave Point	—	—	3	—
Red Creek field—				
Charlie Lake	—	—	1	—
Halfway	—	—	1	—
Field totals	—	—	2	—
Rigel field—				
Bluesky-Gething	—	—	3	1
Dunlevy	8	5	53	27
Field totals	8	5	56	28
Rigel East field—				
Dunlevy	—	—	2	—
Halfway	—	—	1	—
Field totals	—	—	3	—
Shekilie field—Slave Point	—	—	2	—
Sierra field—Pine Point	—	—	2	2
Siphon field—				
Dunlevy	—	—	5	5
Baldonnel	—	—	3	—
Charlie Lake	—	—	4	2
Halfway	—	—	5	4
Field totals	—	—	17	11
Stoddart field—				
Charlie Lake	1	1	—	—
Belloy	4	4	16	14
Field totals	5	5	16	14
Stoddart West field—				
Halfway	—	—	1	1
Belloy	—	—	8	4
Field totals	—	—	9	5
Sunrise field—				
Paddy	—	—	2	—
Cadotte	—	—	9	1
Field totals	—	—	11	1
Thea field—Slave Point	—	—	2	—
Two Rivers field—				
Baldonnel	—	—	1	—
Charlie Lake	—	—	1	1
Halfway	—	—	1	1
Field totals	—	—	3	2
Velma field—				
Bluesky-Gething	—	—	2	—
Charlie Lake	—	—	1	—
Confidential	—	—	1	—
Field totals	—	—	4	—
Wargen field—				
Bluesky-Gething	—	—	1	—
Gething	2	—	—	—
Field totals	2	—	1	—
Weasel field—				
Baldonnel	—	—	1	1
Charlie Lake	—	—	1	—
Halfway	20	16	1	—
Field totals	20	16	3	1

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

TABLE 23—NUMBER OF CAPABLE AND OPERATING WELLS AT DECEMBER 31, 1972[1]—*Continued*

Field and Pool	Oil Wells		Gas Wells	
	Capable	Operating	Capable	Operating
Weasel West field—Halfway	4	3	—	—
Wilder field—				
Halfway	—	—	2	2
Belloy	—	—	2	—
Field totals	—	—	4	2
Wildmint field—				
Bluesky-Gething	—	—	1	1
Halfway	24	11	3	—
Field totals	24	11	4	1
Willow field—				
Bluesky-Gething	1	1	1	—
Halfway	—	—	2	1
Field totals	1	1	3	1
Wolf field—Halfway	4	3	1	—
Yoyo field—				
Slave Point	—	—	1	—
Pine Point	—	—	14	9
Field totals	—	—	15	9
Other areas—				
Cadotte	—	—	2	—
Notikewin	—	—	1	—
Bluesky-Gething	2	—	10	—
Gething	—	—	3	—
Dunlevy	—	—	2	—
Baldonnel	—	—	24	—
Inga	—	—	1	—
Charlie Lake	—	—	8	—
Halfway	4	—	34	—
Permo-Carboniferous	—	—	4	—
Belloy	1	—	5	—
Upper Kiskatinaw	—	—	2	—
Lower Kiskatinaw	—	—	1	—
Debolt	—	—	8	—
Banff	—	—	2	—
Jean Marie	—	—	1	—
Slave Point	—	—	21	1
Sulphur Point	—	—	3	—
Pine Point	—	—	5	—
Confidential	1	1	12	—
Area totals	8	1	149	1
Totals	706	566	816	321

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

TABLE 24—MONTHLY CRUDE-OIL PRODUCTION BY FIELDS AND POOLS, 1972

(Quantities in barrels.)

Field and Pool	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Aitken Creek—													
Gething	31,343	38,856	43,314	40,561	37,900	39,269	34,318	33,327	26,959	32,900	31,559	32,086	422,392
Gething[1]	2,589	2,572	2,510	2,045	1,183	898	1,571	1,475	2,091	2,023	1,868	1,542	22,367
Field totals	33,932	41,428	45,824	42,606	39,083	40,167	35,889	34,802	29,050	34,923	33,427	33,628	444,759
Bear Flat—Charlie Lake	3,539	3,945	3,781	———	2,874	4,186	4,300	4,011	3,705	4,547	4,389	4,333	43,610
Beatton River—Halfway	42,828	37,384	42,347	33,273	33,283	34,423	36,451	32,142	29,692	30,796	28,730	28,374	409,723
Beatton River West—Bluesky-Gething	15,531	16,487	16,276	13,262	14,006	13,479	14,237	13,589	15,583	13,346	12,932	18,216	176,944
Beaverdam—Halfway[1]	———	———	———	———	20	132	102	114	84	123	70	111	756
Blueberry—													
Dunlevy[1]	24	24	23	24	24	25	23	22	23	22	22	22	278
Debolt	64,269	47,007	49,082	45,981	54,261	49,242	31,968	46,246	46,327	42,557	37,595	42,494	557,029
Field totals	64,293	47,031	49,105	46,005	54,285	49,267	31,991	46,268	46,350	42,579	37,617	42,516	557,307
Boundary Lake—													
Baldonnel[1]	84	78	61	63	115	90	48	———	———	———	———	———	539
Charlie Lake	1,157	1,181	1,251	1,015	732	673	1,123	999	3,501	2,317	1,964	1,918	17,831
Boundary	788,086	752,474	826,434	783,449	791,176	780,658	795,388	788,638	755,481	774,482	735,658	757,458	9,329,382
Halfway	7,204	6,823	6,747	6,071	7,249	6,632	6,389	5,565	5,367	6,603	6,545	7,864	79,059
Field totals	796,531	760,556	834,493	790,598	799,272	788,053	802,948	795,202	764,349	783,402	744,167	767,240	9,426,811
Boundary Lake North—Halfway[1]	502	288	288	296	277	250	253	———	334	220	36	30	2,774
Buick Creek—													
Dunlevy	600	802	567	———	453	710	554	617	525	688	668	648	6,832
Dunlevy[1]	1,321	1,788	1,312	809	1,187	976	843	968	1,095	1,386	1,487	1,397	14,569
Field totals	1,921	2,590	1,879	809	1,640	1,686	1,397	1,585	1,620	2,074	2,155	2,045	21,401
Bulrush—Halfway	4,336	3,579	3,620	4,432	4,526	3,090	4,401	3,489	4,107	5,075	4,490	4,153	49,298
Cecil Lake—Charlie Lake	———	———	———	———	———	———	5,089	2,584	3,627	8,289	9,806	9,402	38,797
Crush—Halfway	24,272	26,506	34,751	37,330	36,798	44,688	43,779	45,610	40,980	40,201	31,655	34,433	441,003
Currant—Halfway	14,630	14,531	14,647	12,739	14,004	15,458	16,113	16,570	14,938	17,252	15,496	16,073	182,451
Flatrock—Boundary Lake	———	1,527	1,505	477	943	1,406	1,041	819	425	1,223	473	853	10,692
Fort St. John—Charlie Lake	8,638	4,788	8,402	7,999	7,935	7,665	5,943	5,972	6,037	6,440	6,531	4,945	81,295
Inga—													
Inga	288,791	307,364	297,887	318,983	311,839	284,233	318,875	301,073	302,455	318,487	322,937	318,539	3,691,463
Inga[1]	———	———	82	196	215	190	228	152	185	177	304	49	1,778
Field totals	288,791	307,364	297,969	319,179	312,054	284,423	319,103	301,225	302,640	318,664	323,241	318,588	3,693,241
Jedney—													
Baldonnel[1]	76	77	78	83	84	58	46	120	103	114	93	134	1,066
Halfway[1]	73	74	75	79	81	55	44	10	57	58	29	54	689
Field totals	149	151	153	162	165	113	90	130	160	172	122	188	1,755

[1] Condensate.

TABLE 24—MONTHLY CRUDE-OIL PRODUCTION BY FIELDS AND POOLS, 1972—*Continued*

(Quantities in barrels.)

Field and Pool	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Milligan—Halfway	233,173	211,272	214,573	211,141	214,184	209,954	212,700	195,592	199,905	188,176	170,781	181,705	2,443,156
Nig Creek—Baldonnel	952	812	892	30	749	757	866	980	774	834	799	832	9,277
Nig Creek West—Baldonnel[1]	143	96	212	———	14	176	108	45	34	136	37	———	1,001
North Pine—Charlie Lake	358	388	367	60	154	332	242	5	207	359	25	113	2,610
Osprey—Halfway	1,263	1,462	1,392	1,440	768	726	2,647	3,247	3,336	2,731	4,685	4,157	27,854
Peejay—Halfway	300,898	296,538	324,894	336,716	344,504	328,154	315,828	335,960	314,554	309,693	299,606	281,815	3,789,160
Rigel—Dunlevy	2,378	3,332	2,950	422	1,566	3,709	3,743	3,343	2,886	3,620	5,773	4,878	38,600
Siphon—													
Dunlevy[1]	———	———	———	———	———	———	———	———	———	53	596	608	1,257
Charlie Lake[1]	578	498	———	———	———	———	———	———	———	35	307	307	1,725
Halfway[1]	———	———	497	489	512	524	333	———	———	151	2,281	2,555	7,342
Field totals	578	498	497	489	512	524	333	———	———	239	3,184	3,470	10,324
Stoddart—													
Charlie Lake	———	1,257	1,021	———	848	466	303	284	429	419	245	380	5,652
Belloy	2,592	3,081	2,978	270	2,563	3,981	3,688	3,610	3,241	3,578	3,299	3,229	36,110
Field totals	2,592	4,338	3,999	270	3,411	4,447	3,991	3,894	3,670	3,997	3,544	3,609	41,762
Stoddart West—Belloy[1]	3,351	3,188	3,088	2,980	2,334	3,997	3,801	1,376	4,036	3,843	2,711	2,743	37,448
Two Rivers—Charlie Lake[1]	632	748	643	686	719	653	744	723	747	754	937	490	8,476
Wargen—Gething	———	240	85	———	———	———	———	———	———	———	———	———	325
Weasel—Halfway	99,525	91,409	86,690	76,925	81,950	79,585	84,487	66,404	80,494	86,206	85,111	81,436	1,000,222
Weasel West—Halfway	3,770	5,704	5,748	5,373	8,247	6,624	1,538	609	3,815	9,584	4,924	3,669	59,605
Wildmint—Halfway	59,557	67,553	73,519	63,654	67,542	71,009	71,121	72,821	69,718	75,263	60,274	67,947	819,978
Willow—													
Bluesky-Gething	1,933	1,464	1,931	1,979	1,702	1,846	2,148	1,913	2,078	2,150	1,906	915	21,965
Halfway[1]	———	———	———	———	425	91	45	21	116	275	231	193	1,397
Field totals	1,933	1,464	1,931	1,979	2,127	1,937	2,193	1,934	2,194	2,425	2,137	1,108	23,362
Wolf—Halfway	2,915	2,680	2,721	2,083	1,995	2,067	3,864	4,052	3,843	3,342	3,657	3,781	37,000
Other areas—													
Inga[1]	———	———	———	———	———	———	———	———	———	———	1,069	———	1,069
Halfway	———	———	481	732	———	———	———	———	———	———	———	———	1,213
Belloy	———	———	45	———	124	95	———	———	360	———	———	———	624
Confidential	———	———	———	———	———	———	———	———	———	———	———	292	292
Field totals	———	———	526	732	124	95	———	———	360	———	1,069	292	3,198
Totals—													
Crude	2,004,538	1,950,446	2,070,898	2,006,397	2,044,875	1,995,117	2,023,144	1,990,071	1,945,349	1,991,158	1,892,513	1,916,938	23,831,444
Field condensate	9,373	9,431	8,869	7,750	7,190	8,115	8,189	5,026	8,905	9,370	12,078	10,235	104,531
Total crude and equivalent	2,013,911	1,959,877	2,079,767	2,014,147	2,052,065	2,003,232	2,031,333	1,995,097	1,954,254	2,000,528	1,904,591	1,927,173	23,935,975

[1] Condensate.

TABLE 25—MONTHLY NATURAL GAS PRODUCTION BY FIELDS AND POOLS, 1972

Field and Pool	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Aitken Creek—Gething	325,955	328,200	332,787	300,056	172,594	110,155	222,905	221,540	320,599	200,455	277,773	211,673	3,024,692
Beaverdam—Halfway					48	69,281	48,175	46,410	36,616	53,878	60,389	55,830	370,627
Beaver River—Nahanni	4,895,771	4,805,921	5,104,745	4,824,318	5,144,138	5,808,956	5,645,766	6,608,490	6,286,108	6,001,453	6,858,231	6,267,643	68,251,540
Beavertail—Bluesky-Gething	298,587	280,997	344,614	315,545	287,890	176,132	159,959	146,833	171,590	305,134	291,189	308,516	3,086,986
Beg—													
Baldonnel	313,226	290,033	313,879	238,826	145,060	186,190	172,481	263,271	249,630	296,209	303,982	263,432	3,036,219
Halfway	411,913	366,827	389,870	312,613	226,688	237,648	249,453	267,603	311,609	361,448	426,597	412,471	3,974,740
Field totals	725,139	656,860	703,749	551,439	371,748	423,838	421,934	530,874	561,239	657,657	730,579	675,903	7,010,959
Blueberry—Dunlevy	75,903	73,901	75,488	75,326	76,625	81,571	80,374	78,585	74,184	75,002	73,392	78,336	918,687
Blueberry West—Baldonnel	120,233	105,627	113,189	88,857	61,883	65,577	73,937	27,966	48,337	101,998	90,833	54,137	952,574
Boundary Lake—													
Bluesky-Gething									10,108	18,675	16,003	12,554	57,340
Gething	23,216	14,141	11,145	15,388	17,028	15,875	7,800	14,190	887	26,773	36,431	25,231	208,105
Baldonnel	86,356	70,257	80,888	78,845	84,146	77,302	49,230	82,368	74,292	88,884	95,142	88,232	955,942
Basal Boundary Lake	16,814	14,834	15,463	14,026	13,893	13,933	7,408	12,978	13,552	14,647	14,549	14,810	166,907
Field totals	126,386	99,232	107,496	108,259	115,067	107,110	64,438	109,536	98,839	148,979	162,125	140,827	1,388,294
Boundary Lake North—Halfway	179,052	138,494	173,203	149,130	112,538	100,514	109,467	79,907	84,020	61,755	20,548	21,689	1,230,317
Bubbles—Baldonnel	369,911	361,350	361,398	340,271	218,158	283,628	47,612	240,287	334,793	268,662	238,124	321,366	3,385,560
Buick Creek—													
Bluesky-Gething	8,122	8,185	10,379	8,021	4,637	1,933	9,779	19,373	10,114	8,083	84,813	84,331	257,770
Dunlevy	988,545	936,890	910,935	898,957	743,117	640,547	289,614	431,056	842,352	973,578	816,413	990,511	9,462,515
Field totals	996,667	945,075	921,314	906,978	747,754	642,480	299,393	450,429	852,466	981,661	901,226	1,074,842	9,720,285
Buick Creek North—													
Bluesky-Gething	45,211	42,181	41,647	43,052	27,871	21,972	17,906	7,973	38,273	47,595	48,685	47,676	430,042
Dunlevy	227,308	211,227	223,488	217,235	198,294	197,121	115,579	12,414	193,583	212,478	200,682	202,418	2,211,827
Field totals	272,519	253,408	265,135	260,287	226,165	219,093	133,485	20,387	231,856	260,073	249,367	250,094	2,641,869
Buick Creek West—													
Dunlevy	178,767	184,966	199,097	194,131	104,638	87,049	56,186	22,585	177,640	209,081	234,681	206,480	1,855,301
Baldonnel					9,814	43,279	11,755	3,248	19,610	14,077	15,655	7,304	124,742
Field totals	178,767	184,966	199,097	194,131	114,452	130,328	67,941	25,833	197,250	223,158	250,336	213,784	1,980,043
Clarke Lake—Slave Point	10,772,027	9,657,076	10,001,897	10,145,977	9,687,050	7,991,740	6,243,208	6,357,317	5,502,466	7,197,132	9,752,809	10,895,540	104,204,239
Farrell Creek—													
Charlie Lake	21,079	43,523	49,071	33,349	24,132	41,418	42,229	13,260	39,362	52,401	68,603	77,196	505,623
Halfway	10,745	22,938	26,161	16,785	17,051	9,494	19,373	1,063	5,962	35,166	37,749	35,959	238,446
Field totals	31,824	66,461	75,232	50,134	41,183	50,912	61,602	14,323	45,324	87,567	106,352	113,155	744,069
Flatrock—Halfway	168,542	164,170	185,942	152,747	124,720	36,053			75,033	277,512	223,039	226,162	1,633,920

TABLE 25—MONTHLY NATURAL GAS PRODUCTION BY FIELDS AND POOLS, 1972—*Continued*

Field and Pool	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Fort St. John—													
Baldonnel	190,390	179,933	175,042	165,587	57,139	205,033	206,270	104,524	220,673	221,275	166,996	181,474	2,074,336
Halfway	122,465	125,085	132,369	83,842	40,746	36,556	34,472	29,480	90,925	118,125	115,084	120,379	1,049,528
Belloy	33,698	25,307	35,183	35,591	6,346	34,395	28,849	16,211	31,234	24,098	26,272	21,372	318,556
Field totals	346,553	330,325	342,594	285,020	104,231	275,984	269,591	150,215	342,832	363,498	308,352	323,225	3,442,420
Fort St. John Southeast—													
Baldonnel	58,203	58,605	56,718	57,200	53,284	31,684	53,177	46,723	41,667	51,125	57,136	49,160	614,682
Halfway	65,383	59,824	58,335	61,949	57,450	31,111	58,260	54,841	44,039	55,655	65,553	46,796	659,196
Belloy	128,358	124,706	114,917	119,572	118,430	65,614	98,105	88,268	60,108	91,741	98,922	73,010	1,181,751
Field totals	251,944	243,135	229,970	238,721	229,164	128,409	209,542	189,832	145,814	198,521	221,611	168,966	2,455,629
Inga—Inga	418,154	389,711	380,662	335,185	221,790	197,858	182,045	214,645	299,163	438,275	502,424	419,574	3,999,486
Jedney—													
Baldonnel	823,258	754,495	821,935	755,981	599,612	258,092	397,364	467,346	552,088	730,406	766,805	741,716	7,669,098
Halfway	754,177	683,443	718,080	666,528	478,372	155,747	418,950	479,772	416,437	686,959	697,395	660,570	6,816,430
Field totals	1,577,435	1,437,938	1,540,015	1,422,509	1,077,984	413,839	816,314	947,118	968,525	1,417,365	1,464,200	1,402,286	14,485,528
Julienne Creek—													
Baldonnel	46,400	37,699	44,856	33,887	35,248	33,771	30,040	16,861	15,368	28,114	28,872	21,220	372,336
Halfway	111,073	106,869	101,641	101,713	74,079	57,576	57,724	60,069	82,586	118,634	94,178	84,392	1,050,534
Field totals	157,473	144,568	146,497	135,600	109,327	91,347	87,764	76,930	97,954	146,748	123,050	105,612	1,422,870
Kobes-Townsend—													
Dunlevy	58,939	51,007	49,372	36,173	14,095	———	12,122	———	2,702	20,802	43,769	32,750	321,731
Charlie Lake	183,413	48,656	48,430	33,214	23,776	———	28,296	11,888	39,916	62,405	51,159	47,562	578,715
Halfway	165,044	257,721	278,975	188,867	179,985	274,086	224,716	73,637	236,406	290,109	282,630	287,781	2,739,957
Debolt	———	70,795	66,763	51,359	14,093	———	———	23,889	88,225	79,497	82,531	85,870	563,022
Field totals	407,396	428,179	443540	309,613	231,949	274,086	265,134	109,414	367,249	452,813	460,089	453,963	4,203,425
Kotcho Lake—Slave Point	432,396	383,741	414,173	508,254	585,470	283,078	———	———	———	193,929	406,193	393,029	3,600,263
Laprise—Baldonnel	2,400,601	2,155,738	2,234,869	1,500,421	1,668,560	1,569,515	1,768,430	1,973,680	1,968,825	1,949,070	2,104,063	2,273,596	23,567,368
Milligan—Bluesky-Gething	10,484	10,465	6,562	5,686	9,953	5,588	3,517	2,143	1,500	2,573	3,482	9,195	71,148
Nig Creek—Baldonnel	1,556,936	1,414,139	1,519,237	1,327,372	1,160,929	1,192,567	962,948	770,934	1,168,491	1,390,048	1,266,559	1,386,467	15,116,627
Nig Creek West—Baldonnel	58,476	57,788	60,421	57,978	31,034	59,991	42,865	38,305	6,848	31,973	21,024	———	466,703
North Pine—Charlie Lake	40,071	25,879	34,809	16,647	2,432	79,693	45,002	23,147	33,296	37,346	39,377	38,211	415,910
Parkland—Wabamun	449,194	429,007	406,296	311,383	258,561	303,696	319,091	425,017	183,929	420,284	403,825	336,016	4,246,299
Rigel—													
Bluesky-Gething	17,213	16,194	17,606	16,960	16,782	16,487	9,285	12,572	16,354	18,104	17,273	17,749	192,579
Dunlevy	2,173,139	2,053,292	2,119,406	1,949,433	1,835,589	1,746,125	1,309,387	1,347,256	1,388,889	1,916,269	1,977,990	2,068,562	21,885,337
Field totals	2,190,352	2,069,486	2,137,012	1,966,393	1,852,371	1,762,612	1,318,672	1,359,828	1,405,243	1,934,373	1,995,263	2,086,311	22,077,916
Rigel East—Halfway	23,134	———	———	———	———	———	———	———	———	———	———	———	23,134
Sierra—Pine Point	1,523,051	1,469,486	1,443,337	1,479,612	1,147,041	945,113	1,508,148	1,234,701	1,525,303	1,790,291	1,233,196	1,512,001	16,811,280

Siphon—													
Dunlevy										66,387	695,546	793,734	1,555,667
Charlie Lake	37,797	31,353	60,193	58,855	57,628	54,117	35,873			10,486	102,979	115,254	564,535
Halfway	59,235	56,309	27,184	31,723	48,090	40,630	20,834			37,392	311,711	326,828	959,936
Field totals	97,032	87,662	87,377	90,578	105,718	94,747	56,707			114,265	1,110,236	1,235,816	3,080,138
Stoddart—Belloy	1,329,636	1,175,053	1,299,164	1,162,375	879,260	1,005,577	1,166,622	958,685	1,163,014	1,169,706	1,142,404	1,188,817	13,640,313
Stoddart West—													
Charlie Lake								37,544	46,226	60,329	76,971	52,988	274,058
Belloy	266,939	245,546	254,480	245,484	176,945	204,886	211,668	134,302	229,958	332,197	287,703	294,159	2,884,267
Field totals	266,939	245,546	254,480	245,484	176,945	204,886	211,668	171,846	276,184	392,526	364,674	347,147	3,158,325
Sunrise—Cadotte	4,984		12,002	50,522	33,665	28,967	24,387	6,257				4,078	164,862
Two Rivers—													
Charlie Lake	46,559	39,616	42,300	42,191	43,480	41,206	43,622	43,472	43,590	45,820	43,378	48,579	523,813
Halfway	176,652	164,928	179,773	182,268	136,647	33,452	63,234	122,090	166,317	173,722	183,755	195,958	1,778,796
Field totals	223,211	204,544	222,073	224,459	180,127	74,658	106,856	165,562	209,907	219,542	227,133	244,537	2,302,609
Weasel—Baldonnel	1,513	1,079	1,888	1,290	1,331	1,719	3,161	7,596	7,975	2,262	1,945	2,205	33,964
Wilder—Halfway	325,431	287,748	292,114	300,263	233,700	162,373	170,975	176,064	146,414	318,359	315,127	283,306	3,011,874
Wildmint—Bluesky-Gething												6,695	6,695
Willow—Halfway	207,186	153,572	248,499	195,388	207,486	154,830	141,790	78,488	90,123	230,690	200,026	146,892	2,054,970
Yoyo—Pine Point	5,994,224	6,233,324	6,207,520	6,532,624	5,908,431	5,499,191	3,982,564	4,807,539	5,997,192	5,936,744	5,160,186	6,000,163	68,259,702
Other areas—													
Baldonnel						15,325	2,590						17,915
Inga											21,502		21,502
Charlie Lake									3,037				3,037
Halfway							30,750	200					30,950
Permo-Carboniferous		52,921											52,921
Kiskatinaw	2,100					49,713	49,496						101,309
Slave Point				207,835	158,119	22,031	18,608			97,430	171,175	182,708	857,906
Field totals	2,100	52,921		207,835	158,119	87,069	101,444	200	3,037	97,430	192,677	182,708	1,085,540
Totals	39,833,189	37,552,772	38,930,397	37,374,667	34,077,591	31,194,761	27,445,433	28,846,863	31,329,538	36,150,707	39,553,428	41,460,313	423,749,659

TABLE 26—SUMMARY OF DRILLING AND PRODUCTION STATISTICS, 1972

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Well authorizations—													
Issued	31	29	26	1	6	8	16	13	12	20	10	54	226
Cancelled									1		1		2
Wells spudded	40	35	32	1	1	8	8	15	11	20	12	24	207
Rigs operated (during month)	46	46	44	19	3	11	13	24	14	22	23	33	691
Rigs operating (at month's end)	36	35	20	2	3	5	12	5	9	18	11	25	[1]
Development footage	71,208	78,329	84,884	15,011		19,659		31,256	22,694	28,086	45,121	12,868	409,116
Exploratory outpost footage	55,685	42,376	68,975	50,223		5,010	4,950	52,241	7,670	19,970	40,105	34,302	381,507
Exploratory wildcat footage	50,563	69,339	92,616	57,469		4,192		47,021		15,804	6,095	9,228	352,327
Total footage drilled	177,456	190,044	246,475	122,073		28,861	4,950	130,518	30,364	63,860	91,321	56,398	1,142,950
Wells abandoned	19	18	20	11		3	1	12	3	6	10	7	110
Service wells	1								2	1	1		5
Finished drilling wells								1					1
Oil wells completed	7	10	9	2		2		1	1	1	5	1	39
Producible oil wells	686	693	703	700	700	702	702	701	703	702	706	706	
Producing oil wells	556	565	575	556	561	568	570	567	568	568	573	566	
Production in barrels	2,004,538	1,950,446	2,070,898	2,006,397	2,044,875	1,995,117	2,023,144	1,990,071	1,945,349	1,991,158	1,892,513	1,916,938	23,831,444
Average daily production	64,663	67,257	66,803	66,880	65,964	66,504	65,263	64,196	64,845	64,231	63,084	61,837	65,127
Gas wells completed	6	9	19	7		1		10	3	3	5	3	66
Producible gas wells	758	764	771	782	792	794	795	797	803	808	814	816	
Producing gas wells	300	296	301	303	305	276	263	261	299	308	325	321	
Production in MSCF	39,833,189	37,552,772	38,930,397	37,374,667	34,077,591	31,194,761	27,445,433	28,846,863	31,329,538	36,150,707	39,553,428	41,460,313	423,749,659
Average daily production	1,284,942	1,294,923	1,255,819	1,245,822	1,099,277	1,039,825	885,337	930,544	1,044,318	1,166,152	1,318,448	1,337,429	1,158,570

[1] Rig operated during 1972.
NOTE—Each zone of a multiple completion is counted as one well.

TABLE 27—MONTHLY SUPPLY AND DISPOSITION OF CRUDE OIL AND CONDENSATE/PENTANES PLUS, 1972

(Quantities in barrels)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Available Supply													
British Columbia production—													
Crude	2,004,538	1,950,446	2,070,898	2,006,397	2,044,875	1,995,117	2,023,144	1,990,071	1,945,349	1,991,158	1,892,513	1,916,938	23,831,444
Field condensate	9,373	9,431	8,869	7,750	7,190	8,115	8,189	5,026	8,905	9,370	12,078	10,235	104,531
Plant condensate	92,728	91,555	85,427	92,481	55,189	77,350	74,567	81,049	87,845	78,257	101,025	100,629	1,018,102
Alberta imports—crude and equivalent	10,389,899	9,751,373	9,604,743	9,068,534	9,486,339	10,081,007	10,228,644	10,664,056	9,972,288	10,763,600	9,709,168	10,276,601	119,996,252
Totals	12,496,538	11,802,805	11,769,937	11,175,162	11,593,593	12,161,589	12,334,544	12,740,202	12,014,387	12,842,385	11,714,784	12,304,403	144,950,329
Disposition													
Inventory change—													
Field	—306	2,355	—1,466	—5,272	335	2,032	—698	5,842	1,617	—7,881	—4,396	5,249	—2,589
Plant	6,886	—10,734	—12,562	11,613	—29,268	14,003	1,526	—3,178	952	—3,578	6,962	10,465	—6,913
British Columbia transporters	41,223	—120,201	180,818	340,230	—482,350	—51,120	—103,567	87,633	31,880	623,666	—328,655	—87,684	131,873
Miscellaneous—													
Pipe-line use	17,704	6,243	28,507		35,379	2,361	22,003	2,841	2,532	5,536	47,138	3,103	173,347
Field losses and adjustments	—3,034	5,251	—8,172	208	155	1,675		300	358	—448	—314	—115	—4,136
Plant losses and adjustments	—17,414	—10,832		—7,926	—3,070	—6,143	—8,694	—5,894	—5,846	—24,248	—10,379	—5,989	—106,435
Transporters' losses and adjustments	34,897	32,300	—7,351	—8,892	32,173	467	40,025	29,024	—10,122	62,824	32,323	46,924	284,592
Deliveries—													
British Columbia refineries—													
British Columbia crude	1,836,762	1,792,535	1,934,790	1,761,867	2,295,096	1,916,074	2,338,597	2,173,783	1,900,401	1,814,655	2,009,829	2,086,095	23,860,484
Alberta crude	2,382,579	2,285,713	1,296,555	1,941,605	1,414,295	1,920,485	1,554,551	2,050,574	1,843,412	2,275,032	1,963,991	2,180,383	23,109,175
British Columbia condensate	60,792	58,495	44,080	37,927	49,846	32,701	41,918	50,170	53,455	67,075	63,052	58,487	617,998
Export to United States—													
British Columbia crude	213,574	215,487	181,476	145,326	288,918	207,269	99,816	117,474	120,142	72,652	136,324	127,682	1,926,140
Alberta crude	7,856,939	7,545,082	8,118,334	7,044,808	8,181,608	8,152,533	8,345,305	8,311,790	8,044,236	7,940,515	7,764,512	7,877,303	95,182,965
British Columbia condensate	35,709	49,170	58,020	44,989	33,937	30,092	32,031	33,057	35,271	33,269	33,024	31,145	449,714
Field sales	246	768	7,466		250		1,106	97		20	292	8,942	19,187
Reporting adjustments	29,981	—48,827	—50,558	—131,321	—223,711	—60,840	—29,375	—113,311	—3,901	—16,704	1,081	—37,587	—685,073
Totals	12,496,538	11,802,805	11,769,937	11,175,162	11,593,593	12,161,589	12,334,544	12,740,202	12,014,387	12,842,385	11,714,784	12,304,403	144,950,329
British Columbia Refineries													
Receipts—													
British Columbia crude	1,836,762	1,792,535	1,934,790	1,761,867	2,295,096	1,916,074	2,338,597	2,173,783	1,900,401	1,814,655	2,009,829	2,086,095	23,860,484
Alberta crude	2,382,579	2,285,713	1,296,555	1,941,605	1,414,295	1,920,485	1,554,551	2,050,574	1,843,412	2,275,032	1,963,991	2,180,383	23,109,175
British Columbia condensate	60,792	58,495	44,080	37,927	49,846	32,701	41,918	50,170	53,455	67,075	66,059	58,487	621,005
Alberta condensate	4,532	8,008	7,503	6,898		7,265	6,848	8,918	12,707	14,852	10,398	6,977	94,906
Alberta butane	17,651	12,397	10,064	3,028					4,766	6,512	7,410	12,608	74,436
Totals	4,302,316	4,157,148	3,292,992	3,751,325	3,759,237	3,876,525	3,941,914	4,283,445	3,814,741	4,178,126	4,057,687	4,344,550	47,760,006

TABLE 27—MONTHLY SUPPLY AND DISPOSITION OF CRUDE OIL AND CONDENSATE/PENTANES PLUS, 1972—*Continued*

(Quantities in barrels.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Disposition													
Inventory changes	33,792	90,087	—60,776	80,124	132,467	—170,763	—12,483	33,586	—68,497	31,928	21,435	—78,165	32,735
Losses and adjustments	—373	390	—644	608	126,111	340	446	—4,119	85	151	209	—751	122,453
Refinery runs—													
British Columbia crude	1,898,853	1,747,494	1,837,245	1,830,773	2,024,343	2,329,220	2,318,535	2,205,539	1,872,072	2,129,799	2,090,234	2,084,378	24,368,485
Alberta crude	2,286,976	2,241,005	1,455,440	1,798,230	1,426,470	1,672,762	1,586,939	1,989,351	1,940,906	1,936,642	1,863,838	2,258,436	22,456,995
British Columbia condensate	60,792	58,495	44,080	37,927	49,846	32,701	41,918	50,170	53,455	67,075	63,052	58,487	617,998
Alberta condensate	4,625	7,280	7,583	635	———	12,265	6,559	8,918	11,954	6,019	11,509	9,557	86,904
Alberta butane	17,651	12,397	10,064	3,028	———	———	———	———	4,766	6,512	7,410	12,608	74,436
Total refinery runs	4,268,897	4,066,671	3,354,412	3,670,593	3,500,659	4,046,948	3,953,951	4,253,978	3,883,153	4,146,047	4,036,043	4,423,466	47,604,818

TABLE 28—MONTHLY SUPPLY AND DISPOSITION OF NATURAL GAS, 1972

(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	15,766,526	14,574,217	15,352,429	13,572,499	11,346,900	10,362,987	9,746,656	9,413,799	11,834,540	14,610,874	15,738,988	16,055,921	158,376,336
Dry gas	24,066,663	22,978,555	23,577,968	23,802,168	22,730,691	20,831,774	17,698,777	19,433,064	19,494,998	21,539,833	23,814,440	25,404,392	265,373,323
Associated gas	1,665,301	1,781,097	1,910,677	1,727,995	1,737,487	1,771,899	1,714,768	1,731,362	1,841,378	1,895,796	1,658,165	1,727,497	21,163,422
Less injected	445,273	441,334	445,070	374,308	266,267	216,972	351,776	308,434	489,483	385,094	333,918	273,762	4,331,691
Net British Columbia production	41,053,217	38,892,535	40,396,004	38,728,354	35,548,811	32,749,688	28,808,425	30,269,791	32,681,433	37,661,409	40,877,675	42,914,048	440,581,390
Imports—													
Alberta	40,927,986	39,031,696	42,026,381	39,630,451	39,662,604	36,619,475	37,293,236	37,152,955	36,062,564	38,256,060	37,814,453	41,572,248	466,050,109
Yukon	516,332	482,826	338,672	321,227	265,114	210,874	166,843	159,470	115,634	445,842	———	———	3,022,834
Northwest Territories	———	———	———	———	———	———	———	18,992	2,415,850	2,904,902	2,376,072	3,408,919	11,124,735
Totals	82,497,535	78,407,057	82,761,057	78,680,032	75,476,529	69,580,037	66,268,504	67,601,208	71,275,481	79,268,213	81,068,200	87,895,215	920,779,068
Disposition													
Flared—													
Field	624,971	611,084	669,646	403,395	439,222	434,210	528,481	493,920	414,151	577,786	429,558	424,027	6,050,451
Plant—													
Residual gas	2,830	———	5,098	1,020	9,993	5,581	———	———	———	1,577	5,097	3,691	34,887
Natural gas	10,726	7,541	74,358	21,380	———	14,510	20,296	37,700	9,966	2,140	158,766	256	357,639
Gas-gathering systems	308	1,505	1,241	4,929	2,084	1,862	1,869	1,244	7,829	2,070	13,582	2,749	41,272
Fuel—													
Lease	281,157	267,970	279,151	258,503	245,385	238,715	218,152	226,726	243,278	267,555	263,375	273,396	3,063,363
Plant	1,434,736	1,278,564	1,213,341	1,275,709	11,896,653	1,171,567	1,182,311	1,252,157	1,284,311	1,356,378	1,462,799	1,569,219	15,670,745
Transporters	3,009,983	2,819,480	2,791,501	2,687,219	2,260,610	2,082,776	1,553,242	1,709,910	2,210,732	2,495,749	2,775,831	3,154,522	29,551,555
Line-pack changes—													
Gas-gathering systems	———	———	———	———	—10,475	———	———	———	———	—5,323	9,262	—15,346	—21,882
Transporters	1,170	34,167	69,891	—229,367	—107,551	105,785	88,355	—356,150	123,122	268,563	—135,738	—62,028	—199,781
Losses and metering difference—													
Field	20,871	350,279	1,092,095	29,397	4,159	33,911	61,712	205,037	54,142	—37,702	232,006	276,806	2,322,713
Gas-gathering systems	71,867	10,030	3,538	351	———	—4,200	20,689	37,219	6,510	———	———	———	146,004
Gas plants	172,841	434,883	503,014	122,052	661,940	507,066	312,960	—40,512	—269,023	383,283	344,926	285,533	3,418,963
Transporters	403,084	—147,679	—40,210	—68,004	—182,008	—124,601	272,317	—69,186	403,887	6,187	—92,888	326,611	687,510
Processing shrinkage	4,346,054	3,512,711	3,664,943	3,244,877	3,157,358	3,046,907	2,627,531	2,835,734	3,370,386	3,802,649	3,861,105	4,338,702	41,808,957
Deliveries—													
British Columbia distributors—													
Northern	1,696,538	1,629,518	1,416,360	1,407,364	1,300,690	1,016,411	936,615	1,196,194	1,012,563	1,298,274	1,325,919	1,327,589	15,564,035
Interior	3,527,683	3,178,467	3,098,429	2,874,782	2,455,815	2,281,172	1,895,445	2,182,367	2,708,328	3,438,971	3,980,118	4,398,580	36,020,157
Lower Mainland	7,249,444	6,781,466	6,529,709	6,256,199	4,424,291	3,626,493	2,994,406	3,330,082	5,766,050	7,026,788	7,616,179	7,963,337	69,564,444
Export—													
British Columbia natural gas	21,031,778	19,904,422	21,537,608	21,226,710	20,940,622	19,322,112	17,223,503	18,328,034	18,769,459	21,860,367	22,417,124	24,197,109	246,758,848
Alberta natural gas	39,136,828	37,670,380	40,406,021	38,242,876	38,326,799	35,451,656	36,143,701	35,996,367	34,665,455	36,365,410	35,829,852	39,134,039	447,369,384
Reporting adjustments	—525,334	62,269	—554,677	920,640	357,942	368,104	186,919	234,365	494,335	157,491	571,327	296,423	2,569,804
Totals	82,497,535	78,407,057	82,761,057	78,680,032	75,476,529	69,580,037	66,268,504	67,601,208	71,275,481	79,268,213	81,068,200	87,895,215	920,779,068

TABLE 28—MONTHLY SUPPLY AND DISPOSITION OF NATURAL GAS, 1972—*Continued*

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

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Receipts—													
Transporters	12,477,354	11,635,569	11,073,455	10,493,371	8,209,203	6,924,030	5,823,291	6,701,792	9,473,291	11,764,182	12,918,741	13,703,296	121,197,575
Gas from storage	455,412									7,540		320,673	783,625
L.P. gas	128,846	108,163	98,316	86,291	62,671	53,175	49,810	51,852	64,680	82,339	98,616	128,577	1,013,336
Disposition—													
Gas used in operations	33,067	36,737	23,368	36,002	26,363	24,494	37,990	26,059	23,266	30,831	30,887	42,005	371,069
Losses and adjustments	1,399,173	−1,914,560	−550,994	−337,932	−1,541,680	−564,728	−1,362,494	886,065	1,341,999	1,860,936	203,193	2,535,092	1,953,870
Line-pack changes	875	1,963	34,757	7,941	−18,418	2,123	20,936	−15,523	13,105	26,228	−32,928	28,457	69,516
Gas to storage		77,248	80,817	86,310	89,752	98,186	90,527	57,422	26,106		7,326		613,694
Sales—													
Residential	4,813,452	5,436,426	4,065,868	3,407,627	2,651,774	1,579,781	1,096,304	889,997	901,292	1,725,921	2,932,348	3,973,364	33,474,144
Commercial	3,238,129	3,838,767	2,776,832	2,466,553	1,898,026	1,214,398	2,029,369	−82,785	1,056,247	1,563,903	3,363,976	2,935,190	26,298,605
Industrial	3,516,368	4,133,604	4,692,461	4,881,612	4,864,485	4,348,651	3,872,683	4,497,909	4,483,272	5,292,837	5,608,971	4,359,277	54,552,130
Electric power	60,548	133,547	48,672	31,549	301,772	274,300	87,786	494,500	1,692,684	1,353,405	903,584	279,161	5,661,508
Total sales	11,628,497	13,542,344	11,583,833	10,787,341	9,716,057	7,417,130	7,086,142	5,799,621	8,133,495	9,936,066	12,808,879	11,546,992	119,986,387
Value to distributors	9,750,557	9,310,153	9,096,593	7,809,571	6,060,340	4,986,405	3,679,091	4,369,988	5,861,474	7,323,002	9,294,777	10,548,516	88,090,467

TABLE 29—MONTHLY PRODUCTION AND DISPOSITION OF BUTANE, PROPANE, AND SULPHUR, 1972

(Quantities in barrels of 34.9723 Canadian gallons at 60°F)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Butane													
Production (bbl.)—													
Plant	47,378	32,629	16,211	13,621	17,762	12,948	12,074	29,462	32,217	38,346	34,572	53,684	340,904
Refinery	47,414	51,405	64,547	74,625	33,562	84,314	66,575	60,106	45,818	44,383	55,147	36,923	664,819
Opening inventory	5,254	8,248	14,004	10,640	13,511	8,679	10,147	12,414	11,786	12,048	9,576	12,003	5,254
Gasoline enrichment	28,545	29,212	25,444	12,388	6,139	14,968	16,435	18,854	23,835	29,244	27,616	25,352	258,032
Plant fuel	4,960	3,736	32,646	35,136	10,858	45,066	21,844	28,941	16,980	16,283	15,531	10,150	242,131
Losses and adjustments	———	4,507	—200	———	7,037	———	476	———	———	———	———	———	11,820
Sales—													
British Columbia	57,192	37,154	25,690	28,807	27,808	22,525	32,159	38,021	34,263	38,206	42,911	52,297	437,033
Alberta	———	746	———	———	———	———	———	———	———	———	———	———	746
Export—U.S.A.	1,101	2,923	542	9,044	4,314	13,235	5,468	4,380	2,695	1,468	1,234	2,302	48,706
Total sales	58,293	40,823	26,232	37,851	32,122	35,760	37,627	42,401	36,958	39,674	44,145	54,599	486,485
Closing inventory	8,248	14,004	10,640	13,511	8,679	10,147	12,414	11,786	12,048	9,576	12,003	12,509	12,509
Propane													
Production (bbl.)—													
Plant	39,888	26,798	49,833	46,332	25,052	35,295	28,536	40,901	40,290	39,666	48,982	58,474	480,047
Refinery	45,034	52,478	27,002	24,533	21,441	28,715	35,031	38,097	31,817	42,416	42,642	44,840	434,046
Opening inventory	9,920	8,831	10,268	16,369	25,089	13,823	21,423	14,730	10,110	19,610	15,262	18,027	9,920
Plant fuel	———	9,398	———	1,473	———	2,489	6,001	———	2,513	4,679	2,579	———	29,132
Losses and adjustments	—845	6,069	—54	557	9,138	95	644	—14	—9	—2	—4	———	15,575
Sales—													
British Columbia	86,856	62,372	70,788	52,682	48,621	31,915	61,450	66,663	48,052	65,542	86,284	106,226	787,451
Export—													
Northwest Territories	———	———	———	———	———	———	———	———	———	———	———	———	———
U.S.A.	———	———	———	———	———	———	———	———	———	———	———	———	———
Offshore	———	———	———	7,433	———	21,911	2,165	16,969	12,051	16,211	———	———	76,740
Total sales	86,856	62,372	70,788	60,115	48,621	53,826	63,615	83,632	60,103	81,753	86,284	106,226	864,191
Closing inventory	8,831	10,268	16,369	25,089	13,823	21,423	14,730	10,110	19,610	15,262	18,027	15,115	15,115
Sulphur													
Production (long tons)	6,187	5,865	6,012	5,863	2,077	3,551	4,432	4,575	5,589	7,040	7,590	7,615	66,396
Opening inventory	79,264	78,002	80,454	79,286	83,669	83,982	85,501	87,993	88,111	88,673	87,930	89,125	79,264
Losses and adjustments	———	———	———	———	———	———	———	———	———	———	———	———	———
Sales—													
British Columbia	1,970	2,675	5,107	674	792	377	325	3,570	4,035	5,442	4,534	129	29,630
Export	5,479	738	2,073	806	972	1,655	1,615	887	992	2,341	1,861	1,506	20,925
Total sales	7,449	3,413	7,180	1,480	1,764	2,032	1,940	4,457	5,027	7,783	6,395	1,635	50,555
Closing inventory	78,002	80,454	79,286	83,669	83,982	85,501	87,993	88,111	88,673	87,930	89,125	95,105	95,105

TABLE 30—MONTHLY GROSS VALUES TO PRODUCERS OF CRUDE OIL, NATURAL GAS, NATURAL GAS LIQUIDS, AND SULPHUR, 1972

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	$	$	$	$	$	$	$	$	$	$	$	$	$
Crude oil	5,313,823	5,154,025	5,465,442	5,339,608	5,418,362	5,290,889	5,351,736	5,233,256	5,135,497	5,297,223	5,198,893	5,245,032	63,443,786
Natural gas	3,982,461	3,680,019	3,818,123	3,681,259	3,316,712	3,032,318	2,696,669	2,826,022	3,077,539	3,621,502	3,838,315	4,045,885	41,616,824
Products—													
Natural gas liquids[1]	52,831	37,662	53,905	53,095	27,787	46,149	52,430	54,177	51,639	50,728	50,842	53,123	584,368
Sulphur	----	----	----	----	----	----	----	----	----	----	----	----	----
Total products	52,831	37,662	53,905	53,095	27,787	46,149	52,430	54,177	51,639	50,728	50,842	53,123	584,368
Total value	9,349,115	8,871,706	9,337,470	9,073,962	8,762,861	8,369,356	8,100,835	8,113,455	8,264,675	8,969,453	9,088,050	9,344,040	105,644,978

[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 February 15, 1973.

TABLE 31—CRUDE-OIL PIPE-LINES, 1972

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	2,758	74,800
	Fort St. John	----	----	----	----	----	----	221	----
	Inga	6⅝	1.7	1	12,500	12,500	----	10,080	1,000
	Stoddart	----	----	----	----	----	----	100	----
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]	84.1	61,072	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	11.9	3,000	----
Westcoast Petroleum Ltd.		12	505.0	12	70,000	70,000	----	58,856	586,000

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

TABLE 32—CRUDE-OIL REFINERIES, 1972

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	34,500	2,950,000	Catalytic-fluid	11,700	Catalytic polymerization, powerformer, toluene extraction, LPG plant.
Pacific Petroleums Ltd.	Taylor	Comp.	1960	B.C.	10,500	1,147,060	FCCU	3,500	H.F. alkylation, asphalt, pentane splitter, platformer, unifiner, HDS unit, DDS unit.
Shell Canada Limited	Shellburn	Comp.	1932	B.C. and Alberta	20,500	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, 1972

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	39.1	—	—	528,000	—	3,730.0	
		24	12.2	—	—	—	—	—	
		20	44.2	—	—	—	—	—	Lower Mainland of British Columbia.
		18	37.3	—	—	—	—	—	
		16	17.4	—	—	—	—	—	
		12	79.8	—	—	—	—	—	
Columbia Natural Gas Ltd.	Alberta Natural Gas Co. Ltd.	8	56.1	—	—	85,550	8	1.7	
		6	70.4	—	—	—	6	2.9	Cranbrook, Fernie, Kimberley, Creston, Sparwood, Elk Valley, Skookumchuck, Elko, Elkford, and Yahk.
		4	22.8	—	—	—	4	10.4	
		3	27.6	—	—	—	3	18.9	
		2	0.5	—	—	—	2	34.4	
							1¼	45.2	
Gas Trunk Line of British Columbia Ltd.	Beg field	—	—	1	1,000	—	16	27.4	
							6⅝	5.7	
	Boundary Lake field	—	—	—	—	—	16	31.4	
							6⅝	1.8	To Westcoast Transmission Co. Ltd.
	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	1,100	120,000	8	12.4	
		10	119.1	1	2,200	—	6	27.1	
		8	22.9	—	—	—	4	148.3	Mackenzie, Hudson Hope, Chetwynd, Prince George, Cariboo, North Okanagan, Okanagan, and West Kootenay areas.
		6	99.9	—	—	—	3	84.5	
		4	142.0	—	—	—	2	513.7	
		3	67.0	—	—	—	1½	20.7	
		2	69.3	—	—	—	1¼	158.2	
		1¼	3.5	—	—	—	—	—	
Northland Utilities (B.C.) Ltd.	Peace River Transmission Co. Ltd.	3	2.0	—	—	10,900	10	0.4	
		2	0.4	—	—	—	8	1.6	
		1¼	3.2	—	—	—	6	2.7	
							4	12.1	Dawson Creek, Pouce Coupe, and Rolla.
							3	5.0	
							2	24.6	
							1¼	14.9	
							¾	0.6	
Pacific Northern Gas Ltd.	Westcoast Transmission Co. Ltd.	10¾	272.0	2	3,150	54,000	6	2.5	
		8⅝	86.9	—	—	—	4	10.6	
		6⅝	36.5	—	—	—	3	16.3	Vanderhoof, Fraser Lake, Burns Lake, Smithers, Terrace, Prince Rupert, Kitimat, Houston, Fort St. James.
		4½	13.7	—	—	—	2	35.6	
		3½	44.0	—	—	—	1¼	28.2	
		2⅞	39.0	—	—	—	¾	18.7	
		1⅜	3.2	—	—	—	—	—	

Plains Western Gas & Electric Co. Ltd.	Westcoast Transmission Co. Ltd.	6	0.3	—	—	—	4	13.8	
		4	17.0	—	—	—	3	2.0	
		3	5.7	—	—	—	2½	1.5	
		2	0.9	—	—	—	2	37.4	Fort St. John, Taylor, Grandhaven, Charlie Lake, Airport.
							1½	1.0	
							1¼	0.1	
							1	6.3	
							¾	1.3	
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	—	—	
	McMahon Plan—Willow Flats	30	76.6	13	263,690	1,320,000	—	—	
	Willow Flats—Huntington	36	570.0				—	—	
	Alaska Highway system	—	422.1	—	—	—	26	37.5	
							20	18.1	
							18	17.9	
							12¾	9.9	
	Beaver River	24	110.9	—	—	350,000	—	—	
	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	To Plains Western Gas & Electric Co. Ltd., Inland Natural Gas Co., British Columbia Hydro and Power Authority, and export to the United States.
	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	823,000	—	—	
	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	2,160	—	—	—	
	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, 1972

Operator	Location	Fields Served	Plant Type	Year of First Operation	Plant Capacity, Million SCF/Day		Natural Gas Liquids	Residual Gas to—
					In	Out		
Amoco Canada Petroleum Company Limited	Units 68, 69, Block J, NTS map 94-N-16	Beaver River	Dehydration	1971	247	239.5		Westcoast Transmission Co. Ltd.
Imperial Oil Ltd.	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, NTS 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	435	400	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, NTS map 94-J-10	Beaver River, Clarke Lake, Yoyo	Potassium carbonate M.E.A DEA absorption, dehydration	1965	1,130	960		Westcoast Transmission Co. Ltd.

TABLE 35—SULPHUR PLANTS, 1972

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 amended by repealing Rule 207 of section 28 and replacing it with a rule prohibiting the possession of intoxicating liquor in or about a mine and prohibiting persons from working in or about a mine when their capacity to work safely is impaired for any reason.

Rule 210 was amended to extend the provisions to include not only the installation and maintenance but also the operation of electrical equipment.

Rule 225 was added to insure that building construction at mining operations will be done in compliance with satisfactory building standards.

In addition, Order in Council 3200, dated August 24, 1972, invoked the application of section 8 of the Act at all underground coal mines in production on or after April 2, 1969.

MINES REGULATION ACT

The *Mines Regulation Act* was amended by repealing Rule 280 of section 23 and replacing it with a rule prohibiting the possession of intoxicating liquor in or about a mine and prohibiting persons working in or about a mine when their capacity to work safely is impaired for any reason.

Rule 309 was amended to extend the provisions to include not only the installation but also the maintenance and operation of electrical equipment.

Rule 315 was added to insure that building construction at mining operations will be done in compliance with satisfactory building standards.

FATAL ACCIDENTS

Seventeen fatalities in 15 accidents occurred to persons employed at 11 mining operations. Of these accidents, one occurred at a gravel-processing plant, two at coal mines, three in connection with open-pit mining, and the remaining 12 at underground metal-mining operations. The settings of the accidents were equally divided between surface and underground locations. The total represents an increase of 6 over the 11 that occurred in 1971, and is greater than the past 10-year average of 14.6.

The following table shows the mines at which fatal accidents occurred in 1972, with comparative figures for 1971:

Company or Place	Location	Number of Fatal Accidents	
		1972	1971
Mines other than coal—			
Baroil of Canada Ltd.	Spillimacheen	1	—
Bethlehem Copper Corporation Ltd.	Highland Valley	—	1
Butler-Lafarge Ltd.	Duncan	—	1
Churchill Copper Corporation Ltd.	Delano Creek	—	1
Cominco Ltd.	Kimberley	1	—
Giant Mascot Mines Ltd.	Choate	5	—
Giant Metallics Mines Ltd.	Sandon	1	—
Gibraltar Mines Ltd.	McLeese Lake	—	1
Granduc Operating Co.	Stewart	3	1
Haste Mine Development Ltd.	Stewart	1	—
KRC Operators Ltd.	Revelstoke	1	—
Lornex Mining Corporation Ltd.	Highland Valley	—	2
Utah Mines Ltd.	Port Hardy	1	1
Western Mines Ltd.	Myra Falls	1	—
Coal mines—			
Fording Coal Ltd.	Fording River	—	1
Kaiser Resources Ltd.—			
Balmer Hydraulic	Michel	1	—
Balmer North	Michel	1	—
Elkview preparation plant	Michel	—	2
Totals		17	11

The following table classifies fatalities as to cause and location:

Cause	Number	Location	
		Surface	Underground
Avalanche	4	4	—
Fall of ground	5	—	5
Fall of persons	2	1	1
Transportation—			
(*a*) Capsized vehicle	1	—	1
(*b*) Caught in vehicle	2	1	1
(*c*) Crushed by vehicle	2	2	—
(*d*) Runaway vehicle	1	—	1
Totals	17	8	9

A description of each fatal accident follows:

Fredrick J. Wehner, mill foreman, aged 48 years, married; *Stefan Mista,* mill mechanic, aged 47 years, married; and *Walter Russell Morphy,* mill mechanic, aged 51 years, widower, lost their lives on March 5 when buried by an avalanche on the Pride of Emory mine road of Giant Mascot Mines Limited.

This copper-nickel mine is in the Coast Mountains in an area where the annual snowfall is often in excess of 50 feet. The 5.2-mile-long road from the highway at Choate to the mine portal follows the north side of Texas Creek. Between mileage points 3.0 and 4.5 it crosses what is called the "Bluffs" slide area where snowslides occur frequently. During the night, prior to the accident, 4 inches of snow fell and was followed by heavy rain which continued throughout the day.

On the morning of March 5 the crew bus was blocked *en route* to the mine by a snowslide at the Big Draw, 3.4 miles from the highway. The bus returned to Hope with all passengers but Messrs. Wehner, Mista, and Morphy, who had been requested to remain in order to complete urgent work at the concentrator. These men remained at the slide until two bulldozers, working down from the camp, cleared the road down to that point. One of the bulldozers started back to camp, again clearing off the slides, and was followed by the three men who were riding in the cab of a pickup truck. About 1 p.m. at the 3.9-mile mark, the truck was proceeding at about 10 miles per hour when a slide about 40 feet in length struck it, burying the cab in 6 feet of snow.

An unsuccessful attempt was made to push the snow off the front of the pickup truck. Subsequently a bulldozer removed the snow from the back and endeavoured to pull the truck out by its bumper, which tore off. An attempt was made to dig the snow out by hand before shovels were obtained from the camp. When once uncovered, the cab roof was found to be crushed down, the front windshield pushed in, the back window broken, the driver's window pushed out, and the cab choked with snow. The men were recovered at 1.15 p.m., but were pronounced dead by the attending doctor.

Autopsies performed on all individuals indicated in all instances death had occurred from asphyxiation and carbon monoxide intoxication. The analysis performed on one individual indicated a 65-per cent carbon monoxide tissue and blood saturation. It is presumed the snow had packed so tightly about the driver, F. Wehner, that he was unable to stop the motor, and as the vehicle was blanketed in snow there was a very rapid build up of carbon monoxide before the motor stalled from lack of oxygen.

At the inquest held in Hope on May 15, 1972, the verdict returned by the jury was as follows:

"We, the jury having been duly empanneled, find that Frederick Joseph Wehner of 465 Thacker Ave., Hope, B.C. aged 47 years, Walter Russell Morphy of R.R. #2, Rosedale, B.C. aged 51 years, and Stephen Mista of 3980 Boundary Road, Yarrow, B.C. aged 46 years, died on the 5th day of March 1972 as a result of asphyxiation by carbon monoxide poisoning.

"We find that these deaths were unnatural.

"We find that management should have turned the pickup back at the same time the bus was turned back, due to unsafe road conditions.

"We recommend that:

1. Road be closed when extreme winter conditions prevail.
2. Proper communication should be on road when extreme winter conditions prevail, such as two-way radios etc."

The Chief Inspector recommends that, where mining operations are located in areas of high avalanche potential, the operators should, if work continues during the winter periods, avail themselves each winter of competent professional advice on avalanche forecasting and control. They should also insure there is a sufficient number of adequately trained employees to implement the programme recommended.

Albert Edward Sellar, aged 31 years, single, and employed as a miner at the Granduc mine of Granduc Operating Company, Stewart, was fatally injured on April 27, 1972. Sellar was operating a canopy-covered drill jumbo on 3230 sublevel drilling upholes in the vicinity of B2 slot raise.

No person witnessed the accident but, apparently while Sellar was drilling, somewhat less than a ton of rock fell from the drift back and onto the steel canopy of the drill jumbo. The momentum of the mass collapsed the canopy on top of Mr. Sellar, forcing him down onto the jumbo control levers where he sustained fatal head injuries. The canopy was constructed from two sheets of ⅛-inch steel plate strapped together and supported at each of the four corners with 2-inch-diameter steel pipes.

As loose ground had been reported at the face of the subdrift, the shiftboss visited the working-place twice earlier in the shift before he found Sellar crushed on the jumbo controls. On the first visit, the shiftboss and Sellar scaled all obvious loose ground at the working-place. On the second visit, they again checked for loose ground. Somewhat later, about a half hour before the accident was discovered, two mechanics visited the work heading to repair one of the jumbo drills but left when advised by Sellar that he would make the necessary repairs. They advised the jury they had noted a considerable amount of loose ground over the booms and to the left of the machine.

At the inquest held in Stewart on May 30, the verdict given by the jury was as follows:

"We, the jury, having been duly empanelled, find that: Albert Edward Sellar of Tide Lake, aged 31 years, died at Granduc Operating Company on the 27th day of April, 1972. Cause of death—falling rock. We find that his death was accidental, no blame attached.

"We recommend that places reported to have bad ground to be checked by shiftboss and mine foreman before working in the heading. Also the canopy should be redesigned and made uniform for greater strength."

Arnold Edward Noiles, aged 25 years, married, and employed as a miner at the Pride of Emory mine of Giant Mascot Mines Limited, died on June 12, 1972, from injuries sustained on May 29, 1972, when he fell approximately 200 feet while climbing the ladders in 26-172 spiral raise. This raise has an average inclination of 52 degrees.

The deceased and his partner were carrying tools and equipment to the raise face, which was about 270 feet above 26 level. They had made one trip up with each carrying a 2 by 10-inch plank 6.5 feet long. They both descended about 50 feet where the partner picked up a stoper drilling machine and carried it to the raise face. They descended to the bottom where the partner picked up another plank and preceded Noiles who was carrying a steel sprag up the raise. They proceeded about 220 feet up the raise and rested about 10 feet below a knuckle. On recommencing climbing, the partner went around the knuckle and then heard a thud and the steel sprag hitting the rock. There followed a brief interval of silence and then he heard the noise of falling muck and the steel sprag falling down the raise.

The partner climbed back around the knuckle and as there was no sign of Noiles he descended to the bottom where he found Noiles unconscious at the foot of the raise. Help was obtained and Noiles was removed from the mine and taken by ambulance down the road to where the doctor met them as he was *en route* to the mine. Noiles was, because of the severity of his injuries, transferred from the hospital in Hope to that in Chilliwack and then to the Royal Columbian Hospital in New Westminster. He did not regain consciousness and died of brain injuries resulting from a hairline fracture of the skull.

The investigation of the working-place by the Inspector indicated several of the ladders had been improperly installed and scaling of loose rock was inadequate but, at the point from whence Noiles fell, the raise was in satisfactory condition. The Inspector was unable to determine why Noiles had fallen.

The inquest was held in Hope on October 20, 1972, and the verdict given by the jury was as follows:

"We the jury find that Mr. Noiles, because of going up and down the raise rapidly and strenuous climbing with perhaps little rest, he suffered a 'faint dizziness' causing him to fall over backwards, or any other way, and fell all the way to the bottom. We feel that this is the only reasonable explanation for the accident."

James Mills McKay Williams, aged 56 years, married, and employed as a carpenter at the Mount Copeland mine of KRC Operators Ltd., met death by asphyxia in a snowslide at the millsite on June 20, 1972.

Mount Copeland molybdenum mine is at an elevation of over 6,000 feet and is in an area of heavy snowfall. In the winter of 1971/72 the recorded snowfall was in excess of 1,000 inches.

After lunch on the day of the accident, Williams was commencing repairs to a damaged wood-box tailings flume about 100 yards from the millsite. The flume was located in a ditch on the inside of the road at the foot of a rock cut rising at a 50-degree slope angle for a distance of 17 feet to the top. The snow that had accumulated on the cut face during the winter had not completely melted but was undermined on the up-hill face.

About an hour after Mr. Williams was last seen alive, a fellow workman passing the spot noted that a portion of the snow bank had broken out and had fallen onto Williams, whose feet were protruding out of the snow. The victim was dug out immediately and given artificial respiration, then flown by helicopter to the Revelstoke hospital, where the doctor pronounced Williams was dead on arrival.

As there were no witnesses to the accident, the events can only be conjectured from the evidence found. It is believed Mr. Williams was either bending or kneeling over the flume box when an 11-foot section of the overhanging snow-ice slab broke off and dropped onto him. It is estimated the slab weighed about 1,000 pounds and its impact drove him down so tightly to the box it fractured a number of his ribs and prevented him from breathing or moving, thus causing death by asphyxia.

At the inquest held in Revelstoke on July 14, 1972, the jury returned the following verdict:

"James Mills McKay Williams came to his death accidentally between the hours of 2:00 p.m. and 3:00 p.m. on Tuesday 20 June 72, at King Resources mines approximately 20 miles northwest of Revelstoke. Death was caused by a large body of snow naturally falling down on him crushing his chest and causing termination of breathing."

James Albert Childs, aged 18 years, single, and employed as an underground labourer in the Lynx mine of Western Mines Limited, at Myra Falls, died from

asphyxia by suffocation on June 21, 1972, when caught between a locomotive battery box and a dump rail.

Childs was working on the late afternoon shift and at about 1 a.m. was seen working alone endeavouring to retrack a derailed 1½-ton battery locomotive at a track switch by the 14-level ore-pass dump. Approximately an hour and a half later another workman found Childs jammed between the battery box of the locomotive and the dump rail. The locomotive had jumped the track and was topped into the dump cutout. The battery box had caught Childs in the back and was pushing his chest solidly into the dump rail. His feet were off the ground above the dump door.

A chain block was obtained and with the help of four men it required almost half an hour to release him. During this procedure mouth-to-mouth resuscitation was given and subsequently again in conjunction with the Holger-Nielson method when he was brought to the surface at 3 a.m. He was transported by ambulance to the Campbell River hospital where, shortly after 4 a.m., he was pronounced dead. He had apparently died of asphyxia caused by suffocation by not being able to breathe as he was pushed so tightly between the battery box and the dump rail.

As there were no witnesses to the accident, the sequence of events can only be conjectured from the evidence found. The last person to see Childs said he saw Childs from a point about 200 feet away and that the locomotive was off the track on the opposite side to the ore pass and was tipping away from the ore pass. This would have positioned the locomotive in the vicinity of the kick-switch outby the dumping-ramp. The switch directs rail traffic either to the shaft station or to a car storage tail track. A partly loaded muck car, presumed to have been used by Childs, was parked on the station track.

It is presumed that the locomotive had derailed at the kick-switch, although there was no actual evidence to verify the presumption. Evidence given did indicate though, that difficulty had been experienced in the past in getting locomotives to make the turn and that they had to be barred around to avoid derailing.

A jack, some ties, and wooden blocks were between the track and on the dumping ramp side of the track at the kick-switch. It is presumed these were being used to rerail the locomotive. However, the locomotive was found some 5 or 6 feet ahead of the jack and blocking and on the opposite side of the track. It is not known how it got there, but the possibility exists that the motor power was used to drive it ahead. It is also not known how Childs came to be between the battery box and dump bar unless he was just passing it when it toppled on him or he was endeavouring to rock it back. These movements are questionable because Childs' feet were not touching the ground. The possibility was also raised that Childs may have been standing at the side of the locomotive and operating the controls or have been standing within it, but in either case, may have been confused in the direction of movement of the locomotive in response to a change in control position.

An inquest was held in Campbell River on July 12, 1972, at which the following verdict was given by the jury:

"We, the jury having been empanelled, find that James Albert Childs of 405 Westgate Road, Campbell River, aged 18 years, died on the 21st day of June 1972 as a result of being crushed between a locie and a guard rail.

"We find that this death was unnatural and that it was accidental.

"We find that the supervisory personnel at Western Mines Ltd., was negligent in not providing adequate training and supervision over their employee James Childs.

I. We recommend that a proper training period for mine personnel be set up from recommendations from the department of mines.
II. We recommend that no track switches be allowed in (the) immediate vicinity of ore passes.
III. We recommend standardization of controls on locies and adequate marking of these controls."

Comment—As the third paragraph and the first recommendation infer incompetence in the supervision and training of employees, the management of Western Mines Limited made further investigations in these matters subsequent to the inquest. The information forwarded is summarized as follows and would appear to refute the inference made in the jury's verdict:

"(1) Because of a union meeting on the evening of June 21st, the late afternoon or 'twilight' shift commenced work at 8:00 p.m. instead of 7:00 p.m. and continued to 4:00 a.m. instead of the regular time of 3:00 a.m.

"(2) Re employee supervision:

"The shiftboss and mine captain had either contacted or visited Mr. Childs at the following noted times:

(*a*) 8:00 p.m.—shiftboss issued instructions to Childs at start of shift.
(*b*) 9:00 p.m.—shiftboss visited Childs' working place giving instructions re moving of timber.
(*c*) 10:20 p.m.—shiftboss visited Childs' working place issuing instructions re cleanup of ditch and concerning water control.
(*d*) 11:00 p.m.—mine captain visited Childs at his working place.
(*e*) 12:00 p.m.—mine captain again visited working place.
(*f*) 2:55 p.m.—shiftboss visited accident scene.

"(3) Re employee training.

"(*a*) Since April 5th Childs worked at least 33 shifts assisting a motorman; receiving training in the operation of a locomotive; and operating a locomotive. The inquest witness who stated he 'had not seen the deceased operate a locomotive before' the accident, admitted during the subsequent investigation that he had worked with the deceased during locomotive tramming operations and had seen the deceased operate a locomotive on several occasions."

Leonard Steven Smith, aged 21 years, married, and employed as a mucking-machine operator at the Pride of Emory mine of Giant Mascot Mines Limited near Hope, was fatally injured on Jnue 22, 1972, when struck by rocks at 4607 drawpoint on 2950 level.

On June 22, Mr. Smith was operating a mucking machine, loading cars of ore at 4607 drawpoint. At about 11 a.m. he went to an adjacent drawpoint to inquire if the operator of the mucking-machine there intended to do any blasting at his drawpoint. On being told that none would be done, Smith returned to his own working-place. Almost immediately after, the man to whom Smith had spoken came to Smith's working-place and found him lying across the tracks at the toe of the drawpoint muck pile with three large rocks on top of him. One rock was on his left leg, one was on his abdomen, and a third one was on his head, squeezing it against another large rock in the muck pile. Smith was removed and taken to the mine portal, where a doctor examined him and pronounced him dead. The subsequent autopsy indicated death was due to asphyxia.

It is not known if Smith actually intended to blast at the drawpoint, but the mucking-machine had been withdrawn to a position normally used when blasting is undertaken.

Employee records indicate Mr. Smith has intermittently operated mucking-machines since July 5, 1971, and on four different occasions was doing so under the direction of an instructor. Two of the four occasions were at mucking-machine drawpoint operations. His period of training extended from July 5, 1971, to April 8, 1972, at which time he was classified as a mucking-machine operator.

At the inquest held in Hope on September 28, the jury gave the following verdict:

"We, the Jury, having been duly empanelled find that Leonard Steven Smith of Hope, B.C., aged 22 years, died at 10:30 A.M. on June 22, 1972, as a result of the fall of rock and suffocation. We find that this death was unnatural and that it was accidental. We find that no person was to blame and we attach no blame to any person in connection with the death. We recommend that the mine inspector and Giant Mascot Mines investigate safer ways to bring down drawpoint hang-ups in the future. As an example, drive an access for blasting down hang-ups and instruct all muckers not to enter past the collar of a drawpoint and enforce this last recommendation."

The District Inspector of Mines recommended the most desirable approach would be to endeavour to remove the cause of hang-ups by improving fragmentation in primary blasting. His further recommendation of improved job instructional training is concurred with.

Thomas Francis Picciano (alias K. Thomas Burnside), aged 29 years, and employed as a table operator by Baroid of Canada Ltd., at Spillimacheen, died on August 1, 1972, from injuries received when crushed between a front-end loader and a tailings feed hopper.

Mr. Picciano was working with the operator of a Michigan front-end loader supplying a barite recovery plant with sands from the tailings dump of the now closed Silver Giant mine. It was decided the bucket required cleaning, so the loader was backed off to clear the feed hopper. As the bucket was being lowered, the driver decided to hasten the operation by accelerating the engine. However, somehow, during the course of these actions, the vehicle gear-shift lever was inadvertently placed in the forward position with the result that, on acceleration, the vehicle shot forward. As Mr. Picciano had walked in front of it, he was crushed between the loader and the hopper.

At the inquest held in Invermere on October 17, the jury's verdict was as follows:

"Thomas Francis Burnside real name Thomas Francis Picciano of Brisco, B.C. and born in New Jersey, U.S.A. came to his death by being crushed between a loader and a Hopper and died on way to Hospital at Invermere, B.C. Death occurred on August 1st, 1972, between 11:30 am and 12 NN. The death was unnatural and accidental. Hemmorhage was immediate cause of death. We attach no blame to any person.

"Recommendations:

1. A longer and better approach be made to the Hopper.
2. Loader be parked in neutral and parking brake applied while maintenance is being done.
3. We further recommend a more qualified first aid man be employed and in situations of this type a first aid man accompany accident victim to Hospital."

Johann Ganglbauer, aged 36 years, married, and employed as a miner by Haste Mine Development Ltd., was fatally injured on August 6, 1972, by a fall of rock at the face of 2810 decline of Granduc mine.

The deceased and his partner, working on graveyard shift of August 5, had drilled a round of holes at the decline face and then blasted them. Shortly after 6 a.m. they returned to the drift heading and commenced baring to bring down any loose ground. The partner, on hearing a fall of rock behind him, turned around to see Ganglbauer had been knocked down and that Ganglbauer uttered a prolonged scream, after which he was silent.

On checking the area afterward it was determined from 2 to 3 tons of rock in large fragments had fallen from the drift back in an area well defined by slip joints and mud slips. Ganglbauer had been struck on the head with a rock estimated to weigh 600 pounds and two larger pieces had landed on his body. Death was presumed to have been instantaneous.

At the inquest held in Stewart on August 7, 1972, the jury's verdict was as follows:

"We the jury having been duly empanelled, find that Johann Ganglbauer of Tide Lake, P.O., Stewart, B.C., of approximately 35 to 40 years of age died on August 6, 1972, as a result of asphyxiation and cerebral injuries, due to falling rock. We find that his death was unnatural and it was accidental. We attach no blame to any person in connection with this death. We recommend that more caution be taken where men are required to work in bad rock conditions. This was a unanimous decision."

Michael Lysohirka, aged 44 years, married, and employed as a miner at the Sullivan mine of Cominco Ltd., at Kimberley, died on August 30, 1972, from injuries received when struck by a fall of rock in 30134 Sub O sublevel in 6-36 block of the Below 3900 section.

Lysohirka, a miner with several years' experience, and his partner had been instructed to continue a short ventilation raise being driven from sublevel 30134 Sub O to subdrift 32134 Sub Y. On arriving at their working-place they found a breakthrough had occurred to the sublevel. The breakthrough had followed a slip plane when the previous round had been blasted. In order to render the working-place safe, Lysohirka commenced scaling on 30134 Sub O on the north side of the collar of the raise while the partner, about 20 feet away, was scaling in 32134 Sub Y in the vicinity of the breakthrough.

Shortly after commencing scaling, the man at the top of the raise heard a large fall of rock. He called to Lysohirka to inquire if he was all right, and on not receiving a reply immediately investigated and found Lysohirka partially buried in broken rock. On seeing Lysohirka was seriously injured about the head and body, he removed him from the fallen ground in order to avoid further injury. The partner obtained assistance without delay, the necessary first-aid treatment was given, and the injured man was taken to the surface and thence to Kimberley hospital, where he died about 5 hours after the accident.

An investigation of the accident scene indicated from 1 to 2 tons of rock had fallen from an area where several slips and planes of weakness were evident.

The inquest was held in Kimberley on September 28, 1972, and the jury returned the following verdict:

"On the morning of August 30, 1972, in block 6-36 30134SO Sullivan Mine, Kimberley, B.C., Mike Lysohirka died of head injuries sustained from falling rocks. The injuries sustained are ruled to be accidental and due entirely to natural causes.

"Recommendations:—

1. We recommend that all employees be provided with the knowledge and means to accomplish their working tasks safely. If this involves

the installation of a platform to provide a safe working stage, so be it.

2. We re-iterate the necessity of reviewing exits with the crews to ensure the knowledge of safe and expedient methods of removing the injured in the case of emergency.
3. We suggest that the clause in the Mines Act which stipulates the necessity of first aid coverage based on the number of men on shift be reviewed by the Commissioner of the Mines Act. Further that the management bear in mind the employees have first aid experience in order that they may be dispersed amongst the crews in as even a manner as possible. Finally we commend all personnel involved in this tragic accident for their fine performance."

John Allan Smith, aged 28 years, married, and employed as a mill mechanic at the Tide Lake concentrator of Granduc Operating Company, died on September 19, 1972, as a result of injuries received in a fall in the secondary crushing plant on September 5, 1972.

Smith and two fellow workmen were, with the aid of an overhead crane, removing a temporary installation of three boiler plates covering the secondary feed screen. The deceased was operating the crane push-button control while standing on the platform adjacent to the screen. Two of the three plates had been removed. In removing the third it was found that the crane installation was such that it could not be centred immediately over the plate, so that the pull was being made at an angle off vertical. The plate apparently jammed, so Smith leaned over the platform to determine the reason. One of the partners cautioned him to move out of the way but Smith did not do so. The other partner endeavoured to dislodge the plate by kicking it. It released suddenly and swung toward Smith, but no one saw it strike him; however, he was seen falling and striking the crusher platform guard-rail and then onto the catwalk floor below. He was flown to Vancouver, where he died in hospital on September 19, 1972.

There was no inquest, but the Coroner's Inquiry held in Vancouver on September 29, 1972, reached the following conclusion:

"Post mortem findings indicated gastro-intestinal hemorrhage, duodenum ulcer, partial severance of spinal cord and fracture and dislocation of 4th and 5th cervical vertebrae.

"Opinion of coroner and investigation report by a member of the R.C.M.P., Stewart would indicate that the deceased was struck by a falling steel plate from an overhead crane on September 5, 1972. As a result of which he was hospitalized and subsequently expired in St. Pauls Hospital. His death is therefore classified as accidental."

Raymond Lalonde, aged 22 years, and employed as a miner in Granduc mine of Granduc Operating Company, was killed on September 8, 1972, when the Unimog truck he was driving capsized in No. 2 ramp below 3260 level.

Lalonde was driving a scooptram on 3290 level and had stopped the engine because of overheating. On attempting to restart the vehicle he exhausted the starting supply of compressed air. He then went down No. 2 ramp to 3260 level to get the operator of another scooptram to bring his vehicle up to 3290 level to give a compressed-air boost to the stopped machine.

The second operator drove his vehicle to the ventilation door of the 3260 level access to No. 2 ramp. Lalonde opened the ventilation door and on seeing a Unimog truck blocking the route up to 3290 level he got into the truck, started the motor,

and proceeded to back down the ramp. The scooptram proceeded up the ramp to 3290 level where the operator stopped and waited for Lalonde. As Lalonde did not appear within a few minutes, the operator moved his vehicle back to look down the ramp. He noted the Unimog lights and presumed it was stuck for some reason, so he went down to investigate. He found the Unimog had capsized on top of Lalonde, whose legs were sticking out by the steering-wheel. The Unimog was raised from Lalonde, who was then removed. On checking the injured man no pulse could be determined. He was removed to the Stewart hospital, where he was pronounced dead on arrival.

The post mortem examination indicated death was due to suffocation resulting from a crushed chest. A blood anaylsis indicated an alcohol content of 0.04 per cent.

A mechanical check of the Unimog indicated it was in satisfactory condition. It was also noted that it had been equipped with oversize tires as the standard size for this vehicle is not available in Canada.

The inquest was held in Stewart on October 17, 1972, and the verdict returned by the jury was as follows:

"We, the jury, having been duly impanelled, find that Raymond Lalonde of Tide Lake, aged 22 years, died on September 8, 1972 at approximately 2.15 a.m. at the 3260 level of the Granduc Mine as a result of suffocation due to a severe crushing injury to the chest when the 1458 Unimog overturned on him. We find that his death was unnatural and that it was accidental. We recommend that all Unimogs used by Garnduc Operating Company be equipped with roll bars and that all Unimogs be equipped with standard tire size according to the manufacturer's specification."

Subsequent to the accident, all Unimogs operating underground have been equipped with roll-bar protection, new seats, safety belts, and, to prevent unauthorized use, ignition keys. Several additional safety modifications are contemplated, including separate emergency air-brakes, improved more rigid suspension, smaller tires, air-assisted hydraulic brakes, nonfade feramic-type brake-lining, etc.

Francesco Commisso, aged 40 years, married, and employed as an underground supplyman at Balmer Hydraulic mine by Kaiser Resources Ltd., died on September 12, 1972, from injuries received when struck by falling coal.

Two Hunslet transporters were being used to deliver supplies from the surface yard to the underground workings. This necessitated travelling down a slope descending at an angle of 17 degrees below horizontal. Although this equipment is rated as being capable of operating on gradients of 22 degrees, the District Inspector had directed a winch and cable to be installed and used by vehicles travelling up and down this slope

Commisso's partner advised that the first transporter descending the slope had used the winch, but Commisso failed to do so when descending with his load. On his return trip he also neglected to connect the cable and proceeded up the slope, but stalled the engine when he slowed because of travelling at an excessive speed. Commisso apparently failed to apply the brakes, so the vehicle rolled or slide backwards and sideways about 30 feet, dislodging three sets of timbers supporting the roof of the slope, thus allowing the coal back to cave. The partner jumped free but Commisso was struck by the falling coal. He was removed from the vehicle but died about 20 minutes later as a result of the injuries he had received.

At the inquest held in Sparwood on October 4, 1972, the verdict determined by the jury was as follows:

"Francesco Commisso came to his death through multiple injuries incurred accidentally on the twelfth day of September 1972 at approximately 4.00 a.m. in the hydraulic mine owned and operated by Kaiser Resources Ltd., at Sparwood, British Columbia.

"We, the Jury, would strongly recommend that the following be strictly adhered to and enforced.

(*a*) That all safety procedures be followed at all times.
(*b*) That safety devices, especially tuggers be in working condition and aligned so that they function according to their use.
(*c*) That irrespective of former experiences, men assigned to new areas or machines should be given closer supervision and a sufficient period of training.
(*d*) That the immediate supervisor be present at any inquest relating to accidental death of workmen under his jurisdiction."

Roger Toews, aged 28 years, married, and employed as a surveyor by Utah Mines Ltd., at the Island Copper mine near Port Hardy, died almost instantly on October 30, 1972, from injuries received when the suburban station-wagon he was driving was crushed beneath the rear wheels of an empty 120-ton haulage truck. His rodman, who was a passenger in the vehicle, was seriously injured in the accident.

The inquest indicated that the deceased and his partner intended to survey the location of blast-hole sites in "O" bench in the open pit and had driven to that area where a shovel was loading 120-ton haul trucks. They stopped temporarily, close to one of these trucks as it was waiting to proceed to the shovel. In so doing they parked too near the truck and were in the blind area, out of range of the truck operator's vision. The truck moved forward in making a turn preparatory to backing into position at the shovel. In doing this the front left wheel brushed the surveyor's vehicle and then the fuel tank and the under parts of the truck crushed the front of the station wagon. The truck-driver was unaware he had run over the other vehicle until a moment or two later when he was so advised by radio.

At the inquest held in Port Hardy on January 15, 1973, the following verdict was given by the jury:

"We the jury having been duly impanelled find that Roger Edmond Toews of Utah Subdivision "A", Port Hardy, B.C., aged 28 years, died on October 30, 1972, as a result of massive injuries sustained at time of accident occurring on the o o Bench at Utah Mine Ltd., Island Copper Property.

"We find that death was un-natural and that it was accidental.

"We find that we absolve the driver of TKD 1591 Peter J. Carragher of any blame.

"We the jury recommend:

1. that flashing lights be installed on the dome of small vehicles.
2. that a larger fish-eye or an improved mirror assembly be installed on the right hand side of the Unit Rig Lectra Haul-Trucks.
3. that radios be installed and kept in good working order in all vehicles and equipment to be used within the pit area.
4. that radio communication be improved between all operations (1) the first-aid station and (2) additional first aid attendants not on duty.
5. that traffic control be utilized in congested area when or where conditions warrant."

The jury's recommendations are concurred with and it is further recommended by the District Inspector that the drivers of all vehicles operating in the vicinity of the large trucks be instructed in the limitations of the vision range of the drivers of the large trucks.

*Dean Wade Tickner,** aged 13 years, died from suffocation November 16, 1972, on being buried with caving sand after falling into the hole formed at the draw-down point above a reclaim chute at the Producers gravel pit of Construction Aggregates Ltd., at Metchosin near Victoria.

The deceased child and his playmate had been playing on the beach at Esquimalt Lagoon and then followed the shoreline around until they reached the sand and gravel operation about noon. The surviving boy said they had played around a hill of sand then walked down a road to the plant area. They were seen at this time by two employees, who thought the boys were proceeding to the beach. However, they did not do this, but instead climbed upon a pile of concrete sand stockpiled for shipment. On reaching the top the boys noticed a hole extending downward into the stockpile. This opening could have been caused by funnelling of the sand as it was being withdrawn through the chute in the reclaiming tunnel. As the boys stood at the end of the hole the banks commenced caving and Tickner fell in while the other boy jumped back to safety. The other boy went for help which was immediately available, but it took an hour to remove the trapped boy. He was taken to hospital but was found to be dead on arrival.

The boundary of the gravel-producing operation is partly enclosed with a 4-foot-high "Paige" wire fence. It does not extend along the seafront as storms at high tide would destroy it. The area is conspicuously posted with signs which read: "Danger, Private Property, No trespassing." One such sign was posted directly over the stockpile where Tickner lost his life.

The inquest was held in Victoria on November 22, 1972, and the following verdict was brought in by the jury:

"1. The deceased was Dean Wade Tickner.

"2. The deceased was pronounced dead at Colwood, in the Province of British Columbia, on Thursday, the 16th day of November, 1972.

"3. The deceased died from aspirative asphyxia.

"4. The deceased sustained the injuries causing his death as the result of falling into a sand filled bunker on the property of Construction Aggregates Ltd., at Metchosin Road, Colwood, in the Province aforesaid.

"5. He died an accidental death.

"6. In view of the very dangerous nature of all Construction Aggregates Ltd.'s property at this site, it is recommended that a full security fence be constructed to deter access to this property. This includes a fence extending into the water below low water tide level at the two extremes of the property. 'No trespassing' signs should be affixed to this security fence at frequent intervals."

The District Inspector advises the construction and maintenance of a fence to below low-water level would not be practical but has requested a study be made to determine the best site for a fence to protect the stockpile area. He also recommended the existing fence be examined and repaired where necessary.

Denis Dunlop, aged 42 years, married, and the operator of Dunlop Trucking Ltd., of Surrey, B.C., was killed when crushed between the descending dump box and the body of his truck on December 2, 1972, while attempting to dump a load of frozen ore at the dump stockpile at the Silmonac mill of Kam Kotia-Burkam Joint Venture at Sandon.

* This accident was not recorded as occurring to an individual employed in the mining industry.

Dunlop Trucking Ltd. had contracted to haul lead-zinc ore from the Giant Metallics Mines Ltd. property near Chase to the Silmonac concentrator near Sandon. He was seen leaving New Denver at about 7 p.m. on December 2 driving to the concentrator ore dump to empty the 17-ton load he had brought in his diesel truck.

There were no witnesses to the accident, but a Kam Kotia supervisor reported seeing the truck on the dump at 8 p.m., December 3. It was noted the lights were on and the engine was running. The same person saw it again at 9.30 a.m., December 4, with the engine and lights still operating. In both instances he presumed Dunlop was elsewhere on the property. At noon, another trucker, while looking for the grizzly rock hammer at the ore bin, discovered Dunlop's body pinned between the truck frame and the loaded dump box near the rear bogey wheels. His body appeared frozen when found.

The inquest was held in Silverton on January 15, 1973, and from the evidence presented it would appear that the deceased had been striking the bottom of the elevated dump box with a 10-pound hammer in order to release the frozen load. In doing this he was working near the trip cable to the hydraulic release valve which, when actuated, allows the dump box to descend. It is believed that in some manner he accidentally tripped the valve and the loaded box descended rapidly, catching him between it and the truck frame. The autopsy indicated a blood-alcohol content of 0.16 per cent and that death was due to asphyxiation by crushing of the thorax. The jury's verdict was as follows:

"Considering the evidence that we have witnessed Dennis Waldron Dunlop on the 2nd day of December at approximately between 11.00 p.m. to 12.00 p.m. at the Kam Kotia-Burkam Mill in Sandon, came to his death accidentally."

It is recommended, that when it is necessary to work under an elevated dump box, the box shall be blocked in a safe manner to prevent it from descending until the blocking is removed.

Roy Smith, aged 44 years, married, and employed as lead operator of a continuous miner in the 843 section of Balmer North mine of Kaiser Resources Ltd., died on December 13, 1972, as a result of injuries received when struck by a fall of ground on November 30.

Smith was, at the time of the accident, standing on the conveyor chain of the continuous miner and was bent over repairing a loose plate. As he was doing this a slab broke away from the roof and fell about 22 feet to strike him on the back and head. He was removed to the hospital where it was found he had a fractured skull, fractured scapula, a 3-inch cut on the right side of his head, and numerous bruises and abrasions to his body. He died on December 13 as a result of a pulmonary embolism believed to have developed as a result of the injuries received.

The investigation of the working-place showed that although the roof had been supported with 7-foot-long roof bolts and support plates, two of the three bolts in one plate had failed. One end bolt had failed in anchorage while the middle bolt had broken, thus leaving the plate supported by one bolt only. Inasmuch as there were a number of continuous drips of water falling from the back in this area, a brattice sheet had been placed near the roof back to catch and deflect the water. The brattice sheet was covering the support plate, hence no one was aware of the failure of the two bolts.

At the inquest held in Sparwood on January 17, 1973, the jury came to the following verdict:

"We the Jury find that Roy Smith born 28 January, 1938 died on December 13th, 1972 about 3.30 a.m. in Michel Natal Hospital Michel, B.C. as a result of blood clot in the lungs due to immobilization brought about as a result of injuries received in a mine accident November 30th, 1972.

"We the Jury recommend that in future roof bolts in the mine be examined for tension prior to extracting bottom coal."

The recommendation of the jury is concurred with and it is further recommended that in active working areas a constant surveillance be made of the roof to insure it is being maintained in a safe condition.

FATAL ACCIDENTS AND ACCIDENTS INVOLVING LOSS OF TIME

There were 17 fatal accidents and 764 accidents in which compensation was paid reported to the Department. These were investigated and reported on by the Inspectors 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	8	4.6	12	2.0
Explosives	1	0.6	----	----
Falls of ground	35	20.1	66	11.2
Falls of persons	42	24.1	159	27.0
Lifting and handling material	25	14.4	62	10.5
Machinery and tools	31	17.8	136	23.1
Transportation	18	10.3	59	10.0
Miscellaneous	14	8.1	96	16.2
Totals	174	100.0	590	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	Accidents Number of	Percentage of Total
Underground—				
Chuteman	----	----	5	0.8
Haulagemen	6	3.5	39	6.6
Miners	5	2.9	166	28.4
Helpers	----	----	36	6.1
Timbermen and facemen	12	6.9	10	1.7
Mechanics (electricians, supplymen, welders, pipefitters, etc.)	6	3.5	62	10.5
Miscellaneous	13	7.5	14	2.3
Surface—				
Mechanics, electricians, repairmen, etc.	48	27.6	85	14.4
Mill and crusher workers	----	----	49	8.3
Carpenters	3	1.7	9	1.5
Miners and drillers	7	4.0	12	2.0
Vehicle drivers	35	20.0	32	5.4
Surveyors, labourers, construction, etc.	----	----	57	9.7
Miscellaneous	39	22.4	14	2.3
Totals	174	100.0	590	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	8	4.6	40	6.8
Head, face, and neck	10	5.8	37	6.3
Trunk	45	25.9	178	30.2
Upper extremities	38	21.8	137	23.2
Lower extremities	51	29.3	163	27.8
General	22	12.6	34	5.7
Totals	174	100.0	590	100.0

Compensable[1] and Fatal Accidents Related to Persons Employed in Coal and Mines Other Than Coal

Year	Number of[2] Accidents		Number of Persons Employed		Frequency per 1,000 Persons	
	Coal	Other	Coal	Other	Coal	Other
1963	135	521	748	5,025	180	104
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

[1] Commencing April 1, 1972, a compensable accident is 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 1972 statistics 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 mining industry operations.

DANGEROUS AND UNUSUAL OCCURRENCES

Ninety dangerous occurrences were reported as required by sections 9 and 10 respectively of the *Mines Regulation Act* and the *Coal Mines Regulation Act*. Eighty-two were reported from metal-mining operations and eight from coal mines. Fifty-nine occurred on the surface and 31 underground.

In summary, 28 involved the use of vehicles, mainly trucks in which the accident involved vehicles running out of control, collisions with other vehicles or stationary objects, backing over dumps, or running off roads. Twenty-five incidents involved fires, 13 of which occurred underground, and the majority of these occurred with battery locomotives and trolley-haulage systems. The 12 surface fires occurred principally during or subsequent to welding or torch-cutting operations. Five of the dangerous occurrences involved pit wall and dump failures and four involved the collapse of the surface into underground mine openings. There were three incidents each involving avalanches, train movements, explosives, and cranes. Two occurrences involved falls of persons and there were 12 incidents of a miscellaneous nature.

On January 5 on the Stewart–Granduc mine road, a 40-passenger bus with 22 passengers on board was struck and swept off the road by an avalanche in the 11-mile slide area on the Alaska section of the road. The bus was carried about 30 to 40 feet down the bank and came to rest on its left side with the bus axis about horizontal. The passengers escaped through the rear emergency exit door as the main entrance doors had been broken during the impact and the front of the bus filled with snow. As the motor was still running, the snow was dug out in order to reach the ignition switch. During this operation, the driver was found in his seat where he had been trapped for about 30 minutes by the snow surrounding him. Two passengers who received minor injuries and the driver, who was in a state of shock, were treated in the Stewart hospital.

On January 7 at the Island Copper open-pit workings of Utah Mines Ltd., the driver of a loaded M-120 truck steered too close to the soft shoulder of a haulage road and the truck rolled over. The driver was uninjured.

On January 14 at the main Ironsides haulage ramp of Phoenix Copper Division of the The Granby Mining Company Limited, the front end of a 35-ton-capacity Haulpak truck upended when a rock of about 15 tons weight slipped to the back end of the dump box as the truck proceeded up a 10-per-cent incline. The rock dropped out of the box, but the front of the truck remained upraised.

On January 14 at the Ingerbelle mine of Similkameen Mining Company Limited the fibreglass cab of a rubber-tired bulldozer was destroyed when the vehicle struck a guide wire of the main power-line.

On January 27 at the Tide Lake concentrator of Granduc Operating Company an electrician lead-hand received facial burns from an arc flash as he was watching the operation of a motor starting-switch. This procedure was performed with the arcing box removed. As the current was interrupted at peak flow, a large flash occurred, short-circuiting three phases. The correct checking method should have been to de-energize the main circuit, implement lock-out procedures, and, with instruments, check the circuitry.

On January 28 at Craigmont mine of Craigmont Mines Limited, a crew train derailed at the west switch of the 3000 bypass on 2400 level. Of the 22 men riding on the train, 16 were treated at the hospital where three were detained for further observation. Although a thorough investigation was completed, there was no evidence to indicate the cause of the derailment.

On February 9 at the Similkameen (Ingerbelle) mine of Similkameen Mining Company Limited, considerable damage was done to the pit overhead power-line when it was struck by the elevated dump-box of a 100-ton Lectra Haul truck.

On February 11 of the Tide Lake road of Granduc Operating Company a Kenworth truck and a crew bus collided on a narrow curve during a snowstorm. The bus-driver, who received minor injuries, had failed to report his position by radio, hence the truck-driver was unaware of the bus travelling in that section of the road.

On February 11 at Island Copper mine of Utah Mines Ltd., the driver of a forklift truck collapsed and died of a heart attack while operating the truck.

On February 21 at the north overburden dump of the East Pit of Gibraltar Mines Ltd., a dump slope failure involving approximately 280,000 cubic yards of material occurred. The slide was caused by overloading accompanied by increased pore water pressure developing during the spring thawing of the contained ice and snow.

On February 25 a fire destroyed a brattice seal in 35326 Sub V in the Sullivan mine of Cominco Ltd., in an area where longhole-drill holes were being loaded with

explosives. The fire was extinguished before igniting dry timber in the area of the explosives (forcite), which were within 15 feet of the curtain. The cause of the fire was not determined.

On March 6 at the Kilgard New Fireclay mine of the Canadian Refractories Division of Dresser Industries Canada Ltd., a 20-foot-diameter hole about 40 feet deep developed on the east edge of the Sumas Mountain road. The hole was caused by the collapse of the overlying strata and overburden into the abandoned underground workings of the old Fireclay mine.

On March 9 at the Lynx mine of Western Mines Limited, a pipe connection to a fuel storage tank was found to be ruptured. An investigation indicated approximately 6,700 gallons of fuel oil had escaped into the ground before the broken snow-covered pipe had been disclosed. No pollution by oil was apparent in Myra Creek or Buttle Lake.

On March 10 at the OK (Alwin) mine of the OK Syndicate, a contractor foreman suffered a broken pelvis and internal injuries when struck by a rock slab while exploring an inactive section of the mine. The mine chief engineer received a puncture wound on his right leg when pinched between the tractor and box of the articulated truck being used to take the foreman out of the mine. The chief engineer was holding the stretcher containing the injured man on top of the tractor and was pinched by the vehicle as it was making a turn.

On March 12 in 2600 level of Granduc mine of Granduc Operating Company, a fire of five and a half hours' duration occurred in the batteries of a Goodman locomotive. It is presumed the motor control was left in an "on" position while the brakes were set. This permitted overheating in the resistance grid and the battery box ignited.

On March 13 a run of mud occurred at a draw point on 3215 level of Craigmont mine of Craigmont Mines Limited. A scooptram operator was half buried by the mud but was uninjured. The cause of the mud run was attributed to surface run-off water from the open pit entering the underground workings.

On March 15 at the Similkameen (Ingerbelle) mine of Similkameen Mining Company Limited, a ¾-ton pickup truck was run over and destroyed by a haulage truck. The pickup had been parked too close to the haulage truck and in the blind zone of the driver of the large truck.

On March 18 at the Tasu mine of Wesfrob Mines Ltd., a crane operator mistakenly pulled the release lever instead of the clutch lever. This action caused the load, a ½-ton service crane, to drop until the drumline was paid out. The sudden stop broke the ½-inch sling cable and the load dropped onto the cab of the mobile carrier unit.

On March 19 at the Old Sport mine of Coast Copper Company Limited at Benson Lake, a scooptram stalled while ascending an incline and ran amain backward down the decline because the normal and emergency brakes were ineffectual. The vehicle proceeded downward for about 600 feet, alternately striking the drift wall and the conveyor installation in which it finally lodged. An examination of the brakes indicated good linings but that the linkage of the left-rear brake actuator had broken. In addition, the right-rear brake actuator diaphragm was ruptured and was, therefore, only effective as a maxi-brake, thus leaving the vehicle with only 50 per cent braking capacity.

In the spring of 1972 at the inactive AM minesite of Giant Mascot Mines Limited, it was found that an avalanche had destroyed the empty explosives magazine. It was also found that the winter load of snow and subsequent creep by the snow destroyed the dry, compressor house, and shop buildings.

On April 4 at the Highland Valley operation of Lornex Mining Corporation Ltd., a 120-ton truck, parked parallel to the pit face while being loaded, was struck by a large piece of rock which broke off the face. The rock struck the left-front wheel with such force that the driver was thrown against the side of the cab with sufficient violence to rupture his eardrum.

On April 7 at the Old Sport mine of Coast Copper Company Limited at Benson Lake, the steering mechanism of a Unimog truck failed as it emerged from the decline portal. The driver jumped free, uninjured, when the truck travelled up a bank at the edge of the road and then rolled over. The tie-rod linkage separated when a nut had stripped its thread.

On April 8 at the Fording Coal operation of Cominco Ltd., a Letourneau loader ran into the repair-shop wall, causing considerable structural damage to the wall. The operator believed he mistakenly stepped on the accelerator in place of the brake.

On April 16 at the Lynx mine of Western Mines Limited, when the fuel-lines were being connected to a diesel standby unit the return fuel-line from the fuel pump was directed in error to a 45-gallon drum instead of the main fuel tank. The drum filled to overflowing and allowed approximately 500 gallons of fuel to escape before it was noticed in the mine water drainage system.

On April 21 at the Harmer No. 1 dump of Kaiser Resources Ltd., the operator of a Lectra Haul truck received back injuries when he jumped out of the truck when it rolled down the dump after it was backed over the dump berm which was reported to have been between 3 and 4 feet high, although a survey made after the accident at the point the truck backed over indicated the dump was level.

On April 21 at the Sullivan mine of Cominco Ltd., an ore train travelled out the main haulage without having a motorman operating it. The cause of the incident was the operator had placed the locomotive control in the forward position rather than reverse while operating the locomotive by remote control from the loading chute. Once the locomotive had passed the remote control block, it continued on out of the mine at about 2 miles per hour and stopped near the portal. A positive derail trolley pole has been installed to obviate a recurrence.

On April 21 at the Britannia concentrator of Anaconda Britannia Mines, Division of Anaconda Canada Limited, a small fire destroyed part of the skirting of No. 3 conveyor belt. The fire was caused by hot metal sparks from an oxyacetylene-burning operation dropping through a chute and onto the belt.

On April 24 at the Island Copper mine of Utah Mines Ltd., sabotage was suspected when a knapsack containing 50 pounds of explosives was found on a high-tension cable tray in a cable tunnel adjacent to the mill building. A fuse with detonator attached had burned to within a few inches of the detonator. An investigation failed to determine who placed the explosives or why they had been so placed.

On April 25 at the Huestis pit of the Bethlehem mine of Bethlehem Copper Corporation Ltd., a small slough of rock occurred on 4633 bench. The slide partly buried the back end of an Atlas Copco drill.

On May 3 at the Lornex mine, the Highland Valley operation of Lornex Mining Corporation Ltd., the operator of and a passenger on a mobile tire manipulator received minor injuries when they jumped off the vehicle after it ran out of control on the pit road. The two men advised that dust caused by passing vehicles made vision impossible. The accident investigation indicated the vehicle was travelling too fast and that a defective regulator on the brake vacuum pump had reduced the effectiveness of the brakes.

On May 10 at the OK (Alwin) mine of OK Syndicate a 20-foot length of the portal section of 5130 level haulage adit caved through to the surface. This section of the tunnel had been widened during the winter in order to accommodate trackless diesel trucks and it was believed that when the frost melted the overburden slumped.

On May 10 at the Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, the electric cable servicing the 5650 level ventilating fan caught fire at a splice near the fan. The power was cut off and the fire quickly extinguished. It was determined the power cable had heated because of an overload.

On May 11 at the Sullivan mine of Cominco Ltd., four man-coaches were derailed when the ventilation doors closed on a train before it had passed through the doorway. It is believed one of the five remote controls of the compressed-air-actuated door-closing mechanism had inadvertently been actuated. No one was injured.

On May 18 at the Harmer Ridge operations of Kaiser Resources Ltd., the operator of a 100-ton truck died of a heart attack while driving the vehicle. The truck turned off the dump road and came to a halt when it ran into a rock berm.

On May 25 at the Similkameen (Ingerbelle) open pit of Similkameen Mining Company Limited, a stability failure was reported to be developing in the south-west corner of the pit. The failure was indicated by fractures developing over a 700-foot length along the top of the pit and on the 3650 bench. An unsuccessful attempt was made to dislodge the unstable zone with explosives. Mining was temporarily suspended in that area.

On May 27 at the Clode pit dump of Fording Coal Limited, a major slump involving approximately 200,000 tons of material occurred at the waste dump. The slide moved down a slope distance of approximately 1,800 feet, burying the main pit access road to a depth of 12 feet for a distance of about 500 feet. No person was injured. The investigation of the incident indicated that the dump construction had not conformed with the design control.

On June 2 at the Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, two shaft-lining boards were dislodged by falling debris in No. 7 shaft as the timbers in it were being repaired. The loosened lining boards protruded far enough into the shaft to drive up through the floor boards of the cage on which men were being lowered slowly to their working-place. Two men received minor injuries.

On June 7 at the Bethlehem mine of Bethlehem Copper Corporation Ltd., a crusherman sustained a compound fracture of the left forearm when his arm was drawn in between a conveyor belt and its troughing idlers by a scraper he was using to clean conveyor tables.

On June 7 at the Texada iron mine of Texada Mines Ltd., an electrician suffered a broken left leg when he jumped off the runaway personnel carrier he was operating in the mine decline entry. The vehicle, a rebuilt weapons carrier, was towing a trailer with a reel of electric cable (total weight about 700 pounds) into the mine. While descending, the truck jumped out of gear and began travelling too fast to re-engage the engine. As the vehicle was equipped with a drive shaft brake only, there was no way to stop it safely, hence the driver and his partner jumped off. The vehicle eventually stopped after running into the wall of the incline.

On June 14 at the Island Copper mine of Utah Mines Ltd., a truck-driver received serious injuries when the loaded Lectra Haul truck he was driving ran off the road and, after rolling over, landed upside down about 50 feet below the road. No mechanical faults were in the steering mechanism, tires, or brakes. It is believed the operator fell asleep while driving.

On June 14 at the Similkameen (Ingerbelle) mine of Similkameen Mining Company Limited, a driver was seriously injured on being ejected from a loaded Lectra Haul truck when it drove over dump No. 3, capsized, and landed right way up 83 feet below and 140 feet from the dump berm edge. A check on the steering mechanism and brakes found both to be in good working order, but the rear brake disks had coloured blue due to excess heating. It is believed the driver, while descending the 10-per-cent grade road, had permitted the truck to travel too fast and develop too great a momentum to be stopped in the 445-foot run across the dump.

On June 15 at the original Fireclay mine of Canadian Refractories Division of Dresser Industries Canada Ltd., a cave occurred under the Sumas Mountain road between Kilgard and Straiton. The cave broke to the surface on the east shoulder of the road and exposed a hole about 15 feet deep and 7 feet in diameter at the bottom of the caved area. The hole angled down at a dip of about 35 degrees and required about 350 cubic yards of waste material to fill it.

On June 22 at the Granduc mine of Granduc Operating Company, a Unimog truck stalled while ascending No. 1 ramp on 3400 level. The vehicle commenced to roll backward down the ramp. As the foot brakes were wet they failed to hold the vehicle and the hand brakes failed to function. The vehicle continued down the ramp and struck the wall, where it overturned. The driver was slightly injured.

On June 25 at the Granduc mine of Granduc Operating Company, a miner suffered a loss of voice when struck in the throat by a piece of steel that flew off a drill-rod coupling when it was struck by the striker bar of a drill jumbo. The flying piece of steel caused a half-inch puncture wound in the workman's throat and was accompanied by tissue damage and some bleeding.

On June 29 at Craigmont mine of Craigmont Mines Limited, a small fire occurred in the main wiring harness of a scooptram. The fire was quickly extinguished.

On July 9 at the West Zone pit of Pinchi Lake mine of Cominco Ltd., a small unanticipated cave occurred in the pit floor above an underlying stope which was believed to have been backfilled. The concussion from a nearby blast loosened the ground, which collapsed into the cavity.

On July 12 a fire occurred in a transformer on 3260 level of Granduc mine of Granduc Operating Company. The men working in that area were evacuated and the fire extinguished. The cause of the fire was attributed to an earth fault having developed in one phase of the primary winding.

On July 14 at the Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, the blasting certificates of two miners were suspended when an investigation disclosed the men had drilled in the bootleg holes of a previous round.

On July 18 at the Pride of Emory mine of Giant Mascot Mines Limited, a miner operating a slusher hoist was seriously injured when he fell about 26 feet in a mill hole. The slusher-hoist anchorage failed while it was being operated. The hoist and operator were pulled horizontally about 9 feet and then fell into the mill hole.

On July 24 at Sparwood plant of Kaiser Resources Ltd., a welder employed by East Kootenay Steel Limited fractured both tibia and fibula of his right leg when he fell about 30 feet from the steel scaffold on which he was working. He believed he had mud and grease on his shoes, causing him to slip while standing on a staging rung.

On August 11 at the Lynx mine of Western Mines Limited, the driver of a loaded truck drove off the side of a road as he was backing into dumping position. The driver was not injured when the truck rolled down the bank and came to rest about 40 feet below. The driver claimed his view was hampered inasmuch as he was backing directly in the sun; however, he failed to make use of the services of the dumpman on duty.

On August 14 at Craigmont mine of Craigmont Mines Limited, as a result of an electrical short circuit in the junction box of a scooptram, the battery cables overheated and caught fire. Two fire extinguishers were required to put out the fire. As this was identical to a previous fire in this vehicle, an investigation is being made to include a hand-operated circuit-breaker to shut off the power from the battery. In addition, all scooptrams will be equipped with two extinguishers.

On August 23 at the Old Sport mine of Coast Copper Company Limited at Benson Lake, a diamond drill encountered an inflow of gas. As the gas extinguished a flame safety lamp, the driller was withdrawn and the drift barricaded. The following day two men equipped with self-contained breathing apparatus sampled the air, which analysed 88.68 per cent nitrogen, 11.22 per cent oxygen, and 0.10 per cent carbon dioxide. The drill rods were removed to let the gas flow freely and the heading ventilated before the driller returned.

On August 30 at the Pride of Emory mine of Giant Mascot Mines Limited, a shiftboss was thrown a distance of about 13 feet by the concussion from a secondary blast of 12 sticks of 1¾ by 16-inch powder fired at a distance of 560 feet. The man was uninjured.

On September 6 at the Lornex equipment-repair yard of Lornex Mining Corporation Ltd., the boom extension of a 25-ton mobile crane buckled and a hydraulic cylinder was damaged while endeavouring to lift a 20-ton load. As the crane was lifting, the outriggers and pads sunk in the ground. This shifted the position of the boom so that it was not lifting vertically over its load. The load a 20-ton truck box, became wedged in the hinged bracket slots of the truck frame and caused an overloading.

On September 8 at the Harmer Ridge operations of Kaiser Resources Ltd., the driver of a truck sustained a fractured left leg when he jumped from a truck as it was about to tumble down the dump. A recently trained driver had backed the back wheels over the dump edge but stopped the vehicle before the front wheels went over. In endeavouring to pull the truck back up, it was found one D-9 tractor was inadequate, so two tractors were connected in tandem and when the pull was applied, the 1¼-inch cable yolk to the truck snapped and the truck rolled down the bank. An experienced driver was at that time in the truck and jumped out when it started down the bank.

On September 10, on a haul road adjacent to the East Pit of the Gibraltar mine of Gibraltar Mines Ltd., the right-front wheel spindle snapped on a loaded 150-ton truck while it was travelling about 5 miles per hour as it was turning. The investigation indicated the fracture had developed along an initial fatigue crack. A failure such as this shows the potential value of regular nondestructive tests.

On September 20 at the Lynx mine of Western Mines Limited, a fire of undetermined cause started in the receptacle of a battery locomotive as it was being used in the 10-level portal. The motorman disconnected the cable but the fire continued and did extensive damage to the battery before it was extinguished. As the fire occurred in the exhaust air portal of the mine, no smoke went to the other workings.

On September 20 at the Sunro mine of Jordan River Mines Ltd., a scooptram operator received first- and second-degree burns about the face, neck, and wrist when sprayed with flaming hydraulic fluid. A rolling rock damaged a hydraulic hose and damaged the headlights of the scooptram. The fluid leaking from the damaged hose was ignited by the broken headlights.

On October 6 at the Harmer Ridge operations of Kaiser Resources Ltd., a labourer sustained minor injuries when struck by a large rock which rolled down the hill and under the conveyor from which it had just fallen. The injured man had been warned to move into a safe position but apparently failed to do so.

On October 13 on 4250 drift north of the Sullivan mine of Cominco Ltd., a fire occurred in the wiring of a trolley locomotive. On attempting to move the locomotive the motorman found the power had been cut off. Presuming the circuit-breaker controlling the energizing of the trolley-line had kicked out, he sent the switchman to reset the switch. On the closing of the switch the wiring associated with the live supply from the trolley wire caught fire. The motorman immediately disconnected the trolley pole and extinguished the fire.

In mid-October, at the Brenda waste dump of Brenda Mines Ltd., one of the front wheels fell off a loaded 100-ton truck as it was backing up. An investigation indicated the fracture of the ball stud holding the front-wheel casting of the steering linkage. This permitted the wheel to veer away from the direction the truck was moving and the increased load imposed snapped the wheel spindle.

On October 18 at the Harmer Ridge operations of Kaiser Resources Ltd., a workman suffered a fractured pelvis when squeezed between a rubber-tired bulldozer and the power cable boat it was towing. The injured man stepped between the two conveyances to disconnect the cable boat. He was not in the sight of the operator, who was experiencing difficulties with the gear selector. As a result, the bulldozer backed toward the cable boat and caught the injured man between the bulldozer and the boat.

On October 19 at the Bethlehem mine of Bethlehem Copper Corporation Ltd., the employees of Argus Aggregates Ltd. were loading a dismantled gravel-crushing plant onto a flat-deck truck. A front-end loader equipped with a boom extension had placed a conveyor section on the truck. The lifting chains and hook had disengaged but caught on the load as the loader was backing away. The resulting movement dislodged the workman who was standing on the conveyor section. He fell to the ground and in so doing received minor injuries.

On October 20 at the Tide Lake concentrator of Granduc Operating Company, an odour of sulphur dioxide gas was noticed in the vicinity of the main mill motor-control centre. It was found that sparks from the welding of a guard-rail on the floor above the mill control room had ignited sulphide concentrate dust accumulated on top of the cable trays and beams below this floor. The fire was extinguished and the area washed down. About three hours later and in the same area, smoke was found to be issuing from behind a piece of plywood beneath the cable tray. The plywood was removed and the cable-tray opening through the wall was found to be full of smouldering paper. The paper had been stuffed into the opening to stop the concentrate dust from entering the motor-control centre. This fire was successfully extinguished.

On October 20 on the main haulage road to the Cassiar mine of Cassiar Asbestos Corporation Limited, a loaded 35-ton truck ran away down a hill, struck a bank and tipped over. The truck box had been partly elevated in order to spread fill material for road repair. The transmission was in neutral position. The driver

attempted to accelerate the engine to raise the box but the engine stalled, permitting a failure of the power-steering which continued when the driver neglected to engage the emergency steering switch. In addition, the two attempts made to restart the engine so depleted the air supply that, although the brakes "dynamited," they failed to hold the vehicle. Braking was further reduced by an accumulation of asbestos mud and fibre on the brake drums and shoes. It is believed the engine did not restart because the operator had depressed the accelerator in such a manner as to actuate the engine shut-off control connected by linkage to the accelerator. The operator failed to reset the control before attempting to restart the engine.

On October 20 at the Granduc mine of Granduc Operating Company, the driver of a scooptram, stalled on a ramp, neglected to place the wheel chocks before seeking assistance to move the vehicle. While he was away, two other workmen travelling in a Unimog found the scooptram blocking their route, so decided to move it and, while working on it, saw it was starting to move down grade, so jumped off just before it struck the Unimog. Both vehicles rolled down about 120 feet before striking a wall. It was found the scooptram brake failure was due to a badly worn brake shoe and the fading of the brakes due to an air leak in the hose connected to the main and auxiliary tanks, combined with a faulty check valve between the tanks.

On October 26 at the Cassiar store of Cassiar Asbestos Corporation Limited, a 14-ton capacity Grove crane tipped over while lifting a ¾-ton load. One man was slightly injured. The cause of the accident was determined to be operator inexperience inasmuch as the rear outriggers were inoperable, the load being raised exceeded the design limit for the particular boom location, the front outrigger footings were soft and unstable, and the directional signalling given to the operator was such as to create confusion.

On October 31 at the Granduc mine of Granduc Operating Company, a fire occurred in a Mitsubishi locomotive while it was at the tail track dump pocket. After the fire had been extinguished, it was found that it had been caused by the main cable having grounded where a metal plate had been installed to protect the cable terminal box. The metal plate was replaced by asbestos sheet insulated by rubber.

On November 7 at the Mount Copeland mine of KRC Operators Ltd., the ambulance, while being driven from the mine camp to the mill, encountered fog and icy conditions, went out of control, and rolled down a 200-foot embankment. The driver was not hurt and the deep snow cushioned the vehicle, which received only minor damage.

On November 7, at the Granisle concentrator of Granisle Copper Limited, a workman was injured when struck by an improvised hoisting device used to raise the 12 by 12-foot door of the mill repair bay. The building was under construction and the door-hoisting spring assembly and shaft, weighing over 200 pounds, was only temporarily and insecurely attached. It fell about 25 feet to strike the workman as he was attempting to raise the door.

On November 20 at the Island Copper mine of Utah Mines Ltd., a workman was seriously burned as a result of a fire which occurred as he was using an oxy-acetylene torch to cut a truck box pad. An investigation revealed both hoses had been burned through in several places. It is possible the hoses may have been cut prior to the incident or were burned through by hot metal falling on them. The whole area beneath the truck was enveloped in flame and subsequently a nearby barrel of chlorothene cleaning solvent exploded from the heat generated. The welder ran out from the fire area with his clothes burning. A fellow workman caught the welder, dropped him to the floor, and threw himself on top to smother

the flames. The most serious burns received by the welder was where the synthetic long underwear he was wearing had caught fire.

On November 21 on the Gibraltar East Pit No. 4 dump haul road of Gibraltar Mines Ltd., a loaded 100-ton truck ran out of control and overturned as a result of the failure of the dynamic brakes. The operator was not injured. An investigation showed the insulation was worn through on the control wire to the foot-operated dynamic brake relay. The truck motion developed intermittent grounding on the braking rheostat support frame. When the circuit was grounded the relay could not function, thus preventing the brakes from operating.

On November 22 at the 3500 south overburden dump of the Gibraltar East Pit of Gibraltar Mines Ltd., a parked 150-ton truck rolled into a service vehicle, causing considerable damage. The truck operator had failed to place the wheel chocks while the truck was being serviced for an electrical malfunction.

On December 6 at the Britannia mine of Anaconda Britannia Mines Division of Anaconda Canada Limited, it was found that empty 5041 stope which was originally 150 feet long, 60 feet wide, and 300 feet high had caved beyond its expected limits and had extended up into some unused workings on 4100 level. The stope bottom is on 5050 level, but further investigation indicated the caving to involve empty slopes down to 5200 level.

On December 7 at the 2600 level load-out chute area of Granduc mine of Granduc Operating Company, a small fire occurred as a result of a flash-over at a faulty insulator on the dead-end section of the 1,500-volt direct-current trolley wire. The flash-over ignited the plastic-coated dead-end portion of the wire.

On December 7 at the Bell Copper Division concentrator of Noranda Mines, Limited, a fire occurred in the concentrate drier and sulphur dioxide fumes were released. The fire was believed caused by a failure of the exhaust scrubber. Only minor damage resulted.

On December 8 at the Sullivan mine crushing-chamber of Cominco Ltd., a a spark from the using of a cutting torch ignited cloth on a bearing. The fire was extinguished immediately.

On December 9 at the Granisle open-pit mine of Granisle Copper Limited, the right-front wheel of a loaded 50-ton truck fell off as it was being backed up the dump ramp. An investigation of the incident indicated a fatigue failure of the outer tapered wheel-bearing.

On December 11 at the Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, a motorman left a locomotive just inside the 4100-level portal. The trolley pole was left on the trolley line and the controller was not in the extreme off position. As a result, the electric cables in the locomotive overheated and ignited the wooden lining of the locomotive cab. The trolley pole was removed from the trolley wire and the fire was extinguished.

On December 17 at the Pride of Emory concentrator of Giant Mascot Mines Limited, a small fire occurred on rubber-belting wear plate in No. 4 chute below the grizzly deck. The fire was extinguished without incident.

On December 20 at the Mount Copeland mine of KRC Operators Ltd., an avalanche destroyed the caphouse, scattering and burying its contents. Part of the supply of detonators, squibs, and fuse were recovered, but a considerable portion can be located only after the snow has melted.

On December 20 at the Sullivan mine of Cominco Ltd., a small fire started in a garbage can in which sling holes were being made with a cutting torch. The fire was extinguished without incident.

On December 23 at the Similkameen (Ingerbelle) mine of Similkameen Mining Company Limited, the water escaping from a ruptured check valve in the 500,000-gallon process-water tank caused a mud slide on the road to the river pumphouse. The pumphouse water-intake pipes were partially obstructed, thus causing a part-time shut down of the concentrator.

On December 24 at the Tide Lake portal of Granduc Operating Company, excess arcing disintegrated an isolating switch on the 1,500-volt, direct-current, trolley-wire system. The supply transformers were tripped by applying the earthing switch to the trolley-wire system. The reason for this unusual occurrence could be attributed to either of two causes. Firstly, the controls of one of the two locomotives operating in that section was on the mid-position at the moment the isolating switch was opened, and thereby causing the current flowing in the trolley-wire circuit to produce the arcing for which the switch was not designed. Secondly, the arcing could have been actuated by an accumulation of dust on the isolating switch support insulators, and which caused a leakage fault to ground. Action has been taken to improve the earthing of the trolley-wire isolating switch, and the main earthing system.

On December 27 at the Invincible tungsten mine of Canex Placer Ltd., the vaporizer unit of the mine air-heating system was found to be inoperable due to fire damage. During the Christmas holidays the main air-intake fans and the air compressors were shut down and sometime during this period the thermostat on the vaporizer stuck in the open position, causing this device to heat and so produced excess propane gas which could not be used and thus it vented to the atmosphere. Propane gas, being heavier than air, accumulated around the vaporizer and was ignited by the pilot light and exploded. This action burned the electrical wires and short-circuited them, which in turn shut off the main gas valve and stopped the flow of gas and the fire extinguished. This may have been avoided if the vent had been located farther away from the vaporizer.

On December 28 in the Gibraltar mine East Pit of Gibraltar Mines Ltd., the driver of a 100-ton truck, through inattention, drove too close to the edge of the ramp between 3455 and 3500 levels. The front wheel dropped over the edge of the road and the truck stopped. The driver was attempting to retrieve a thermos that had fallen into the cab floor and had taken his eyes off the road.

On December 31 a fire occurred in the Bell Copper Division concentrate drier of Noranda Mines Limited. The incident was attributed to a plugging of the feed screws. Although some sulphur dioxide gas was released, there were no injuries and only minor damage done.

On December 31 on the main haul road to the primary crusher of Gibraltar mine of Gibraltar Mines Ltd., extensive fire damage was caused to a Lectra Haul truck when oil from a ruptured oil-line was ignited by the truck's hot exhaust system. As soon as smoke was observed the driver pulled off the road and set the parking brakes, but was unable to stop the motor before flames forced him out of the cab. Fire extinguishers were used to combat the fire and, as soon as the engine was shut off, the fire stopped.

PROSECUTIONS

Five prosecutions were instituted under the *Mines Regulation Act* and none under the *Coal Mines Regulation Act.*

On March 8, two officials of Cameron-McMynn Limited, a mining contracting company, were charged under section 23, Rule 93 (*a*), of the *Mines Regulation Act* for operating a diesel engine underground without a permit to do so. Both defendants

entered guilty pleas. A fine of $100 was imposed on the senior official, while a $25 fine was levied on the junior official.

On March 28 an underground employee of the Sullivan mine of Cominco Ltd. was found guilty of taking a bottle of beer underground. A fine of $10 was awarded.

On October 20, L. G. Scott and Sons Construction Limited, of Kitimat, was prosecuted for failing to post copies of the General Rules as required in the preamble to Rule 1. The company was found guilty and a fine of $100 was levied.

On December 14, Ardo Mines Ltd., of Stewart, was charged with failing to comply with sections 21 (1), 22 (1), and 22 (4) of the *Mines Regulation Act* for failing to insure that (1) the work being done at their Bitter Creek underground operation was being done under the direction of a shiftboss; (2) the Inspector was advised of the name of the manager; and (3) the manager took all necessary and reasonable measures to enforce the provisions of the Act. Pleas of guilty were entered on all charges. The Court assessed fines of $200 for not having a certified shiftboss in charge of workmen, of $100 for not advising the Inspector the name of the property manager, and of $500 for disregarding the Inspector's order.

In October 1971, prosecution proceedings were instituted by laying information against the manager of an inactive mine in the Liard Mining Division concerning the abandonment of a large quantity of explosives at the minesite. A preliminary hearing was scheduled for December 8, 1971, but was postponed pending contacting the defendant. The case was remanded to June 19, 1972, and remanded again for the same reason. The charge was reviewed on October 23, 1972, and was dropped because of stale dating of the information.

BLASTING CERTIFICATE SUSPENSIONS

There were seven blasting certificate suspensions awarded for violations of the explosives and blasting procedure provisions as contained in the *Mines Regulation Act*.

On January 31 at the Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, the blasting certificates of two miners were suspended for a period of five days each, during which time they were also laid off work. The men were found to be drilling in the vicinity of the drill-hole sockets of the previous round.

On June 12 at the Granduc mine of Granduc Operating Company, the blasting certificate of a miner was suspended for 60 days because he was found drilling in the vicinity of the cut-hole sockets of the previous round.

On July 14 at the Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, the blasting certificates of two miners were suspended for five days each because they were found drilling in the area of the sockets of the holes of the previously blasted round. The company laid the men off work for a five-day period also.

On September 7 a miner at the Bethlehem mine of Bethlehem Copper Corporation Ltd. failed to properly guard a blasting operation. His blasting certificate was suspended for 30 days.

On November 30 at the Sunro mine of Jordan River Mines Ltd., a miner was found drilling holes within the area of the sockets of the holes of the previous round. His blasting certificate was suspended for two months.

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

In 1972, electrical power was used by 40 companies at 43 metal mines. Operations at Bull River, Bell (Newman), Gibraltar, Island Copper, and Similkameen (Ingerbelle) mines were brought into production; while operations at Bluebell, British Columbia Molybdenum, Old Sport, and OK (Alwin) mines were terminated.

The following table gives the kilovolt-ampere capacity of mining-company owned plants at metalliferous mines and the approximate amount of power generated in 1972:

Prime Mover	Generator Kva. Capacity	Kilowatt-hours Generated
Diesel engines	38,273	54,092,050
Hydro	10,490	56,082,857
Steam	30,000	85,846,800
Totals	78,763	196,021,707

The electric power purchased from public utilities and from the generating division of Cominco Ltd. amounted to 1,628,123,595 kilowatt-hours. This amount, added to that produced by privately owned plants, totalled 1,824,145,302 kilowatt-hours.

A general analysis of the connected load at operating mines during 1972 was as follows:

Equipment	Horsepower
Hoists and overhead trams	6,763
Scraper hoists	7,215
Electric shovels	17,503
Electric rock drills	5,040
Electric mucking-machines	----------
Mine fans	12,554
Mine pumps	7,703
Rectifiers and M.G. sets	12,917
Air compressors	28,211
Sink-float plant	3,166
Crushing plant	31,370
Grinding equipment	216,198
Concentrating equipment	57,580
Magnetic separators	733
Conveyors	22,763
Mill pumps	38,050
Fresh-water pumps	34,858

Equipment	Horsepower
Reclaim-water pumps	19,550
Workshops	6,848
Miscellaneous	20,091
Total	549,313

One battery locomotive was used for underground haulage at an incidental mineral operation.

Track haulage systems used 56 battery, 87 trolley, and 13 diesel locomotives.

In 1972, electric power was used at 63 structural-material and industrial-mineral mines and quarries. Power was produced by company-owned plants at 13 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, 12,828—	
Generated	34,306,563
Purchased	33,576,175
Total	67,882,738

A general analysis of the connected load is as follows:

Equipment	Horsepower
Hoists and aerial trams	288
Scraper hoists	176
Fans	640
Pumps	241
Rectifiers and M.G. sets	8
Air compressors	413
Electric shovels	520
Electric drills	140
Washing plant	475
Drying plant	2,130
Crushing plant	10,129
Conveyors	5,426
Milling	9,459
Screens	1,665
Pumps	2,334
Workshops	271
Miscellaneous	3,500
Total	47,241

At coal-mining properties, electric power was used in two open pits, two underground mines, and two coal-processing plants, and a third processing plant came into production during the year. Also, an underground feasibility operation was conducted at the Sukunka Coal Project, Chetwynd.

The distribution of the connected load at collieries in 1972 was as follows:

Equipment	Horsepower
Surface—	
Air compressors	3,905
Electric shovels	26,730
Electric drills	3,625
Conveyors	7,319

Equipment	Horsepower	
Hoists	270	
Haulage		
Coal breakers	605	
Coal washing	3,208	
Coal screening	6,725	
Pumping	21,246	
Coke production	1,585	
Ventilation	950	
Miscellaneous	11,971	
Total		88,139
Underground—		
Ventilation	300	
Pumping	221	
Air compressors	200	
Continuous miners	2,590	
Shuttle cars	930	
Loaders	270	
Conveyors	1,675	
Hoists	25	
Miscellaneous	119	
Total		6,330
Total surface underground		94,469

The following table and graph show the power consumption in kilowatt-hours in mining operations since 1962:

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	345,296,00	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	1,824,145,302	205,104,600	2,097,132,640

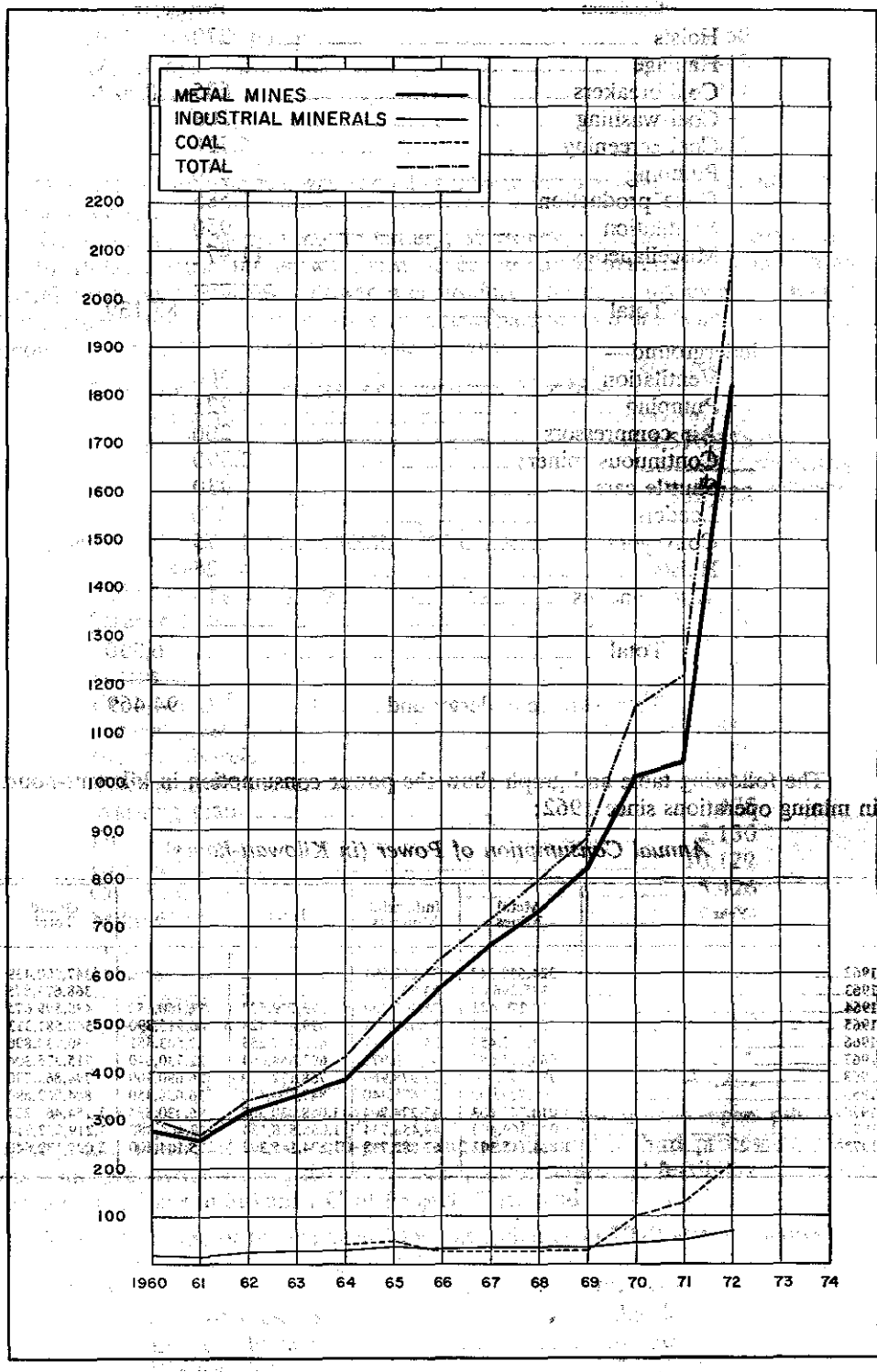


Figure 7. Annual consumption of power in kilowatt-hours, 1960–72.

MECHANICAL

Underground Diesel Equipment

During 1972, 73 new diesel permits were issued to cover the underground operation of diesel-powered equipment. At the end of the year a total of 511 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	4	118
Load-haul-dump vehicles	32	3,840
Front-end loaders	1	250
Ore carriers	13	2,245
Tractors	2	164
Drilling jumbos	5	273
Service and personal vehicles	11	566
Graders	1	140
Diamond drills	1	47
Compressors	2	461
Concrete placing equipment	1	47
Totals	73	8,151

Six approvals were issued by the Department of Mines and Petroleum Resources during the year for diesel engines that had not been previously approved for underground use by any other recognized authority.

These approvals are based on the chemical analyses of exhaust-gas samples collected while the engine is being operated under varying conditions of load and speed on a dynamometer.

Approval Number	Date Approved	Engine Identification	Brake Horsepower	Minimum Ventilation Requirement
				(Cfm)
B.C. Dept. of Mines 1972–1	Jan. 18, 1972	Perkins A4-212	37.5	6,500
B.C. Dept. of Mines 1972–2	Feb. 4, 1972	Hudswell Clarke 6-LW-20	100	13,000
B.C. Dept. of Mines 1972–3	Aug. 7, 1972	Cummins N.R.T.O. 6-B1 (262)	235	52,000
B.C. Dept. of Mines 1972–4	Oct. 25, 1972	Caterpillar D-336 Turbo charged	250	32,000
B.C. Dept. of Mines 1972–5	Oct. 25, 1972	Mack E.N.D.T. 673-C	250	50,000
B.C. Dept. of Mines 1972–6	Oct. 25, 1972	Mack E.N.D.T. 865	322	50,000

The interest in diesel-power equipment for use in underground coal mines has continued during 1972. Many inquiries were received regarding the possible use of medium-capacity load-haul-dump machines for tunnel drivage, and of general purpose service vehicles for carrying supplies and personnel. As the Fuels Research Centre of the Federal Department of Energy, Mines and Resources in Ottawa is now fully equipped for testing flameproof diesel equipment designed for use in gassy coal mines, it has been decided that no permits for the use of diesel-powered equipment in an underground coal mine in this Province will be issued unless the equipment involved has received a flameproof certificate issued by the Department of Energy, Mines and Resources.

Several flameproof diesel engines have recently been designed without a standard flametrap in the exhaust system. In these cases, the exhaust-gas water conditioner is used as a flame arrester. This may be acceptable where there is no

possibility of the engine being started or operated unless the conditioner contains its normal quantity of water. Recently, however, some flameproof diesel engines have been designed without exhaust flametraps and with no safety control to prevent the engine being started with an empty scrubber. This is not an acceptable arrangement for use in British Columbia.

The use of nonflammable hydraulic fluids in equipment used underground has been recommended for many years, but the response from manufacturers has, in general, been very disappointing. The serious potential hazard with the widespread use of mineral-oil hydraulic fluids was demonstrated recently by the following dangerous occurrence that occurred in an underground mine:

A 5-yard loader was hit by a piece of rock which rolled down from a stope. The rock cut through a hydraulic hose to the bucket cylinders and, at the same time, broke a headlight. The escaping spray of hydraulic fluid was ignited and the operator received first- and second-degree burns to his face and neck.

Several types of nonflammable hydraulic fluids are now commercially available and most mobile equipment destined for use underground could be factory-equipped with one of these fluids.

During 1972 the installation of roll-over protection was required for personnel carriers and service vehicles operating underground. In the past, several vehicles have overturned after running out of control down haulage ramps and a fatal accident resulting from one such incident during the past year. Where approved roll-over protection has been provided, the operators should be required to wear lap seat-belts while driving the vehicle.

During 1972, approvals were issued for three Mack highway tractor-trailer units to operate in an underground marble quarry and, it is interesting to note, two of these vehicles develop 250 brake horsepower and the third, 322 brake horsepower. The minimum ventilation required for each machine is 50,000 cubic feet per minute, based on the results of dynamometer tests conducted in Vancouver on identical engines.

The following is a summary of all diesel-powered equipment that was operated underground during 1972:

Equipment	Number of Units Operated	Total Brake Horsepower
Locomotives	21	1,054
Load-haul-dump vehicles (Wagner scoop-trams, Eimco loaders, etc.)	75	8,418
Standard front-end loaders	5	963
Ore and waste carriers (dump trucks, scoot-cretes, etc.)	33	4,773
Tractors	7	849
Drilling jumbos	33	1,921
Graders	8	651
Service and personnel vehicles	51	2,570
Air compressors	2	461
Diamond drills	1	47
Scaling equipment	1	109
Concrete placing equipment	1	47
Welding machine	1	49
Mobile slusher	1	109
Fork-lift truck	1	56
Totals	241	22,077

The minimum total volume of mine ventilation required for all the listed equipment is 2,825,500 cubic feet per minute, which gives an average ventilation requirement of approximately 130 cubic feet per minute per brake horsepower.

Hoisting

No new shaft hoists were put into service during 1972 and the following hoist ceased operation for the reason shown. *Craigmont Mines Limited* (hoist removed, shaft abandoned)—No. 1 Shaft: Canadian General Electric Company, four-rope, 72-inch-diameter friction hoist, d.c. adjustable voltage drive, 100 horsepower.

During 1972, 57 breaking-test reports were received for samples of rope tested to destruction in accordance with Rule 164 of the *Mines Regulation Act* and 105 nondestructive test reports were also received during this same period. Seventy-five of these nondestructive tests were carried out by Wire Rope Industries of Canada, Ltd., using D.C. Defectograph, and 30 were carried out by Rotesco of Canada Ltd., using their A.C. Electro-Magnetic Rope Tester. As a result of the continued use of nondestructive rope-testing, 68 separate rope-life extension (mostly for four-month periods) were granted enabling hoisting ropes to remain in service beyond the normal two-year statutory limit. Several hoisting ropes had completed four years of service and several tail ropes had completed six years of service at the time of their removal.

In general, 1972 was a quiet year for shaft hoisting in British Columbia, with only 18 hoists operating at eight separate mining operations.

Several mining companies have shown interest in the "raise climber" type of hoist which is being used more and more for light-duty hoisting. The cage is designed primarily for hoisting persons between various underground levels and is operated by push-button control as in a conventional elevator. The cage travels on a rack secured either directly to the raise or shaft walls by rock bolts or to the normal shaft timbering, where this is already in existence. There are two electric motors mounted on the cage, each having a driving pinion engaging in the rack. Each motor also has its own spring-applied, power-released brakes, and there is also an emergency overspeed brake acting through a separate pinion. This type of climbing hoist was originally used for transporting workmen and supplies on buildings under construction and also as a means for inspection and maintenance crews to reach difficult places such as on the faces of dams, cooling towers, etc. As both motor brakes and the emergency overspeed brake all act on the same portion of the rack, it has been decided that an acceptable means of monitoring the integrity of the rack above and below the actual position of the cage must be used in any installation made at a mine in British Columbia.

Off-highway Trucks and Mobile Equipment

There was a further trend during 1972 toward the use of larger equipment in open-pit mining. Out of a total of 561 dump trucks in use, 183 or over 32 per cent had box capacities in excess of 60 tons and 156 or over 27 per cent carried pay loads in excess of 80 tons.

Many operators have experienced problems due to the development of fatigue cracks in the frames and suspension mountings of large electric wheel trucks. The reason for these failures is usually difficult to pin-point. Some manufacturers claim that fatigue cracking is inevitable due to the relatively rough conditions encountered

in open-pit operations, but this equipment must surely be designed to operate safely under typical "off-highway" conditions. One of the reasons may be the rather critical power-weight-brake relationships of these large trucks and the reluctance of the manufacturers to increase the weight by strengthening the frame components. One manufacturer believes that there may be room for improvement in their own quality-control programme, specially by the periodical retraining and re-examination of their welders.

As an unexpected failure in the frame or suspension mounting of a loaded 100 or 120-ton truck could have disastrous results, it is essential that all available nondestructive testing-techniques be used regularly by manufacturers and operators in order to detect manufacturing or operational defects before they reach serious proportions.

The following accident illustrates the need for this type of test programme: A front-wheel spindle of a large, fully loaded truck failed while the vehicle was travelling slowly and, fortunately, there were no personal injuries. A subsequent examination revealed that the final failure had resulted from the propagation of a pre-existing fatigue crack. These front-wheel spindles are vital components from a safety viewpoint and should be subjected to rigorous nondestructive and other tests, before and after installation, including an initial X-ray examination for casting defects. Apparently, however, such tests are not normally made.

Once again, in 1972, the need for more effective communcation between equipment operators, field supervisors, and maintenance personnel had been apparent. In too many cases drivers and operators are reporting the same fault or malfunction over and over again. Usually, in these cases, the trouble is of an intermittent nature and the vehicle is put back into service without the underlying cause having been discovered. It is the responsibility of the operator to bring to the attention of his immediate supervisor any defect or fault in the equipment he is operating and to make a record of this in the vehicle's log. It is the responsibility of the supervisor to ensure that the defect or fault is remedied and that the vehicle is safe to operate. The corrective measures taken should be entered in the vehicle's log alongside the original entry. If this procedure is followed, there will be far less chance of any unsafe piece of equipment remaining in service.

The following is a summary of the heavy open-pit and quarry equipment that was used during 1972:

Dump Trucks (Off-highway)

Capacity of Vehicle (Tons)	Number in Use
0–20	185
21–40	156
41–60	37
61–80	27
81–100	76
120	62
150	1
200	17
Total	561

Pit Shovels

Size of Shovel Bucket (Cubic Yards)	Number in Use
0–2	23
2¼–4	13
4¼–6	19
6¼–8	6
9–11	10
13–14	4
15–16	13
25	4
54–64 (Draglines)	2
Total	94

Front-end Loaders

Size of Bucket (Cubic Yards)	Number in Use
0–2	100
2¼–4	120
4¼–6	47
8¼–10	12
10¼–12	4
15	6
20–25	4
Total	293

General

The Department of Mines and Petroleum Resources sponsored a most successful Mechanical-Electrical Symposium, held in Victoria from February 15 to 18, 1972. When the meeting was originally envisaged it was planned to invite, to Victoria, the senior electrical and mechanical representatives from the mines and quarries in British Columbia in order to discuss mutual problems with personnel from the Inspection Branch.

At this stage an over-all attendance of 30 to 40 persons was expected. As the programme was being prepared, however, it became obvious that a very great interest in such a "get-together" was being generated among manufacturers and distributors of equipment, other Government departments, and electrical-mechanical consultants. As a result of the many requests for permission to attend the symposium that were received, the original programme was broadened considerably. The final registration of delegates was 110.

The following subjects were covered by oral presentation by specialists and (or) by general panel discussion:

Conveyors—emergency stops and pull cords.
Electrical switchgear—locking-out procedures.
Electric cables—design and selection.
Electric shovels and drills—design and operation.
Emergency run-off protection for vehicles—inertial barriers.
Emergency braking of vehicles—methods and results.
Emergency steering of vehicles—review of current methods.

Roll-over protection—films and test results.
Engine brakes, retarders; electric and mechanical.
Air-brake systems—general review.
Mobile cranes—design factors; operating safety.
Hydraulic fluids—fire-resistant types.
Trackless mining equipment—general review.
Mine hoists—friction hoist design.
Nondestructive testing—general review.

Many letters were received testifying to the success of this symposium and many suggested that such meetings should be held regularly. The techniques of modern-day mining are becoming more and more dependent upon the safe and reliable operation of mechanical and electrical equipment, and it is therefore essential to provide for a free exchange of ideas and experiences between mining, manufacturing, and Government personnel in order to ensure that the equipment is designed, maintained, and operated safely in the mining industry of British Columbia.

ENVIRONMENTAL CONTROL

The following is the summary of the environmental control report submitted by S. Elias, Senior Inspector, Environmental Control.

Sixty-six surveys of dust and ventilation conditions were made at 51 operations during 1972. The surveys were made at lode mines, both underground and open-pit operations, rock quarries, gravel-crushing plants, an asbestos mine, and at open-pit and underground coal-mining operations.

Sixty-nine per cent of the surveys at drilling operations at underground mining operations gave averages of less than 300 particles per cubic centimetre of air. Further extending the utilization of raise-boring machines would definitely assist dust control by decreasing the dust exposure initially and provide a quick means of ventilation secondary.

In the "All Others Underground" category, 89 per cent of the surveys gave averages that were less than 300 particles per cubic centimetre of air. More consideration will have to be directed to the synergistic effects of mine gases and dusts, with special attention directed toward the products of combustion of diesel engines used underground.

Seventy-one per cent of the surveys in crushing plants at underground operations gave surveys of less than 300 particles per cubic centimetre of air. The design of dust-control systems at the more recent mining operations is very definitely improving. The dust-control systems are all being designed with pollution-control devices.

The design of dust-control systems in assay grinding-rooms leaves considerable room for improvement. The hazards are well defined and known control measures are available but are not being utilized. Seventy-five per cent of the surveys gave averages less than 300 particles per cubic centimetre of air, 100 per cent is feasible.

Dust control at open-pit mining operations is improving. The conversion from the smaller Air-Trac type drills to the larger rotary drills is reducing dust exposure at the drilling operations. One hundred per cent of the surveys were under the 300 particles per cubic centimetre of air standard.

The "All Others" category in open-pit mines has been in the past considered virtually a no-problem area. In recent times it has been shown that the caterpillar tractor operators may be exposed to high dust concentrations due to the method of using engine heat for comfort during the winter months. Solutions are known

and are being utilized. Eighty-eight per cent of the surveys were under the 300 particles per cubic centimetre of air as compared to 100 per cent during 1971.

The crushing plants at open pits experience dust control both in summer and winter, dry rock and frozen respectively, both cause high dust concentrations. During the summer, water may be used to augment the exhaust systems, but during the winter months pseudo-electrostatic collection of dust on the conveyor belts is presenting control problems that have resisted effective solutions. Fifty-seven of the surveys were under the 300 particles per cubic centimetre of air. Slow progress is being achieved.

At structural-material and industrial-mineral operations the results were as follows: At drilling operations, 100 per cent of the surveys were below 300 particles per cubic centimetre of air; at "All Others," 50 per cent were less than 300; at crushing operations, 48 per cent were within the standard; and at bagging and warehouse locations, 60 per cent were less than 300 particles per cubic centimetre of air. Resistance is still being experienced regarding dust control at these operations.

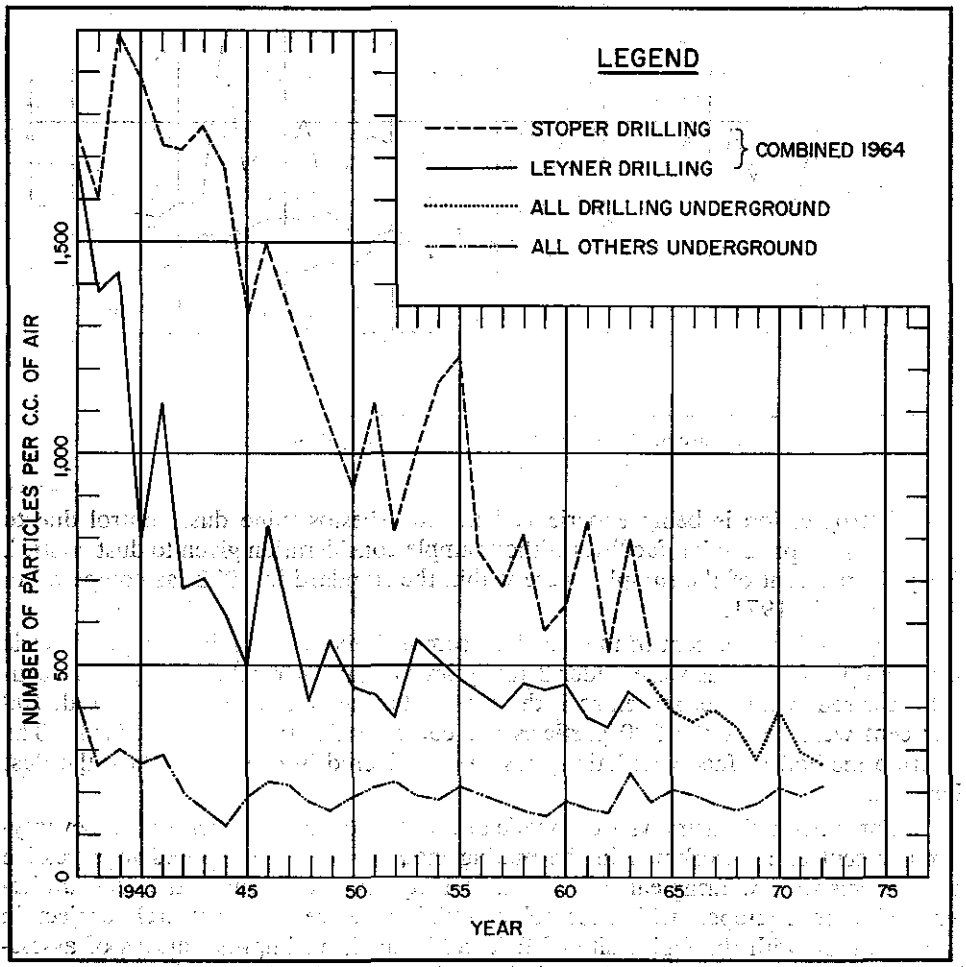


Figure 8. Average underground dust counts.

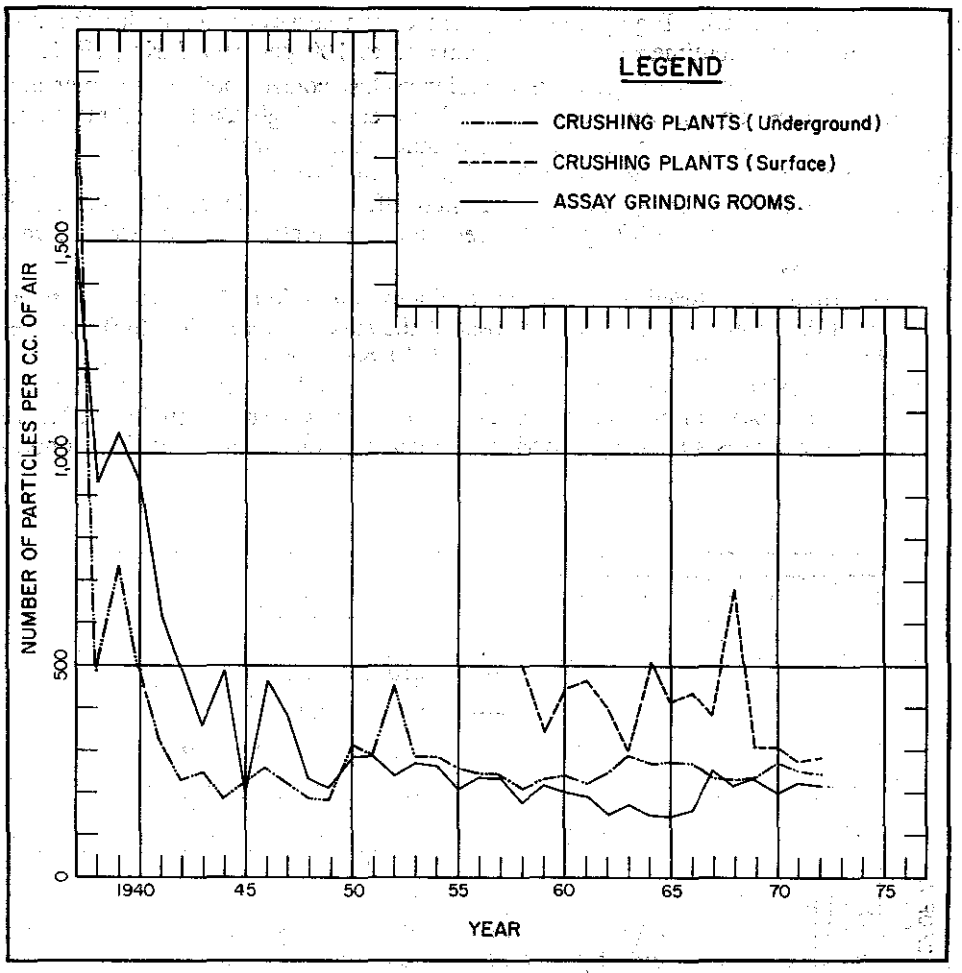


Figure 9. Average crushing and grinding dust counts.

Retrogression is being experienced at the asbestos mine dust control due to an increase in production facilities without ample consideration given to dust control. Fifty-six per cent of the samples were within the standard in 1972, as compared to 60 per cent in 1971.

Eighty-eight per cent of the locations sampled about coal mines by gravimetric dust-sampling methods were under 3 milligrams of dust per cubic metre. In open-pit areas removing overburden rock the Konimeter method of sampling is used, 100 per cent were below the 300 particles per cubic centimetre of air standard. The overlap method of face ventilation must be considered in order to reduce the dust hazards.

Forty-two noise surveys were made at the various mining operations. Seventy-six per cent of all workmen in the mining industry that are exposed to excessive noise levels were wearing ear protection. Ninety-seven per cent of the drills underground were equipped with acceptable muffling devices. A research project in collaboration with the University of British Columbia to improve means of assessing the noise hazards in the mining industry is progressing favourably.

Certificates of fitness were checked at the mining operations with the following results:

Lode mining—95 per cent had the required certificates of fitness.
Coal mining—86 per cent had the required certificates of fitness.
Asbestos mining—100 per cent had the required certificates of fitness.

The accompanying graphs show the median of all averages in various operations in the lode mines obtained each year since 1937. The graphs are a means of charting the general progress in dust control. In the 35 years of charting this is the first time that all operations are below the 300 particles per cubic centimetre of air datum.

SHIFTBOSS CERTIFICATES

Section 21 of the *Mines Regulation Act* requires that every person employed underground or in open-pit workings 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 163 applications for examinations filed during 1972.

The Board of Examiners may grant provisional certificates under such conditions as it considers advisable. During 1972, 56 provisional certificates were issued.

Examinations were held at various places throughout the Province, and, of the 185 examinations written, 148 candidates passed. There were 155 shiftboss certificates issued, 47 to underground shiftbosses, 77 to those employed in open-pit mining, and 31 to those employed in gravel pits. The recipients are listed in the accompanying tables.

UNDERGROUND SHIFTBOSS CERTIFICATES, 1972

Cert. No.	Name	Date	Cert. No.	Name	Date
668	Edward John Nunn	7/1/72	692	Bruce Knack	12/6/72
669	Russel Pasiechnyk	7/1/72	693	Ross Pallett	15/6/72
670	Fergus Patrick Kerr	31/1/72	694	Vaclav J. Kadlec	15/6/72
671	Ronald B. Bennett	1/2/72	695	Fred A. Smith	11/7/72
672	John K. Riehm	4/2/72	696	John T. Susak	21/8/72
673	Calvin G. O'Bray	1/3/72	697	Eamonn McArdle	19/10/72
674	Jean Paul Roch	1/3/72	698	Russel A. Gingrich	20/11/72
675	Rolf Arne Rosen	1/3/72	699	Frank Permesser	20/11/72
676	Norman A. Konradson	1/3/72	700	William A. C. Jackson	23/11/72
677	Gunter Zelmer	1/3/72	701	Karl H. Scholz	23/11/72
678	John M. Strauss	1/3/72	702	Bertrand Leblanc	27/11/72
679	N. A. Gizzi	1/3/72	703	Kenneth F. Bradley	27/11/72
680	Lawrence G. Turner	1/3/72	704	Leslie J. Halsall	19/12/72
681	John D'Amuro	7/3/72	705	Elmer G. Jacobson	20/12/72
682	Gerald L. White	6/4/72	706	Howard J. Last	20/12/72
683	Walter Rusinek	25/4/72	707	Timothy P. Riordon	20/12/72
684	Stanley J. Williams	3/5/72	708	Douglas W. Flynn	21/12/72
685	Frank Gillis	9/5/72	709	Lorne M. Fulton	21/12/72
686	Adam Zimmerman	11/5/72	710	John E. Hunt	21/12/72
687	Florent J. A. Laforest	12/5/72	711	James R. Innes	21/12/72
688	Albert H. Nelmapius	18/5/72	712	Harner C. McKay	21/12/72
689	Michael J. Williams	25/5/72	713	Vaclav Srajer	21/12/72
690	Marcel Guillemette	29/5/72	714	Charles A. Ball	21/12/72
691	Allan M. McMillan	12/6/72			

Gravel-pit Shiftboss Certificates, 1972

Cert. No.	Name	Date	Cert. No.	Name	Date
GP-1	Gerald J. A. Hudson	13/1/72	GP-17	Allen M. Parker	23/3/72
GP-2	Andrew Dzuris	14/2/72	GP-18	Frederick H. Smith	23/3/72
GP-3	Melvin L. Buckmaster	14/2/72	GP-19	Steve Kwasnycia	29/3/72
GP-4	Roland D. Harrison	14/2/72	GP-20	Donald Robertson	15/5/72
GP-5	Thomas M. Earl	14/2/72	GP-21	George J. Duncan	15/5/72
GP-6	Frederick Davidson	14/2/72	GP-22	Otto Tiemer	15/5/72
GP-7	James A. Wingrove	14/2/72	GP-23	Wayne A. Leys	29/5/72
GP-8	Leonard A. Landgraff	15/2/72	GP-24	Howard C. Eames	30/6/72
GP-9	Dan A. Chapman	15/2/72	GP-25	Nicholas K. Antonelli	7/8/72
GP-10	Edmond H. Freund	15/2/72	GP-26	Franklin Gingerich	2/10/72
GP-11	Douglas P. Cripps	21/2/72	GP-27	Anthony R. Woodman	3/10/72
GP-12	John R. Allan	21/2/72	GP-28	Maxwell P. Hood	3/10/72
GP-13	C. Bernard Stewart	22/2/72	GP-29	Gordon K. Noren	24/10/72
GP-14	Jack A. Nestman	7/3/72	GP-30	Lloyd V. Smith	3/11/72
GP-15	Terrence H. Howson	8/3/72	GP-31	Clement Hertslet	4/12/72
GP-16	Peter J. Enns	14/3/72			

Open-pit Shiftboss Certificates, 1972

Cert. No.	Name	Date	Cert. No.	Name	Date
OP-109	Henry Karl Hawkins	3/1/72	OP-148	Lloyd H. Bussineau	27/4/72
OP-110	John Angus MacDonald	5/1/72	OP-149	Fred F. Kiedrowski	2/5/72
OP-111	Jerry Rene LeBlanc	7/1/72	OP-150	Fergus P. Kerr	9/5/72
OP-112	Blake Bernard Anderson	17/1/72	OP-151	Terrence Hanrahan	9/5/72
OP-113	Gary K. Livingstone	17/1/72	OP-152	Bruce Allan Lambert	9/5/72
OP-114	Donald Bernard Reimer	17/1/72	OP-153	Charles Wayne Inglis	10/5/72
OP-115	Ian William Pond	19/1/72	OP-154	Norman Alexander Ross	24/5/72
OP-116	David Edward Kostiuk	26/1/72	OP-155	William James Mullin	24/5/72
OP-117	Douglas George Matheson	26/1/72	OP-156	Aldin Gordon Ratzlaff	29/5/72
OP-118	Ronald Percy Materi	1/2/72	OP-157	Dale Dupperreault	6/6/72
OP-119	Douglas Grant McIntosh	2/2/72	OP-158	Ronald Garth Epp	6/6/72
OP-120	Jerry J. Ofukany	4/2/72	OP-159	Gerhard Wolfgang Kurz	6/6/72
OP-121	Floyd William Prouse	4/2/72	OP-160	Matthew William Waldner	6/6/72
OP-122	Douglas E. Guild	4/2/72	OP-161	John Arthur Chapman	6/6/72
OP-123	Gregory Dean Savage	4/2/72	OP-162	Glenn George Galloway	6/6/72
OP-124	Olaf Allan Mathers	4/2/72	OP-163	Carl Vidor Johnson	6/6/72
OP-125	Willis James McBride	8/2/72	OP-164	Henry Thomas John	6/6/72
OP-126	Richard Frederick Ashe	8/2/72	OP-165	Ross Owen Glanville	6/6/72
OP-127	Roy Gerald McLeish, (Sr.)	21/2/72	OP-166	Claude Elophe Bourgeois	6/6/72
OP-128	Arthur Sidnes Morris	6/3/72	OP-167	Robert Louis Cyr	6/6/72
OP-129	Ernest Alfred Gareau	8/3/72	OP-168	George Michael Luznar	6/6/72
OP-130	Arthur L. Walsh	8/3/72	OP-169	Bruce A. Graney	16/6/72
OP-131	Robert Bruce Johnson	10/3/72	OP-170	Douglas Donald Valin	16/6/72
OP-132	Robert Gordon Colthorp	10/3/72	OP-171	Claus Richter	21/6/72
OP-133	Roebrt Renaud	16/3/72	OP-172	Rupert L. McKenzie	11/7/72
OP-134	Ronald Rene M. Montigny	16/3/72	OP-173	David Matatall	31/7/72
OP-135	Willy Horst Peters	21/3/72	OP-174	Donato Demitri	28/9/72
OP-136	William MacPherson	21/3/72	OP-175	Leonard S. Rempel	13/10/72
OP-137	Jeremy Ian Silver	29/3/72	OP-176	Dennis Leo Leduc	17/10/72
OP-138	Robert Joseph Pittman	29/3/72	OP-177	William L. Giachino	25/10/72
OP-139	John S. Kristofferson	29/3/72	OP-178	Rowland W. Leigh	25/10/72
OP-140	Robert L. Blake	29/3/72	OP-179	Robert H. Green	25/10/72
OP-141	Walter E. Pearson	30/3/72	OP-180	Leonard J. Anderson	10/11/72
OP-142	Peter O. Sleeman	30/3/72	OP-181	Russell L. Davis	10/11/72
OP-143	Duane S. Howard	30/3/72	OP-182	Andrew J. McQuire	20/11/72
OP-144	Harold A. Peyto	30/3/72	OP-183	Gerald R. Larson	30/11/72
OP-145	Karsten L. Hansen	10/4/72	OP-184	George L. Kalmakav	19/12/72
OP-146	John Tegart	10/4/72	OP-185	Romeo Dostaler	19/12/72
OP-147	Don C. Ingham	19/4/72			

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 1972, nine candidates presented themselves for examinations, one for a second-class certificate and was unsuccessful in passing the examination, and eight for third-class certificates, seven of whom were successful in passing the examination. Five other candidates applied for interchange certificates, all of whom were granted certificates on the Board's recommendation. These included two applicants for first-class certificates, one for a second-class certificate, and one for a third-class certificate. The applicants for interchange certificates held equivalent qualifications from the United Kingdom (2), New South Wales (Australia), and Alberta respectively. All the candidates for interchange certificates were interviewed by the Board.

The following certificates were issued in 1972:

First-class Certificates of Competency

Certificate No.	Name	Date
A235	Frederick Dawson	August 9.
A236	Eric Roberts	December 5.

Second-class Certificates of Competency

B338	John Burns	August 22.

Third-class Certificates of Competency

C1049	Keith Bracewell	February 7.
C1050	Peter Reghenas	April 6.
C1051	Ronald Lambert	April 6.
C1052	Chester Taje	April 6.
C1053	Jack Peters	April 6.
C1054	John Kelly	June 29.
C1055	Peter Zeith	July 25.
C1056	Archie Emblau	December 18.

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 1972 the

mine-rescue equipment owned by this Department totalled 50 Aerorlox two-hour liquid-oxygen breathing machines, seven Draeger BG-174 and 57 McCaa two-hour high-pressure gaseous oxygen-breathing machines, and 53 Chemox one-hour chemical oxygen-producing machines. The equipment owned by industry totalled 24 Aerorlox, 18 BG-174, 42 McCaa, and 65 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.

In cases of emergency, Departmental equipment and personnel are available to assist in rescue and fire-control operations. On May 2 a major fire disaster occurred underground at the Sunshine mine, Kellogg, Idaho, and the following day a request was received by the Sullivan mine of Cominco Ltd., at Kimberley, for asistance in providing trained mine-rescue personnel. Two teams, complete with 12 Aerorlox two-hour liquid-oxygen machines and six McCaa two-hour high-pressure machines were sent forthwith. On hearing of the request for help, the Chief Inspector of Mines immediately sent a telegram offering further help to the disaster rescue co-ordinator. A reply accepting the offer was received on the evening of May 6 and early the following day two teams were dispatched from the Michel underground coal mines of Kaiser Resources Ltd. R. W. Lewis, Inspector of Mines, and A. Littler, mine-rescue co-ordinator, together with six Aerorlox machines, were sent from the Fernie Mine-rescue Station. In addition, G. J. Lee, rescue co-ordinator at the Nelson station, took six Aerorlox machines from there and picked up two volunteer mine-rescue trained men from Salmo and proceeded to Kellogg. An additional 12 liquid-oxygen machines were flown by Government plane from Kamloops to Spokane and were delivered from there by truck to Kellogg.

The British Columbia mine-rescue teams and accompanying personnel worked in conjunction with the other teams from mines in Idaho, Montana, and Utah. The liquid-oxygen machines were found to be the preferred choice of the wearers, inasmuch as the underground temperatures were in some places over 120°F. The British Columbia crews worked 12-hour shifts through to May 12, when they returned home.

Of the 173 men who were working underground at the time of the fire, 80 were able to make their way safely to the surface, two were recovered alive on the afternoon of May 9, but 91 men lost their lives.

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.

The Fernie unit held both surface and underground mine-rescue courses at the Fernie station for employees of the Bull River mine of Placid Oil Company, and Kaiser Resources Ltd., from their Harmer Ridge surface and the Michel underground operations. Class instruction and practices were given at the Sullivan mine at Kimberley, the Fording River operation of Fording Coal Limited, and at Invermere for the employees of Western Gypsum Limited. The Fernie station liquid-oxygen equipment was used to combat an underground fire in the Balmer hydraulic coal mine of Kaiser Resources Ltd.

The Kamloops unit held mine-rescue courses at Bethlehem, Brenda, Craigmont, and Gibraltar mines. A St. John Ambulance first-aid course was given in

Kamloops. In April, a surface mine-rescue instructors' course was presented at Kamloops. All rescue co-ordinators combined to give instruction to the 27 persons attending.

The Nanaimo unit provided underground mine-rescue training at the Old Sport mine of (Coast Copper Company Limited) at Benson Lake, the Sunro mine at Jordan River, the Lynx mine at Myra Falls, Texada iron mine on Texada Island, and the Pride of Emory mine at Choate. In addition, this course was presented twice in Vancouver—once for the mining students at the B.C. Institute of Technology and secondly for the supervisors of Inspiration Drilling Ltd. A surface mine-rescue course was presented at the Tasu operation of Wesfrob Mines Limited and gravel-pit-rescue courses were given at Sechelt, Powell River, and Nanaimo. A St. John Ambulance first-aid course was presented at Tasu and an Industrial first-aid course at Lynx mine of Western Mines Limited.

The Nelson unit provided underground mine-rescue training at the Sullivan, Reeves MacDonald, and Silmonac (Kam Kotia-Burkam Joint Venture) mines. Surface rescue training was presented at the Rossland Mining School and the Phoenix mine. An Industrial first-aid course was given in Nelson.

The Prince George unit gave underground mine-rescue training at Granduc, Pinchi Lake, Coalition, and Silver Queen (Bradina) mines, and surface mine-rescue training at Cassiar, Endako, and Pinchi Lake mines.

In 1972, Department Instructors conducted training classes for the certification of 145 men in underground-mine rescue, of 206 men in surface-mine rescue, of 11 men in gravel-pit rescue, of 158 persons in St. John Ambulance first aid, and of 26 men in Industrial first aid. The names of the persons completing the rescue courses and awarded Department certificates are contained in the following lists:

UNDERGROUND MINE-RESCUE CERTIFICATES, 1972

Cert. No.	Name	Where Trained
5016	Gunter Zelmer	Vancouver.
5017	Peter J. Sakaluk	Vancouver.
5018	Norman Arne Konradson	Vancouver.
5019	Maurice G. Giroux	Vancouver.
5020	Calvin Gilbert O'Bray	Vancouver.
5021	J. Lucien Lavoie (supervision only)	Vancouver.
5022	Frank M. Gillis (supervision only)	Vancouver.
5023	John Michael Strauss	Vancouver.
5024	Arne Rosen	Vancouver.
5025	John Paul Roch	Vancouver.
5026	Kenneth F. Bradley	Merritt.
5027	Allan D. Mitchell	Merritt.
5028	Adrian W. Van Dongen	Merritt.
5029	Federrico Cavaliere	Merritt.
5030	James F. MacDonald	Merritt.
5031	Gerald R. Sanford	Merritt.
5032	Adam M. Zimmerman	Merritt.
5033	Gordon A. Nickerson	Merritt.
5034	Calvin V. Green	Merritt.
5035	Paul M. Herchak	Merritt.
5036	Alexander Liss	Merritt.
5037	David Lionas	River Jordan.
5038	Siegfried Wolfgang H. Rohr	River Jordan.
5039	John Albert Piovesan	River Jordan.
5040	Ronald H. Koebel	River Jordan.
5041	Michael A. Bryson	Stewart.
5042	John D'Amuro	Stewart.
5043	William Jackson	Stewart.
5044	Albert H. Nelmapius	Stewart.

UNDERGROUND MINE-RESCUE CERTIFICATES, 1972—*Continued*

Cert. No.	Name	Where Trained
5045	James Robertson	Stewart.
5046	James Simpson	Stewart.
5047	Stanley Weslake	Stewart.
5048	Jan G. Westeren	Stewart.
5049	Colin B. Wregg	Stewart.
5050	Jim Ford	Houston.
5051	Donald Marcel Larocque	Houston.
5052	Bruce Watson	Houston.
5053	John Tremblay	Houston.
5054	Daniel Baker	Houston.
5055	Joe Markovic	Houston.
5056	William Buys	Houston.
5057	Eugene Birakowski	Houston.
5058	Freddie Frederick	Houston.
5059	Donald C. Good	Houston.
5060	Herbert G. Schwenk	Houston.
5061	Kenneth Salewski	Houston.
5062	Joe Pidhirny	Houston.
5063	Brian Robert Kean	Houston.
5064	Bryan H. Buckley	Vancouver.
5065	Dennis N. Craig	Vancouver.
5066	James Edward Beswick	Vancouver.
5067	Reg G. Sangster	Vancouver.
5068	Raymond Dennis Bergen	Vancouver.
5069	Ronald G. Schneider	Vancouver.
5070	David Ernest Woodward	Vancouver.
5071	Harry Joling	Vancouver.
5072	Leo Rudolph Reichert	Vancouver.
5073	Frank Etchart	Vancouver.
5074	Eric William A. Back	Vancouver.
5075	Hugh McGillivray	Vancouver.
5076	Richard William MacDermott	Vancouver.
5077	David Ross McArthur	Vancouver.
5078	Dale E. Stevenson	Vancouver.
5079	Patrick V. Fitzgibbon	Vancouver.
5080	Dennis Walter Demmon	Fort St. James.
5081	Robert N. Dalgleish	Fort St. James.
5082	Robert E. Klinschman	Fort St. James.
5083	Reo D. Martin	Fort St. James.
5084	Robert S. Dowdell	Fort St. James.
5085	William K. Floyd	Fort St. James.
5086	Gerhard Gil Kretzschmar	Campbell River.
5087	Jorma Joel Kangas	Campbell River.
5088	Ronald J. Payne	Campbell River.
5089	Walter H. Flyer	Campbell River.
5090	Thomas W. Anger	Campbell River.
5091	Murray Cecil Bray	Kimberley.
5092	Arthur Edward Bryant	Kimberley.
5093	Brian David Corriveau	Kimberley.
5094	Wayne Edward Elliott	Kimberley.
5095	Helmut Enrico Fast	Kimberley.
5096	William Horgas	Kimberley.
5097	Paul James Lowen	Kimberley.
5098	Kenneth George H. MacDonald	Kimberley.
5099	Gary Allan McIndoe	Kimberley.
5100	William Gordon McLelland	Kimberley.
5101	Gordon William Olsen	Kimberley.
5102	William Bruce Scott	Kimberley.
5103	Frank Permesser (supervision only)	Stewart.
5104	Aloysius (Al) McKinnon	Hope.
5105	David Arvo Heino	Hope.
5106	Ralph J. Caruso	Fernie.
5107	E. Michael Berthelsen	Fernie.
5108	Joseph R. Tuza	Fernie.
5109	Lamar J. Lindsay	Fernie.
5110	Colin David Hall	Fernie.
5111	Robert Watson Anderson	River Jordan.
5112	Boris Blanchard	River Jordan.
5113	Cornelius K. Fehr	River Jordan.
5114	William Dennes Taylor	River Jordan.
5115	John Thomas C. Thompson	River Jordan.
5116	William R. C. Leitch	River Jordan.

UNDERGROUND MINE-RESCUE CERTIFICATES, 1972—*Continued*

Cert. No.	Name	Where Trained
5117	Archie Cyril Anstey	Stewart.
5118	Charles A. Ball	Stewart.
5119	James Allan Brandle	Stewart.
5120	Robert J. Dowdall	Stewart.
5121	David Norval Henderson	Stewart.
5122	Richard Malcolm Graham	Stewart.
5123	Balfour Junior MacKay	Stewart.
5124	Duncan Grant MacPherson	Stewart.
5125	Ronald Douglas Moram	Stewart.
5126	Alan Joseph R. Murray	Stewart.
5127	Rodney Ernest Perks	Stewart.
5128	Horst Sentara	Gillies Bay.
5129	Bennie L. Nicholas	Gillies Bay.
5130	Timothy W. Robillard	Gillies Bay.
5131	Lloyd G. Chabot	Gillies Bay.
5132	Edward P. Rudolph	Gillies Bay.
5133	Glen A. Walker	Gillies Bay.
5134	Jeffrey Cartwright	River Jordan.
5135	Bjarne Thorshaug	River Jordan.
5136	Kenneth Ward Levy	River Jordan.
5137	Siegfried Thau	River Jordan.
5138	Zoltan Macko	River Jordan.
5139	Robert Glennie	River Jordan.
5140	Cyr Blanchard	River Jordan.
5141	Brian Jerome Rice	River Jordan.
5142	John W. Cameron	Fernie.
5143	Robert John Hicks	Fernie.
5144	Marvin L. Holmes	Fernie.
5145	Ronald G. W. Lorenz	Fernie.
5146	Charlie Douglas Nickerson	Fernie.
5147	Balbir S. Dhillon	Fernie.
5148	James Raymond Reynolds	Fernie.
5149	Charles Dwight Haslam	Fernie.
5150	Daniel Arnold Danielson	Hope.
5151	Ronald H. Smith	Hope.
5152	John R. Rae	Hope.
5153	David John Chapman	Hope.
5154	Harry T. Kelford	Chetwynd.
5155	Geoffrey D. Moss	Chetwynd.
5156	Peter John Appleby	Chetwynd.
5157	Alan R. Menzies	Chetwynd.
5158	Josef Hoffman	Remac.
5159	Marcel Bordeleau	Remac.
5160	Jack Maurice Lambert	Remac.

SURFACE MINE-RESCUE CERTIFICATES, 1972

Cert. No.	Name	Where Trained
O-442	Jacques Beaudin	Rossland.
O-443	Charles Vincent Carroll	Rossland.
O-444	Edward James Charlton	Rossland.
O-445	John Forster	Rossland.
O-446	Dan Gallagher	Rossland.
O-447	Dennis G. J. Harcus	Rossland.
O-448	William Neil Hyslop	Rossland.
O-449	Michael John Kary	Rossland.
O-450	Norman Merke	Rossland.
O-451	Ralph William Moore	Rossland.
O-452	Donald Bruce McFadyen	Rossland.
O-453	Jonathan Cole McKain	Rossland.
O-454	Allen Leslie McWhinnie	Rossland.
O-455	Wade Leslie Olson	Rossland.
O-456	Robert James Robinson	Rossland.

SURFACE MINE-RESCUE CERTIFICATES, 1972—*Continued*

Cert. No.	Name	Where Trained
O-457	Steven Rypuzynski	Rossland.
O-458	Richard Elmer Thompson	Rossland.
O-459	Ronald Tjader	Rossland.
O-460	Douglas Bruce Yarwood	Rossland.
O-461	Henry H. Volkmann	Fernie.
O-462	John H. Dick	Fernie.
O-463	Lamar J. Lindsay	Fernie.
O-464	Andy Howard Johnson	Fernie.
O-465	Edward Garwood Pierce	Fernie.
O-466	Thomas C. Butler	Fernie.
O-467	Walter E. Pearson	Elkford.
O-468	Ludwig Roessler	Elkford.
O-469	Peter Oliver Sleeman	Elkford.
O-470	Romeo Dostaler	Elkford.
O-471	Darcey Lyle Blomquist	Rossland.
O-472	Kenneth Ralph Burke	Rossland.
O-473	Ian Robert Burvill	Rossland.
O-474	Robert George Fast	Rossland.
O-475	James Ross Ferguson	Rossland.
O-476	Milton Hamilton	Rossland.
O-477	Raymond Bruce Heagy	Rossland.
O-478	Ronald A. Koponyas	Rossland.
O-479	Gary William Leonard	Rossland.
O-480	George McGinnis	Rossland.
O-481	Glen Edwin Norman	Rossland.
O-482	Terrence George Orchard	Rossland.
O-483	Patrick John O'Reilly	Rossland.
O-484	Dwight Anthony Qualie	Rossland.
O-485	Roy Joseph Richards	Rossland.
O-486	Orlin Roy Robinson	Rossland.
O-487	Richard Anthony Sieben	Rossland.
O-488	Brian Randolf Tremblay	Rossland.
O-489	Don Zschiedrich	Rossland.
O-490	E. Michael Berthelsen	Fernie.
O-491	Peter Michael Relkoff	Fernie.
O-492	Lawrence Louis Schlender	Fernie.
O-493	Abraham James Peters	Fernie.
O-494	Anthony Wallace Milligan	Fernie.
O-495	Robert L. Reitenbach	Fernie.
O-496	Harold William Adair	Rossland.
O-497	Thomas Wilfred Arkison	Rossland.
O-498	Clarence Ellis Bouthillier	Rossland.
O-499	Brian James Crowhurst	Rossland.
O-500	Oliver Ernest Delawsky	Rossland.
O-501	Eric Greville Fox	Rossland.
O-502	Raymond Gregoire	Rossland.
O-503	William Heinrichs	Rossland.
O-504	Ralph Raymond Hodge	Rossland.
O-505	Raymond M. A. Houle	Rossland.
O-506	Willibald Kronsteiner	Rossland.
O-507	John Philip Lewis	Rossland.
O-508	Ronald Francis Maximenko	Rossland.
O-509	Robert Blake Madill	Rossland.
O-510	Mickeal Joseph Murray	Rossland.
O-511	Frank Mathew Paparich	Rossland.
O-512	John Robert McCuaig	Rossland.
O-513	Roy Allan Schuler	Rossland.
O-514	Malcolm Archibald Stewart	Rossland.
O-515	John William Sutherland	Rossland.
O-516	Robert William Wallace	Rossland.
O-517	David W. Bjork	Fort St. James.
O-518	Richard W. Beaulieu	Fort St. James.
O-519	Harvey Justus	Fort St. James.
O-520	David William Hadcock	Fort St. James.
O-521	Doug T. Kimpinski	Fort St. James.
O-522	Eli Slorstad	Fort St. James.
O-523	Lawrence A. Stout	Ashcroft.
O-524	Russell L. Davis	Ashcroft.
O-525	Robert W. Jennings	Ashcroft.
O-526	Robert L. Cyr	Ashcroft.
O-527	Claus Richter	Ashcroft.
O-528	Dennis M. Pugsley	Ashcroft.

SURFACE MINE-RESCUE CERTIFICATES, 1972—*Continued*

Cert. No.	Name	Where Trained
O-529	Fred Derhousoff	Grand Forks.
O-530	George M. Luznar	Grand Forks.
O-531	Ronald Ivan Matthews	Grand Forks.
O-532	John (Jack) W. Zeck	Grand Forks.
O-533	Donald W. Bee	Tasu.
O-534	Grant H. Young	Tasu.
O-535	Douglas Anthony Booth	Tasu.
O-536	Christopher John Johansen	Tasu.
O-537	Dale Allen Van Dam	Tasu.
O-538	Andre Joseph Lucien Beaudet	Rossland.
O-539	Gerald Birakowski	Rossland.
O-540	George Bernard Cichon	Rossland.
O-541	Dale Arthur Crippen	Rossland.
O-542	Douglas Rae Draper	Rossland.
O-543	Douglas Malcolm Gawne	Rossland.
O-544	Kenneth Healey	Rossland.
O-545	Ernest Ray Kostynuk	Rossland.
O-546	Paul Wayne LaPlante	Rossland.
O-547	Roy Vern Neigum	Rossland.
O-548	Gurlal Singh Rai	Rossland.
O-549	Gordon Graham Reid	Rossland.
O-550	Harjinder Singh Sandhu	Rossland.
O-551	Ralph Edward Turner	Rossland.
O-552	Andreas Marinus Vendrik	Rossland.
O-553	Paul Armand Villeneuve	Rossland.
O-554	Ronald Charles West	Rossland.
O-555	Joseph Doyle Williams	Rossland.
O-556	Christopher John Young	Rossland.
O-557	Edwin Frederick Blumers	Fernie.
O-558	David Nelson Wild	Fernie.
O-559	Agnar Hämarsnes	Fernie.
O-560	Hugh Richardson Smith	Fernie.
O-561	Donald Arthur Greenwood	Fernie.
O-562	Richard Maurice Young	Fernie.
O-563	George Macqueen	Fernie.
O-564	Albert Henri Brulotte	Fernie.
O-565	George Louis McNaughton	Fernie.
O-566	Erne Sabo	Cassiar.
O-567	William Giachino	Cassiar.
O-568	Toni Coran	Cassiar.
O-569	Ronald Patrick Reeve	Cassiar.
O-570	Robert Henry Green	Cassiar.
O-571	Ahmed Said Rahall	Cassiar.
O-572	Ervin Frank Egyed	Cassiar.
O-573	James Ronald Derby	Cassiar.
O-574	Bruce Roe	Cassiar.
O-575	Lothar W. Kutz	Cassiar.
O-576	Anthony Zemenchik	Cassiar.
O-577	Kenneth Orville Orpen	Cassiar.
O-578	John James Forbes	Cassiar.
O-579	Rowland Warburton Leigh	Cassiar.
O-580	Terrence Bradley	Peachland.
O-581	David A. Humes	Peachland.
O-582	Edwin K. Martens	Peachland.
O-583	Terrance J. Edstrom	Peachland.
O-584	William Buckley	Peachland.
O-585	Victor T. Strugnell	Peachland.
O-586	Allan Duncan	Peachland.
O-587	Edward P. Bodnar	Peachland.
O-588	Alex E. Metcalf	Peachland.
O-589	Russel E. Larson	Peachland.
O-590	Charles Eddy	Peachland.
O-591	J. Donald Hermiston	Peachland.
O-592	Edward A. Malcolm	Peachland.
O-593	Lyle W. Habermehl	Peachland.
O-594	Peter Olenick	Peachland.
O-595	Gerald B. Racicot	Peachland.
O-596	Robert Gordon Berkeley	Rossland.
O-597	Marius Gerald Buzikievich	Rossland.
O-598	Larry Ray Carleton	Rossland.
O-599	Robert George Carleton	Rossland.
O-600	John Duncan Clarke	Rossland.

SURFACE MINE-RESCUE CERTIFICATES, 1972—*Continued*

Cert. No.	Name	Where Trained
O-601	Terry Douglas Evans	Rossland.
O-602	Denis Edwin Erickson	Rossland.
O-603	Robert Douglas Kennealy	Rossland.
O-604	Allan Roger Lalande	Rossland.
O-605	David Wayne Laybourne	Rossland.
O-606	Robert Michael Lloyd	Rossland.
O-607	Mario Maio	Rossland.
O-608	Russell Moroz	Rossland.
O-609	Ian Charles McFarlane	Rossland.
O-610	Ronald Trevor Nelson	Rossland.
O-611	Herbert Benedict Rogers	Rossland.
O-612	Douglas Vaughan Radloff	Rossland.
O-613	Andrew Jack McQuire	Endako.
O-614	A. Mark Basso	Fernie.
O-615	John Robert Smith	Fernie.
O-616	Wayne M. Smeland	Fernie.
O-617	Peter Rhys Jones	Kimberley.
O-618	William Garry Kinzel	Fernie.
O-619	Donald Patrick Byrne	Fernie.
O-620	Gordon Raymond McDonnell	Fernie.
O-621	Warren Henry Draper	Fernie.
O-622	Robert Vernon Potts	Fernie.
O-623	Douglas W. Flynn	Kimberley.
O-624	Melville A. Dodds	McLeese Lake.
O-625	Dennis A. Hanrieder	McLeese Lake.
O-626	Henry Schlamp	McLeese Lake.
O-627	Leonard J. Anderson	McLeese Lake.
O-628	Stanley G. Hill	McLeese Lake.
O-629	William D. Diment	McLeese Lake.
O-630	William H. Myckatyn	McLeese Lake.
O-631	C. W. Robert Slater	McLeese Lake.
O-632	Dino Antoni Basso	McLeese Lake.
O-633	Joseph M. Pasich	McLeese Lake.
O-634	Thomas E. Milner	McLeese Lake.
O-635	R. Norman Myhre	McLeese Lake.
O-636	Thomas E. Daley	McLeese Lake.
O-637	Firmin L. St. Laurent	McLeese Lake.
O-638	Larry G. Raymond	McLeese Lake.
O-639	Noland William Ross	McLeese Lake.
O-640	Wayne Thomas Murphy	Fernie.
O-641	Neil Douglas Charland	Fernie.
O-642	Horst Gandner	Fernie.
O-643	Gordon Marshall Ironside	Fernie.
O-644	Hank Louwerse	Fernie.
O-645	Albert William G. Desjardins	Fernie.
O-646	Lester Gordon Clarke	Fernie.
O-647	Thomas Walter James	Fernie.
O-648	Keith Peter Koppert	Fernie.

GRAVEL PIT MINE-RESCUE CERTIFICATES, 1972

Cert. No.	Name	Where Trained
G-73	Raynold Waldmar Johnson	Sechelt.
G-74	Thomas Hugh Parish	Sechelt.
G-75	Leonard Herbert Swanson	Sechelt.
G-76	Edwin Gordon Lucas	Sechelt.
G-77	Peter Nassichuk	Powell River.
G-78	John P. Carlson	Powell River.
G-79	John Sarnowski	Powell River.
G-80	Douglas A. Ross	Nanaimo.
G-81	Peter J. Mitchell	Nanaimo.
G-82	James Lorne Brownlee	Nanaimo.
G-83	Gordon K. Noren	Nanaimo.

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 58th annual competition in Nanaimo on May 20. The four teams competing for the mine-rescue trophy were from Britannia, Old Sport (Benson Lake), Texada, and Lynx mines. The winning team was that of the Old Sport mine (Benson Lake operation) of Coast Copper Company Limited (Cominco Ltd.), and was captured by Frank Kollar.

The West Kootenay Mine Safety Association held its 26th annual competition in Nelson on May 27. 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 team, captained by George Fecyk, won the district trophy.

The Central British Columbia Mine Safety Association held its 24th annual competition in Merritt on June 3. Six teams entered the competition and represented Noranda Mines, Limited (Boss Mountain Division), Craigmont Mines Ltd., Giant Mascot Mines Ltd., Granduc Operating Co., and the Pinchi Lake operation of Cominco Ltd. The winning team was from Granduc mine and was captained by R. S. Jones.

The East Kootenay Mine Safety Association held its 51st annual competition on June 3 at Chapman Camp. Two teams were from the Sullivan mine of Cominco Ltd., and one team each from Michel and Fernie, representing Kaiser Resources Ltd. The Sullivan mine No. 2 team, captained by R. McSporran, won the district shield.

At all four of the preceding meetings, competitions were held in first aid as well as mine-rescue work. In these competitions, events were held for men, women, and juniors. The entries in these events came not only from the mining industry but also from other industries and from the public at large.

The winners of the four district mine-rescue competitions met in the 17th Provincial mine-rescue competition held in Nelson on June 17. The Sullivan mine team of Cominco Ltd., captained by R. McSporron, won the Provincial trophy, and the Coast Copper Company Limited (Cominco Ltd.) team from Benson Lake (Old Sport mine), captained by Frank Kollar, placed second.

The 6th Canadian Mine Rescue Championship was held in Victoria on June 24. Competing teams were from Alberta, British Columbia, Nova Scotia, and the Northwest and Yukon Territories. The winning team was that entered by Devco No. 26 Colliery from Glace Bay, N.S., and captained by Sandy White. The Northwest Territories team placed second.

On June 10 the Central British Columbia Mine Safety Association hosted a surface-mine-rescue competition in Prince George. Competing teams represented Bethlehem Copper Corporation Ltd., Brenda Mines Limited, Cassiar Asbestos Corporation Limited, Endako Mines Limited, Granisle Copper Limited, and Phoenix Copper Division of The Granby Mining Company Limited. The Cassiar team, captained by Albrecht Kutsche, won the competition shield.

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 1972 the British Columbia and Yukon Regional District award for metal mines was won by Britannia mine of Anaconda Britannia Mines, Division of Anaconda Canada Limited, with an accident frequency of 15.3.

Special mention should be made of the current excellent low accident frequency of 5.4 held by Texada Mines Limited, which won the regional award in 1969 and the Canadian award in 1971. Having won these two awards, this mine's accident statistical period cannot recommence before January 1, 1972, and although the low frequency has been maintained there is an insufficient total number of hours.

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. Inasmuch as two fatalities occurred in 1972 at the Kaiser operation, they were eliminated from the trophy competition.

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. An accident is considered an incident involving more than three days' time loss by the workman.

In 1972 the award was won by the Pinchi Lake operation of Cominco Ltd., with an accident frequency of 0.00 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.

Because of extremely keen competition among A trophy entrants, it has been necessary to further refine the rules by changing the basis of comparison from "compensable" accidents to "lost-time" accidents. It is to be noted that, since April 1, any accident wherein the injured does not work the following or any successive shift is now considered compensable.

In 1972 the A trophy was won jointly by three 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. (46,908), the Britannia and Furry Creek pits of Construction Aggregates Ltd. (83,283), and the Blubber Bay Lime Division of Domtar Chemicals Limited (71,355).

Wesfrob Mines Limited, at their Tasu mine, won the B trophy for the second successive year with an accident frequency of 5.9 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: Construction Aggregates Limited Albert Head pit (22,188), Langley pit (17,250), Pitt River quarry (30,687), and Prince George pit (19,420); the Lafarge Concrete Ltd. Coquitlam gravel pit (18,318) and the Lafarge pit at Kamloops operated by Plateau Construction Ltd. (23,256).

RECLAMATION

Under the authority of subsection (15) of section 8 of the *Coal Mines Regulation Act,* Order in Council 3200 was approved on August 24, 1972, making the surface operations of underground coal mines subject to section 8 of the *Coal Mines Regulation Act.*

During the calendar year 1972, 25 temporary permits authorizing surface work (reclamation permits) were issued 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,* to the following mining operations:

Permit No.	Company Name	Location of Operation
55	Teck Corporation Ltd., Highmont Project	Highland Valley.
C 56	Denison Mines Limited, Quintette Property	Quintette.
C 57	Denison Mines Limited, Saxon Creek Project	Saxon Creek.
C 58	Amax Coal Company Inc.	Hudson Hope.
C 59	Cinnabar Peak Mines Ltd.	Hudson Hope.
C 60	Master Explorations Ltd.	Quesnel.
61	Anaconda Britannia Mines Limited	Britannia Beach.
63	Cominco Ltd.	Benson Lake.
64	Giant Mascot Mines Limited	Hope.
65	Kam-Kotia–Burkam Joint Venture	Sandon.
66	Texada Mines Limited	Texada Island.
67	Canadian Exploration Limited	Salmo.
68	Craigmont Mines Limited	Merritt.
69	Reeves MacDonald Mines Limited	Remac.
70	Dolly Varden Mines Ltd.	Alice Arm.
71	Teck Corporation Ltd.	Beaverdell.

72	KRC Operators Ltd.	Mount Copeland.
73	Granduc Operating Company	Stewart.
74	Cominco Ltd., Sullivan mine	Kimberley.
C 75	Rio Tinto Canadian Exploration Limited	Sage Creek.
77	Cominco Ltd., Bluebell mine	Riondel.
C 78	Bethlehem Copper Corporation Limited	Princeton.
C 80	Kaiser Resources Ltd., Crownest Mining Operation	Sparwood.
C 83	Utah Mines Ltd.	East Mount Gething.
C 84	Byron Creek Collieries—Corbin Coal & Coke Co.	Corbin.

C—Coal Mines Regulation Act.

As of December 31, 1972, nine temporary permits were in process of being issued.

Since the reclamation legislation was enacted on April 2, 1969, 84 permits have been approved, of which 75 have been issued.

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 of programmes or property holdings after a prospectus has been issued, on agreements for sale of mining properties, conditions of option agreements, and in approval of company press releases. W. M. Young, Senior Economic Geologist in the Petroleum and Natural Gas Branch, also assists the Commission in reviewing reports on petroleum and natural gas properties.

In 1972 a total of 217 reports was reviewed and the Commission advised on their contents. The reports were submitted by 190 companies, mainly in support of prospectuses.

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