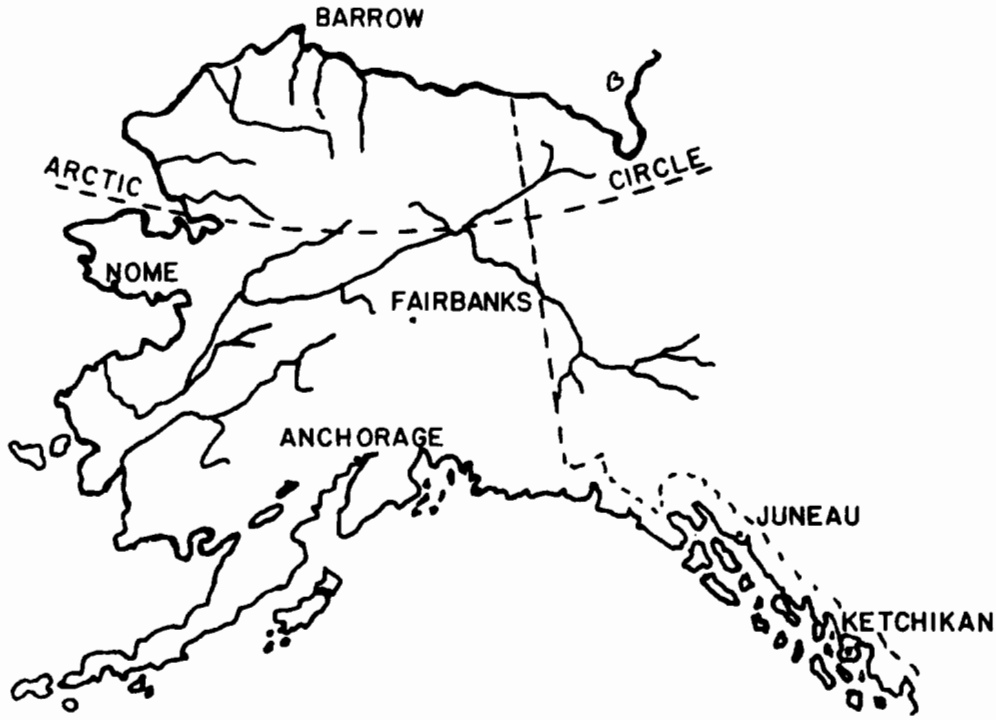
STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES



DIVISION OF MINES AND MINERALS

REPORT FOR THE YEAR

1967

COLLEGE, ALASKA

STATE OF ALASKA

Walter J. Hickel - Governor

Department of Natural Resources

Thomas E. Kelly - Commissioner

DIVISION OF MINES AND MINERALS

James A. Williams - Director

REPORT

FOR THE YEAR

1967

College, Alaska

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December 31, 1967

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Dear Sir:

It is a pleasure to transmit to you this Annual Report of the Division of Mines and Minerals covering the calendar year 1967. Summaries of mineral and petroleum production, exploration, and developments during the year are outlined. The activities and accomplishments of the Division are outlined, our geological investigations and petroleum regulatory work are briefly described, and details on information and services available to the public are included.

Each year continues to be more significant than the previous one for the Alaska petroleum industry. Exploratory drilling resulted in one oil well and three gas wells. Development drilling resulted in 38 oil wells plus 23 still drilling at the end of the year. There are now seven oil fields and 18 gas fields in the State. Eleven platforms were operational in Cook Inlet with three more planned. Twenty-six miles of dual underwater pipeline were laid. More than $262 million was spent by the industry in Alaskan exploration, development, and construction, exclusive of marketing and sales activities. Oil and gas production increased to $95 million for the year.

Though not spectacular, mining exploration work by major companies is increasing, and interest in Alaskan mining possibilities continues to grow.

Direct revenue to the State from minerals totaled more than $35 million in 1967. Better years lie immediately ahead.

This Division will continue to foster and assist the growth of the minerals industries in the best interest of the State.

Respectfully submitted,

James A. Williams

James A. Williams, Director
Division of Mines and Minerals
Box 5-300, College, Alaska

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CONTENTS (Con't)

THE MINING INDUSTRY

Mineral Production

Table I presents a comparison of mineral production during 1966 and 1967. During 1967 total mineral production was estimated to be $137.1 million compared to $86.3 million in 1966. Sand and gravel production increased from $21.8 million to $27.7 million. Oil and gas production increased from $50.3 million to $95.4 million with the Cook Inlet area being the predominant producer. Coal production increased slightly over 1966. The cumulative total mineral production of Alaska is now $2,418,500 of which $759,100,000 has been in gold.

Direct revenue to the State from mineral production and exploration, which includes royalties, filing fees, lease rentals, production taxes, and sale of sand and gravel, amounted to $35,630,000 in 1967. This does not include individual income taxes and business license taxes from the mineral industry and service groups.

Table I - Mineral Production in Alaska

	1966		1967 (1)	
	Quantity	Value (Thousands)	Quantity	Value (Thousands)
Antimony---Short tons antimony content	8	W	W	W
Coal----------thousand short tons	927	$ 6,953	930	$ 7,178
Gold----------troy ounces	27,325	956	26,000	910
Lead----short tons recoverable content	14	4	W	W
Mercury----------76-pound flasks	W	W	161	79
Natural Gas---------million cubic feet	33,646 (2)	6,335	39,927 (2)	7,268
Petroleum, crude------thousand barrels	14,376 (3)	44,083	28,917 (3)	88,187
Sand and Gravel----thousand short tons	17,457	21,793	22,426	27,683
Silver----------thousand troy ounces	7	9	8	12
Undistributed (4)		6,167		5,830
Totals		$86,300		$137,147

(1) Figures for 1967 except petroleum and natural gas are preliminary and subject to revision.
(2) Includes only gas sold.
(3) Includes only oil sold. Additional small amounts were produced during testing of new wells.
(4) Undistributed includes barite, copper, gem stones, lead, mercury, peat, platinum group metals, stone, tin, and uranium.

W Withheld and included under "Undistributed" to avoid disclosing individual company confidential data.

Note: Above statistics prepared under a cooperative agreement for the collection of mineral data between the bureau of Mines, United States Department of the Interior, and the Division of Mines and Minerals, Department of Natural Resources, State of Alaska. Figures for coal, petroleum, natural gas, and undistributed commodities are presented on authority of the Division of Mines and Minerals only.

Table II - Production of Major Commodities since 1949
Dollar Value (Thousands)

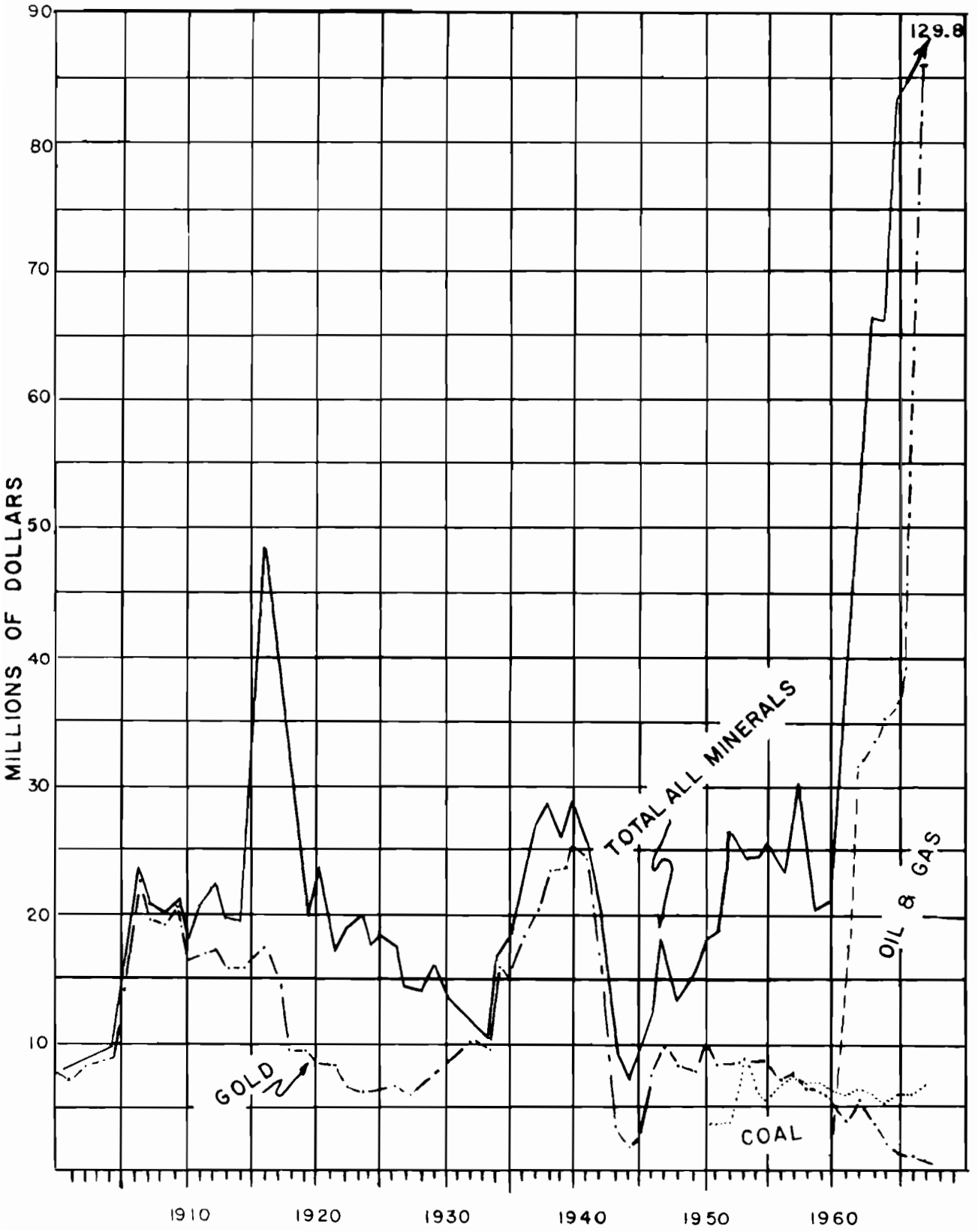
Year	Gold	Mercury	Coal	Oil and Gas	Total All Production (Millions)
1950	$ 10,125	$	$ 3,033	$	$ 17.9
1951	8,387		3,767		19.5
1952	8,420	6	5,779		26.3
1953	8,882	8	8,452		24.3
1954	8,699	277	6,442		24.4
1955	8,725	12	5,759		25.4
1956	7,325	853	6,374		23.4
1957	7,541	1,349	7,296		30.2
1958	6,525	774	6,931		20.9
1959	6,262	851	6,869	311	20.5
1960	5,887	940	6,318	1,496	21.9
1961	3,998	816	5,868	17,776	34.7
1962	5,784	711	6,409	31,657	54.2
1963	3,485	76	5,910	33,760	67.8
1964	2,045	95	5,008	35,490	66.1
1965	1,479	104	6,095	35,614	83.2
1966	956	101	6,953	50,418	86.3
1967	910	79	7,178	95,455	137.1
	105,439	7,052	110,441	301,977	784.1

Table III - Physical Volume of Alaska Mineral Production (1)

Mineral	Quantity	Years
Total gold- - - - troy ounces	29,923,00	1880-1967
placer- - - - - - do - - - -	21,013,000	1882-1967
lode- - - - - - - do - - - -	8,909,000	
Total silver- - - - do - - - -	19,072,765	1906-1967
placer- - - - - - do - - - -	2,545,000	1906-1967
lode - - - - - - - do - - - -	16,512,000	1900-1967
Copper - - - - - - - short tons	690,011	1880-1967
Coal - - - - - - - - do - - - -	19,819,000	1951-1967
Sand and gravel- - - do - - - -	153,945,000	1958-1967
Crude Petroleum- -42 gal bbls-	93,566,917(2)	1958-1967
Natural gas- - - - million ft^3-	217,609	1948-1967
Stone - - - - - - short tons -	10,893,000	1921-1967
Mercury - - - - -76 lb flasks	34,999	1902-1967
Tin - - - - - - - - - short tons	2,400	
Chromite - approx. 45% CR_2O_3) - long tons	29,000	1917-1967
Tongsten short ton units WO_3	7,000	1916-1967
Antimony (approx. 53% Sb) short tons	3,423	1928-1967
Lead - - - - - - - - - do - - -	25,000	1906-1967

(1) Except platinum, uranium, barite, and other commodity figures which are confidential. 1967 production estimated and included in total.
(2) Only other crude petroleum recorded production was from the Katalla area. From 1901 to 1932, 154,000 barrels of oil were produced there.

Figure 1 - Annual Value of All Mineral Production - Alaska 1900 - 1967



Precious Metals

Gold production continued to decline and will decline further unless some incentive such as an increase in price or direct subsidy occurs.

The United States Smelting Refining and Mining Company announced a suspension of dredging operations at the close of the placer season on Chicken Creek. A dredge at Hogatza River will continue.

The Goodnews Bay Mining Co. is still the only major producer of platinum in the United States. Increasing demand and uses for platinum have resulted in very high prices for the metal. This has stimulated further exploration of placer deposits in the Salmon River area which were previously uneconomic to mine, mostly because of depth. Interest in possible nearby lode deposits has continued.

Renewed interest in silver has taken place throughout the State in the wake of soaring prices for the metal. The Division of Mines has received numerous inquiries about old silver-lead mines and deposits that were not previously considered important.

Base Metals

During 1967, mercury production declined slightly from the previous year. Prices of mercury have been quite good and interest in new deposits is very active, but mining remained limited to small-scale operations. A large low-grade deposit in the Sleetmute area was being explored.

No significant copper mining was in progress during the year. Kennecott Copper Corporation's property at Bornite, in the Kobuk area, is still in the development stage.

Nonmetallics

Sand and gravel increased in volume over the previous year. Principal producers were the State Department of Highways, Army Corps of Engineers, and the State Division of Lands.

Small quantities of peat and jade were produced for local markets.

The Kendrick Bay uranium mine on Prince of Wales Island did not operate during the year but plans to start production in the near future.

Coal

The Nenana coal field operators, Usibelli, Inc. and Vitro Minerals Corp., continued to supply the northern military bases. Usibelli also shipped 105,000 tons to the Anchorage area. Evan Jones Coal Co. delivered 210,000 tons to the Anchorage military bases from its mine in the Matanuska field.

The U. S. Bureau of Mines reports that Usibelli received $5.25 per ton, Vitro $5.65, and Evan Jones $12.88 per ton for coal contracted to the military.

A threat to Matanuska coal production looms in the future in the form of conversion from coal to natural gas by Anchorage area military bases. Congress has approved $1,980,000 for the conversion.

Interest in coking coal for export remains high. A feasibility study and exploration of the Bering River coking coal deposits near Cordova was started by Cortella Coal Corp. of Cordova for Sumitomo Co., one of three Japanese firms interested in the deposits. One of the primary concerns of the study is the method of transporting coal from the mine to Cordova, the nearest deepwater port. The possibility of moving coal by pipeline under water pressure is being investigated.

Prospecting and Exploration

Northwestern

The largest operation in this area continues to be Kennecott Copper Corporation and its exploration subsidiary Bear Creek Mining Company.

Kennecott's 1070 foot shaft, which was flooded, has been plugged. Eight carloads of cement were flown to the property and the shaft was filled to a depth of 23 feet from the bottom. The water has been pumped down to the plug, which seems to be holding, and underground exploration work is again proceeding with drifting and drilling at the 700 and 1000 foot levels.

Bear Creek Mining Company has continued intensive exploration in the general Kobuk area where the Bornite operation is located. It also took over work at the Hannum Creek lead-silver prospect on the Seward Peninsula where Bunker Hill had drilled the previous summer.

Interest in offshore prospecting, especially off the Nome beaches, continued at a high pitch. More than 1,000 offshore prospecting permits have been issued by the State within the three-mile limit. Most of these surround the Seward Peninsula. A few offshore production leases have been issued, all in the Nome area, but no significant production has yet resulted. Shell Oil Company has done considerable seismic and bottom sampling work. It pioneered experimental work with a sonic sampling drill operating on the same principle as the successful high-frequency sonic pile driver. Martin Dredging Company converted a surplus Navy mine sweeper into a suction dredge and made a serious attempt to start production off Daniels Creek, long known as a "hot spot". Operational problems developed and modification of the digging and gold saving equipment is necessary. Some work has been done out toward the western part of Seward Peninsula to determine the amount of placer tin that may lie offshore from the known placer tin areas.

The U. S. Geological Survey and U. S. Bureau of Mines spent considerable effort this year in the heavy metals program. The USGS brought at least two mobile labs to Alaska in support of its Field parties. The USBM's chief effort was the cruise of the vessel VIRGINIA CITY to the waters offshore from Nome where it did experimental drilling and other bottom sampling. Results have been described as very promising. The USGS cooperated in this work. The two agencies were also engaged in other exploration and research in attempts to find new gold resources.

Newmont Exploration, Ltd. and United States Refining and Mining Company had a sizeable crew supported by helicopter doing reconnaissance work on Seward Peninsula and along the main Alaska Range.

Central

The United States Smelting Refining and Mining Company operated two dredges during the year. The dredge at Chicken worked during the season and was then shelved permanently as the dredging deposits in this area have become submarginal under present economic conditions. The Hogatza dredge operated through the season and will continue for a few more seasons. The company also conducted exploration throughout Alaska.

Exploration at the Busty Belle property in the Fairbanks district was continued during the year. Approximately 530' of drifting and cross-cutting was accomplished, and 300 feet of core drilling performed. The owners recently announced plans to construct a 50-ton mill which will also be available for custom milling ores from other properties.

A property on Steamboat Creek has been drilled recently by Pacific Construction Company, and work will be resumed in the spring.

Harold Hassel and crew did stripping and exploration on his Ready Bullion Creek placer property in the Fairbanks area.

Activity at the Keystone Mines, Fairbanks area, consisted of general exploration and excavation on outcrops.

Stripping for outcrops was performed at the Bertholomae lode property in the Fairbanks area.

Hanna Mining Co. explored by sluicing and other means the Ignaty mercury prospect in the Kuskokwim mercury belt and investigated the Buzby prospect in the Bonnifield district.

Diamond Alkali of Cleveland, Ohio had a crew of nine men drilling the mercury property in the Kuskokwim district formerly held by Russel Schaefer.

Tennessee Corp. continued drilling the Pass Creek copper show north of the Denali Highway and supported a reconnaissance prospecting crew in various areas as in former years.

Hecla Mining Company investigated possibilities in the White River and Nabesna areas.

Southcentral

Wrangell Consolidated Mining Company of Chitina had a crew of 12 men concentrating and shipping copper ore from the old Kennecott property. The concentrates were flown to Chitina, trucked to Anchorage and then from Anchorage over the Alaska highway to Vancouver where they were loaded on freighters bound for Japan.

Slim Blood of Valdez did some exploration at the old Green Butte copper mine and Gordon Burdick did likewise at the Nicolai property.

The New Concept Mining Company of Florida had a crew working at Martin Radovan's Binocular Prospect on Glacier Creek.

George Gilbertson of Fairbanks was reported to be placering on Dan Creek, which, like the above mentioned properties, is in the Nizina, or McCarthy District.

State Highway Department plans call for completion of the bridge at Chitina and the road into the Nizina District within five years. This will accelerate exploration in that district.

Conwest Exploration Company Ltd. of Vancouver was reported investigating the Tuxedni iron deposit on the west side of Cook Inlet.

Southwestern

St. Eugene Mining Company (Falconbridge) continued its studies of the Kasna Creek copper property in the Iliamna region with a crew of nine men doing geological and geophysical work. This property is looking good but transportation is the chief problem. At present it is rather inaccessible.

Several companies and consultants showed a great deal of interest in the sulphur deposits of the Aleutian Islands.

Southeastern

Dynasty Exploration of Vancouver has been working with at least eight men on a group of 300 claims on the southern end of Prince of Wales Island where the possibility of porphyry copper exists. This was a discovery of Canadian prospector James Walper. Dynasty has done trenching and geophysical work and is now reportedly preparing to drill.

In an issue of our monthly Mines and Petroleum Bulletin we reported that the U. S. Park Service had purchased the Alaska Chief copper mining property within Glacier Bay National Monument. It develops that our identification of the purchaser of this mining property may be an error, but no denial was ever received from the Park Service. It now appears that it was a private conservation group that purchased the property.

Global Marine, Inc. prospected in Gastineau Channel between Juneau and Douglas Island. The exploration program, which will continue into 1968, has been confined to reconnaissance sampling and marine seismic work to determine possible value and thickness of sediments in the Channel. The company has also been active offshore at Nome.

General

Homestake Exploration of Vancouver has been busily looking at prospects throughout the State.

Hanna Mining Company has also been intensively investigating various prospects and hired a prospector to do reconnaissance geochem work in various areas.

Wallace MacGregor of Salt Lake City with a crew of geologists actively investigated a number of properties throughout the State until late in the season.

In the Rampart Report, published last summer by the Department of Interior, Secretary Udall announced that the huge Rampart Dam project was not practical, but offered alternatives. One of these was a mineral development plan to increase the work of the USGS and the USBM in the north and to establish an Arctic Mineral Resources Institute in a building to be constructed on the University of Alaska campus. The Institute would be staffed by USGS and USBM scientists but would also include the State Division of Mines and Minerals and the University of Alaska College of Earth Sciences and Mineral Industry. Since the Division is now located at the University it is in a better position to participate in this Federal program as it develops.

The U. S. Geological Survey was active during the year in a number of activities. The current list of activities or projects include geologic mapping, mineral district mapping, geochemical sampling and mapping; reconnaissance and detailed geophysical surveys; engineering geology studies of earthquake effects; and paleontologic and mineralogic work to support other project activities. Specific topics investigated include the identification of heavy metals resources of the State; petroleum, including oil shales and coal resources; marine geology, particularly of the Bering Sea region; study of the earth's thermal regime; distribution and history of surficial deposits and other special studies.

The U. S. Bureau of Mines continued its program of investigating coal and other mineral deposits.

The following USGS and USBM publications were released in 1967. Open file reports are usually available for study at the various USGS, USBM and Division of Mines and Minerals Offices in Alaska. Copies of open file reports by reproduction can usually be obtained at private expense. USGS numbered bulletins and professional papers may be purchased from the U. S. Government printing office. U. S. B. M. information circulars and reports of investigations may be purchased from the Publication Distribution Office, U. S. Bureau of Mines, Pittsburgh, Pa. Division publications are listed elsewhere in this report.

USGS Open File Report, Preliminary Geologic Map of Kodiak Island and Vicinity, Alaska, by George W. Moore.

USGS Open File Report, Surficial Deposits of the Iliamna quadrangle, Alaska, by Robert L. Detterman and Bruce L. Reed.

USGS Open File Report, Metallic Mineral Resources Map of the Fairbanks quadrangle, Alaska, by Edward H. Cobb.

USGS Open File Report, Four Preliminary Gravity Maps of Parts of Alaska, by David F. Barnes.

USGS Open File Report, Copper Analyses of Selected Samples, Southwestern Brooks Range, Alaska, by W. P. Brosge, H. N. Reiser, and I. L. Tailleur.

USGS Open File Report, Location and Description of Lode Prospects in the Livengood Area, East-Central Alaska, by Robert L. Porter and Robert M. Chapman.

USGS Open File Report, Results of Stream Sediment Sampling and Bedrock Analyses in the Eastern Part of the Iliamna Quadrangle and at Kasna Creek, Lake Clark Quadrangle, Alaska, by Bruce L. Reed.

USGS Open File Report, Profiles Showing Configuration and Probable Bottom Deposits as Interpreted from Fathometer Traverses Across and Along Parts of Gastineau Channel, near Juneau, Alaska, by Robert D. Miller.

USGS Metallic mineral resources map of the Charley River Quadrangle, Alaska, compiled by Edward H. Cobb.

USGS Metallic mineral resources map of the Circle Quadrangle, Alaska, compiled by Edward H. Cobb.

USGS Metallic mineral resources map of the Eagle Quadrangle, Alaska, compiled by Edward H. Cobb.

USGS Metallic mineral resources map of the Livengood Quadrangle, Alaska, compiled by Edward H. Cobb.

USGS Map I-492, Regional Geological Map of the Candle Quadrangle, Alaska by William W. Patton.

USBM Open File Report, Resume of Information on Alaskan Bituminous Coals with Particular Emphasis on Coking Characteracteristics by Robert W. Warfield.

USBM Open File Report, Sampling the Moth Bay Zinc-Copper Deposit, Revillagigedo Island, Southeastern Alaska, by R. W. Warfield and R. R. Wells.

USBM Information Circular 8331, Production Potential of Known Gold Deposits in the United States, by Bureau of Mines field staff.

USGS Professional Paper 512, Geology of the Iniskin-Tuxedni Region, Alaska, by Detterman and Harsock.

USGS Professional Paper 567, Dictionary of Alaska Place Names by Donald J. Orth.

USGS Professional Paper 550-D contains many research articles of which the following pertain to Alaska: Cretaceous Stratigraphy of the Kamishak Hills, Preliminary report on a plutonic belt in West-central Alaska, and Potassium-argon ages of Tertiary plutons in the Prince William Sound region, Alaska.

Prospecting Costs

The following costs are based on a five-year average of expenditures by participants in the State Prospector Assistance Program. Expenses have averaged $22.81 per man day. In the five year period $96,357.66 was spent covering 4,225 man days. The total cost to the State over the five years was $67,760.15 or about 70 percent of the total.

The cost distribution for 1966 and 1967 is as follows:

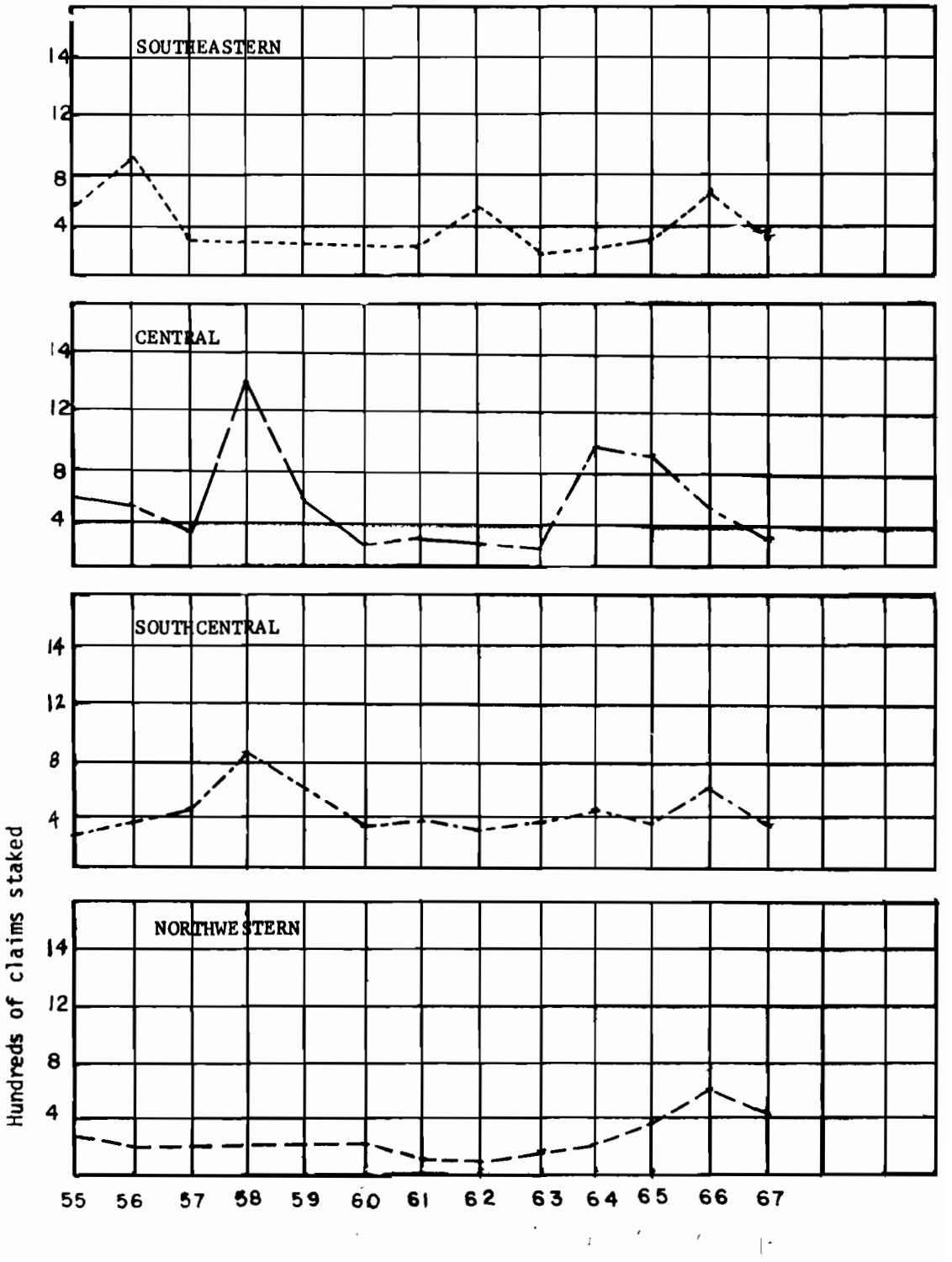
	1966	1967*
Transportation	$8.69	$8.68 per man day
Food	3.72	3.98 " " "
Supplies	7.74	10.15 " " "

*Based on reimbursements made as of January 12, 1968.

Transportation includes aircraft, tracked vehicles, rubber tired equipment, and boats used to travel to and from the prospecting area and to transport supplies and equipment. Food includes groceries and other staple, consumable items. Supplies include tools, camping equipment, prospecting equipment, fuel, and general supplies. The increase in the cost of supplies reflects greater use of heavy equipment in prospecting, especially in exploring claims staked under the program in previous years.

Travel by charter aircraft is most commonly used. Small fixed-wing airplanes are available at most towns in Alaska. Charter rates vary from $20-40 per hour for a Piper Cruiser to $40-60 per hour for a Cessna 180. Helicopters are available in Ketchikan, Juneau, Fairbanks, and Anchorage. Charter rates vary from $100-135 per hour with a three-hour guaranteed minimum flying time.

Figure 2 - Barometer of Exploration Activity - claims staked



THE PETROLEUM INDUSTRY

Oil and Gas Exploration

(See Table VI for specific details on wells and the list in the back of this volume for active companies)

Thirty-three exploratory wells were active in three geologic provinces during 1967. The results were one oil well, three gas wells, three suspended wells, and twenty-three dry holes with three wells still active at the end of the year. Eighteen wells were onshore ventures while the remaining fifteen were drilled offshore in Cook Inlet. This compares with forty-two exploratory wells active in 1966.

The Atlantic Richfield Company accounted for the oil discovery with the #1 Trading Bay State, located about 1 1/2 miles northeast of the Trading Bay Field. Texaco Incorporated and the Atlantic Richfield Company will each install a platform to develop the area northeast of the Trading Bay Field.

The Texaco #3 Nicolai Creek Unit gas well extended the Nicolai Creek Field about 1 1/2 miles to the north. The #1-A Beaver Creek gas well was drilled by Marathon Oil Company as a relief well for the #1 Beaver Creek, which blew out during drilling operations and was subsequently plugged and abandoned. The last of the three gas discoveries is the Union Oil Company of California #1 Kenai Deep Unit which discovered deeper productive sands within the producing limits of the Kenai Gas Field. These oil and gas discoveries were all in the Cook Inlet basin.

The North Arctic Slope had about the same activity as in 1966. The Atlantic Richfield Company abandoned the Susie Unit #1 but was still drilling ahead on the Prudhoe Bay #1. The Union Oil Company of California abandoned the Kookpuk #1.

The Bristol Bay basin was tested by one well, the Cities Service Oil Company #1 Painter Creek, subsequently abandoned.

Geophysical activity was about the same as in 1966. The Gulf of Alaska, Bristol Bay, Cook Inlet and Kenai Peninsula accounted for most of the activity. Most of the geologic field parties were on the Alaska Peninsula.

Development Drilling and Production Activity

Development drilling in 1967 was centered mainly on the drilling platforms in Cook Inlet. Seventy-four development wells were active of which seventy-two were offshore. These operations resulted in completion of thirty-eight oil wells, two dry holes, no gas wells, eleven suspended wells, and twenty-three wells still active at the end of the year. Of the thirty-eight oil wells, sixteen were completed in the Granite Point Field, thirteen in the Middle Ground Shoal, three in the McArthur River, and six in the Trading Bay Field.

Construction was completed on five additional offshore drilling-production type platforms, making a total of eleven now operational in Cook Inlet. Nineteen rigs were drilling continuously from these in four different fields. Eight of the platforms can handle two rigs drilling simultaneously, while three have provisions for only a single rig. Three additional platforms are to be installed next year.

Over twenty-six miles of dual pipelines were installed in Cook Inlet, most of which connects platforms in the McArthur River area to shore. The forty-two-mile twenty-inch common carrier line of Cook Inlet Pipeline Company on the west side of the Inlet was completed from Granite Point to the Drift River facility. An offshore loading dock with mooring dolphins capable of handling ships up to sixty-foot draft was placed into operation late in the year at the Drift River terminal. Slightly over one million barrels of storage has been provided. This facility ultimately will be able to handle the giant super-tankers.

All oil production in Alaska is handled by automatic custody transfer equipment. Individual well test facilities have been installed on each platform to facilitate gatherings of individual well information. Production is transported to shore through twin underwater pipelines to central batteries where it is treated, stored, and sold.

High productive rates have been indicated by well completions this year. The highest productive well was slightly over 9,200 barrels of oil per day, with most wells testing around 2,000-4,000 barrels. The average per-well productivity in December was 1,376 barrels per day, which is the highest in the nation. Alaska now ranks about tenth in the nation in total oil production and about seventh in reserves.

There are now seven commercial oil fields and eighteen gas fields in the state including Naval Petroleum Reserve No. 4. Five oil fields and four gas fields are in production. A drilling and development type platform will be installed in the Ivan Bering, Trading Bay, and North Cook Inlet Fields next year with onstream production anticipated by late 1968 or early 1969. Production from the North Cook Inlet Field will be utilized for the liquid methane gas plant now being built near the city of Kenai. This facility will help establish a market for large quantities of gas production from the area.

The fourteen shut-in gas fields are awaiting development of a commercial market.

Production Summary

Total oil production for 1967 amounted to 28,917,464 barrels. The daily rate for the last week of the year was 109,455 barrels as compared to a rate of 51,500 barrels per day at the beginning of the year. This represents an increase in daily production rate of 112 per cent. Total cumulative oil production was 93,566,917 barrels at the end of the year.

There are now 105 active producing oil wells including ten duals counted as twenty wells. In addition, there are thirty wells which have produced at commercial rates but have been shut-in or suspended for various reasons. Three of these shut-in producers are in Naval Petroleum Reserve No. 4.

Total gas production for the year was 62,868,777 MCF (thousand cubic feet), which includes 475,382 MCF produced from the South Barrow Field in NPR No. 4. Gas sales were 39,927,463 MCF. Gas used on leases amounted to 11,409,331 MCF. The remaining 11,531,983 MCF were accounted for as being line losses, flared, or blown.

There were twenty-three producing gas wells in five gas pools with twenty-five closed-in wells in thirteen pools waiting for market. Four wells in two other pools which previously have produced in paying quantities are suspended but not yet abandoned. The production from the individual pools is shown elsewhere in this report.

Benefits to the State

Income to the State of Alaska derived from oil and gas lease rentals and royalty payments on both state and federal lands amounted to $13,943,556 for the year. Bonus payments for oil and gas leases were $20,256,124. Production, disaster, and conservation taxes were estimated to be $1,430,000, making a total direct oil and gas income of about $35,630,000 in 1967. In addition to this information, Table V on the following pages gives detail statistical data of interest resulting from oil and gas operations in the State of Alaska.

Table IV

State Total Production

Summary by Years

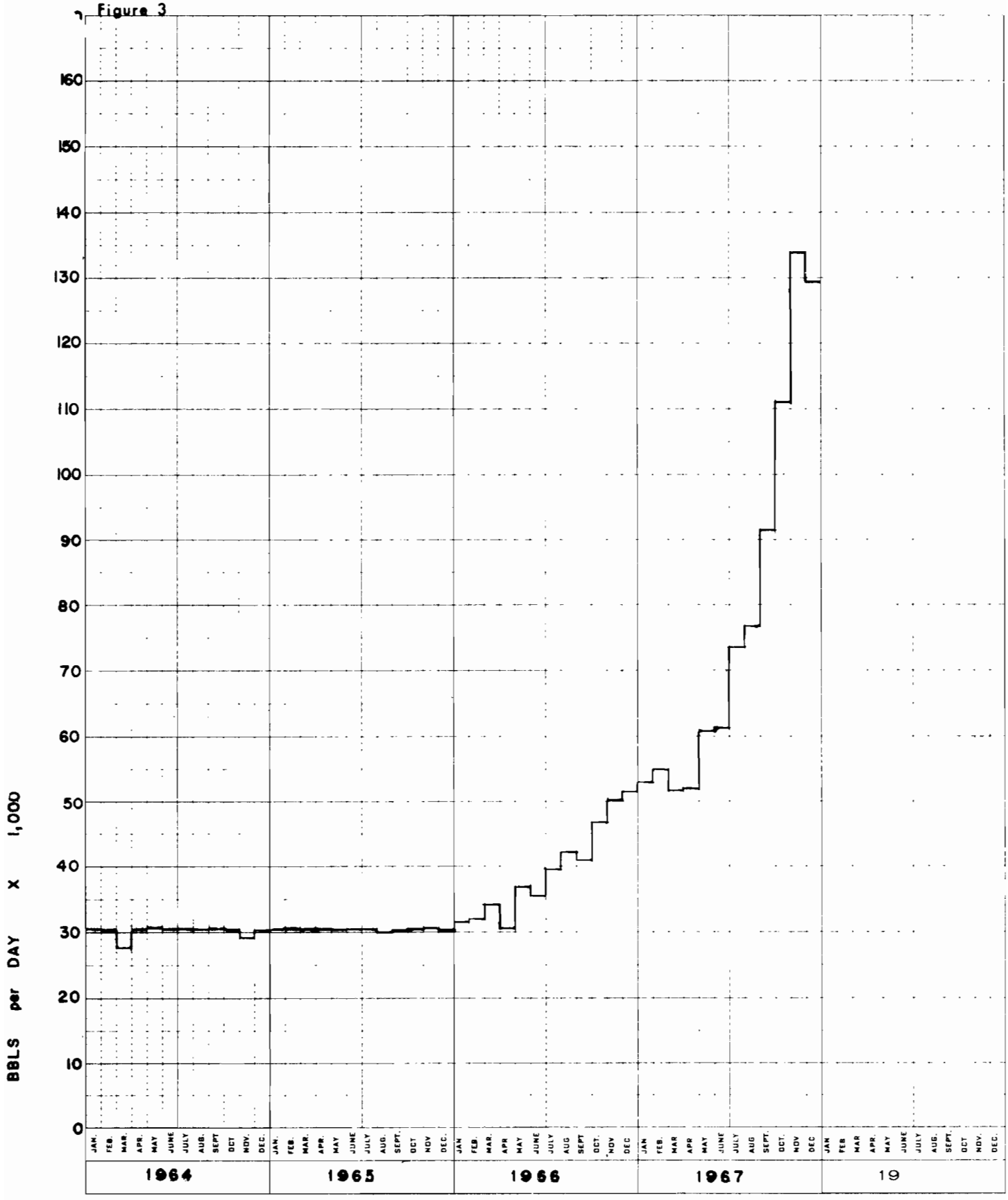
	Oil-Bbls.		Gas - MCF @ 14,65 psi & 60°F				
Year	Oil	Cumulative	Csg. Head	Cumulative	Gas Well*	Cumulative	Total Cumulative
Prior to 1958					829,832	829,832	829,832
1958	35,754	35,754	5,643	5,643	115,030	944,862	950,505
1959	186,590	222,344	27,291	32,934	132,624	1,077,486	1,110,420
1960	557,999	780,343	99,176	132,110	211,225	1,288,711	1,420,821
1961	6,326,501	7,106,844	1,293,258	1,425,368	387,155	1,675,866	3,101,234
1962	10,259,110	17,365,954	1,914,054	3,339,422	1,839,229	3,515,095	6,854,517
1963	10,739,964	28,105,918	2,808,011	6,147,433	8,213,056	11,728,151	17,875,584
1964	11,053,872	39,159,790	3,233,232	9,380,665	8,880,522	20,608,673	29,989,338
1965	11,128,545	50,288,335	3,842,367	13,223,032	8,701,080	29,309,753	42,532,785
1966	14,358,213	64,646,548	6,822,476	20,045,508	34,833,665	64,143,418	84,188,926
1967	28,917,446	93,563,994	22,539,948	42,585,456	40,360,557	104,503,975	147,089,431

* Includes gas from South Barrow Field - NPR4

STATE OF ALASKA

TOTAL OIL PRODUCTION PER DAY

Figure 3



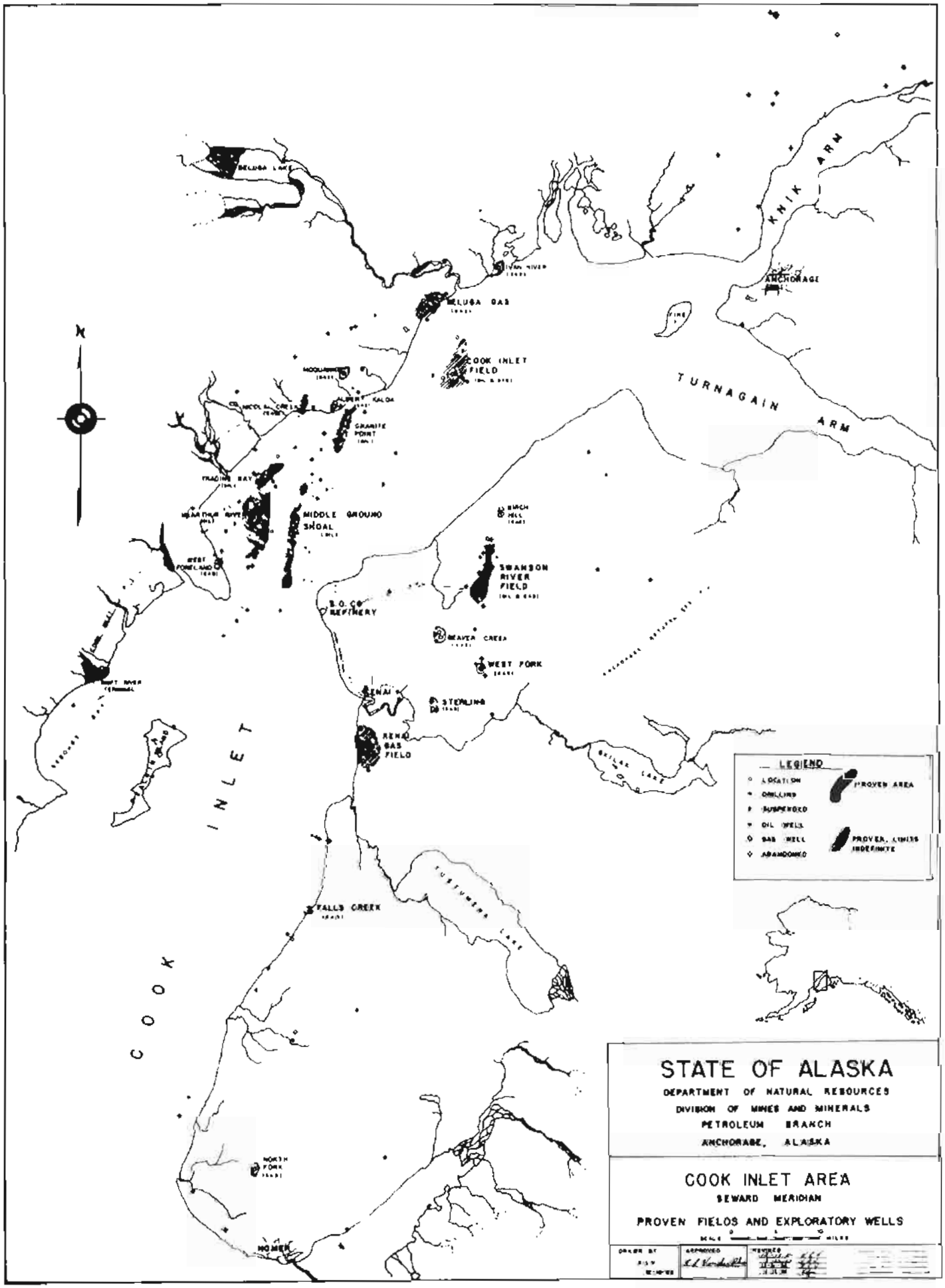

KNIK ARM
TURNAGAIN ARM
COOK INLET
BELUGA LAKE
BELUGA GAS
COOK INLET FIELD
ANCHORAGE
TRADING BAY
MIDDLE GROUND SHOAL
SWANSON RIVER FIELD
B.O.C.O. REFINERY
BEAVER CREEK
WEST FORK
STERLING
KENAI
KENAI GAS FIELD
FALLS CREEK
HOMER
LEGEND
LOCATION
DRILLING
SUSPENDED
OIL WELL
GAS WELL
ABANDONED
PROVEN AREA
PROVEN, LIMITS INDEFINITE
STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINES AND MINERALS
PETROLEUM BRANCH
ANCHORAGE, ALASKA
COOK INLET AREA
SEWARD MERIDIAN
PROVEN FIELDS AND EXPLORATORY WELLS

Table V

Summary of Petroleum Industry Statistics*

		1962	1963	1964	1965	1966	1967
Drilling Permits Approved		38	25	15	39	64	88
Exploratory Wells Spudded		31	16	16	24	38	27
Development Wells Spudded		10	9	2	13	20	58
Wells Completed (Oil)		7	8	2	9	15	39
Wells Completed (Gas)		5	4	5	10	4	4
Wells Abandoned		21	15	15	7	24	25
Footage Drilled, Exploratory		290,976	135,248	177,110	187,135	383,972	317,686
Footage Drilled, Development		78,619	80,337	7,499	81,236	162,513	583,930
Total Footage Drilled		369,595	215,585	184,609	268,371	546,485	901,616
Average No. Active Rotary Rigs		10	7	6	7	14	20
Average Daily Oil Production		28,107	29,424	30,285	30,409	36,958	79,226
State O & G lease acreage in effect at year's end		1,370,652	1,590,392	1,727,972	3,018,200	3,428,143	3,689,600
Federal O & G lease acreage in effect at year's end		19,550,312	14,035,381	11,589,149	10,184,447	9,264,163	7,111,737
Federal payment of Oil and Gas least rentals				$5,529,110	$3,425,393	$4,092,165	$3,526,398
Federal payment of Oil and Gas lease royalty				$3,374,603	$3,266,396	$3,600,774	$4,070,451
State Oil and Gas lease bonus				$5,511,769	$10,819,708	$7,153,332	$20,256,124
State Oil and Gas lease rental				$1,250,536	$2,656,402	$2,663,482	$2,829,571
State Oil and Gas lease royalty				$76,310	$96,233	$941,562	$3,517,136
	TOTAL			$15,742,328	$20,264,132	$18,451,315	$34,199,680
State Oil and Gas lease acreage issued (does not include transferred Federal leases)	Competitive		388,579	722,659	704,751	154,497	300,770
	Noncompetitive		143,353	116,970	205,692	203,880	317,072
	TOTAL	662,852	531,932	839,629	910,443	358,377	617,842
Federal Oil and Gas lease acreage transferred to State			86,127	6,413	16,520	355,503	33,170
Federal Oil and Gas lease acreage issued		683,246	996,616	2,609,714	2,083,010	1,814,989	263,433

*See previous reports for years prior to 1962

Summary of Petroleum Industry Statistics
(Continued)

	1960	1961	1962	1963	1964	1965	1966	1967
Geologic Field Party Months	57.5	57.5	43	47	22	34	37.3	39.0
Seismic Crew Months	40.0	73.5	86.23	113	98	60	78.8	67.0
Gravity Crew Months	4.9	14.5	9.5	10	12	3	none	4.0
Magnetometer Crew Months					2	3	1	1.0

The following figures for 1967 are estimates which may vary from actual amounts because some actual figures are not available at the time of compilation.

Exploration expenditures (includes geological & geophysical work, exploration drilling, and administrative expense. Does not include money spent for oil & gas leases acquired by individuals & out of State companies). (thousands)		$54,030	$61,000	$ 66,020	$ 66,400	$ 74,600
Development drilling expenditures (thousands)		$ 4,635	$ 696	$ 5,261	$ 17,600	$ 37,200
Production expenditures (including secondary recovery & platform construction in year of completion) (thousands)		$ 1,594	$ 1,758	$ 19,250	$ 55,800	$ 71,800
Refinery construction & operation expenditures (thousands) (includes petrochemical plants & marine facilities)		$ 5,600	$ 2,200	$ 2,000	$ 6,520	$ 34,800
Pipeline construction expenditures (thousands)				$ 9,550	$ 21,080	$ 43,800
Total annual industry expenditures exclusive of marketing & sales activity (thousands) $37,805 $42,405 $65,500		$75,859	$65,654	$102,081	$169,400	$262,200
Full time year around employees of oil industry excluding marketing (not excluding all oil field construction activities)	613	655	671	708	829	2,520
Petroleum marketing personnel				1,508	1,599	1,680
Cumulative mileage low grade roads & seismic trails built by oil industry	885	1,185	2,245	2,908	3,214	3,857
Cumulative mileage heavy duty roads built by oil industry	331	370	374	389	447	456
Total crude throughput - Alaskan Refinery, barrels (thousands)		2,600	5,994	6,800	6,600	6,700

TABLE VI

EXPLORATORY WELLS ACTIVE IN 1967

State Permit	Operator	Well Name	No.	Location 1/4	Sec.	T.	R.	B&M	Date Spud.	Comp.	Footage Drilled T.D.	1967	Status 12-31-67	Initial Production Bbls or MCF	Remarks
66-4	Atlantic Refining	Susie	1	NE	22	2N	13E	UP	2-27-66	1-9-67	13,517		P&A		
66-37	Placid Oil Co.	State 17580	1	NW	3	9N	12W	S	9- 5-66	7-31-67	14,879		P&A		
66-40	Mobil Oil Corp.	Tower	1	NE	10	10N	12W	S	9-24-66	5-1-67	12,085		P&A		
66-43	Cities Service Oil	Painter Creek	1	NW	14	35S	51W	S	3-26-67	7-16-67	7,912	7,912	P&A		
66-46	Pan American	Redoubt Shoal 22064	1	NE	26	7N	14W	S	10-2-66	6-4-67	14,367	2,399	P&A		
66-54	Texaco, Inc.	Point Possession Unit	1	SW	2	10N	7W	S	12-23-66	7-3-67	15,296	13,296	P&A		
66-59	Pan American	Chuitna River State	1	NE	15	12N	12W	S	12 12-66	2-25-67	10,205	6,369	P&A		
66-60	Marathon Oil Co.	Beaver Creek	1	SW	34	7N	10W	S	1-4-67	6-16-67	9,134	9,134	P&A		
66-61	Union Oil Co. of C.	Kookpuk	1	SW	19	11N	7E	UP	12-21-66	3-10-67	10,193	9,475	P&A		
66-63	Hunt Oil Co.	Kalgin Island State	2	SE	19	4N	15W	S					Loc.		
66-64	Pennzoil Co.	Starichkof State	1	NE	33	3S	15W	S	1-13-67	4-1-67	12,112	12,112	Susp.		
67-1	Shell Oil Co.	Cottonwood State	1	SE	13	11N	14W	S	1-24-67	2-10-67	4,265	4,265	P&A		
67-3	Standard Oil of C.	Beluga River Unit	14-3	SW	3	12N	10W	S	2-11-67	9-15-67	15,196	15,384	P&A		
67-7	Texaco, Inc.	Nicolai Creek	3	NW	20	11N	12W	S	3-19-67	5-3-67	8,841	9,333	GSI	5032 MCF/D	1/2" bean, T.P. 747 psi - C.P. 815 psi
67-8	Shell Oil Co.	Middle River State	1	SW	5	10N	13W	S	2-15-67	3-8-67	5,287	5,287	P&A		
67-9	Marathon Oil Co.	Beaver Creek	1-A	SE	34	7N	10W	S	3-13-67	8-1-67	10,296	10,609	GSI	11,473 MCF/D	5/8" bean, T.P. 1592psi
67-11	Atlantic Richfield	Prudhoe Bay	1	NE	10	11N	14E	UP	4-22-67		8,593	8,593	Drlg.		
67-12	Pan American Pet.	North MGS 18745	2	SW	33	10N	12W	S	4-20-67	7-31-67	13,902	13,902	Susp.		
67-13	Atlantic Richfield	Trading Bay	1	SW	26	10N	13W	S	4-20-67	7-5-67	10,950	10,950	Susp.	1,402 B/D	34.3° - 20.5% - 48/64" T.P. 180 psi
67-20	Superior Oil Co.	Three Mile Creek	1	NW	3	12N	11W	S	7-8-67	10-23-67	13,773	13,773	P&A		
67-24	Mobil Oil Corp.	Tower	2	NW	22	10N	12W	S	7-31-67	10-6-67	12,053	12,053	P&A		
67-26	Marathon Oil Co.	Beaver Creek	2	NE	3	6N	10W	S	7-13-67	12-26-67	15,697	15,697	GSI	7,000 MCF/D	T.P. 1500 psi
67-29	Pan American Pet. Co.	Forelands State Unit	1	NE	22	7N	13W	S	6-17-67	8-10-67	12,304	12,304	P&A		
67-31	Pan American Pet. C.	Albert Kaloa	1	NE	26	11N	12W	S	7-21-67		13,600	13,818	Tstg.		
67-32	Humble Oil & Refg.C.	Tyonek Reserve "B"	1	NE	18	11N	11W	S	7-31-67		15,355	15,355	Drlg.		
67-34	Pan American Pet. C.	Turnagain Arm Unit	1	SE	9	11N	5W	S	6-25-67	7-17-67	6,325	6,325	P&A		
67-37	Atlantic Richfield	Trading Bay State	2	SW	18	10N	12W	S	7-8-67	9-24-67	12,410	12,410	P&A		
67-38	Pennzoil Co.	Starichkof State Unit	1	NE	22	3S	15W	S	8-4-67	9-12-67	8,775	8,775	P&A		
67-39	Shell Oil Co.	Kustatan Ridge	1	SE	19	9N	14W	S	8-26-67	9-17-67	6,718	6,718	P&A		
67-40	Union Oil Co. of C.	West Trading Bay State	1	NW	4	9N	13W	S	8-2-67	8-24-67	6,528	6,528	P&A		
67-43	Tenneco Oil Co.	State 36465	1	SW	34	7N	14W	S	8-18-67	11-15-67	13,063	13,063	P&A		
67-44	Atlantic Richfield	Middle River St. Unit	1	NE	20	10N	13W	S	8-22-67	10-19-67	10,586	10,586	P&A		
67-45	Union Oil Co. of C.	Kenai Deep Unit	1	SW	6	4N	11W	S	9-13-67	11-13-67	9,895	10,821	GSI	(S)22,500MCF/D (L)13,700MCF/D	1/2" bean - T.P. 2300 psi 3/8" bean - T.P. 2550 psi
67-50	Pan American Pet.	Redoubt Shoal St.29690	1	NW	19	7N	13W	S	8-18-67	12-13-67	13,950	13,950	Susp.		
67-56	Union Oil Co. of C	Kasilof Unit	1	NE	30	3N	12W	S	9-26-67	10-10-67	5,500	5,500	P&A		
67-72	Texaco, Inc.	Swanson Lakes	1	NW	1	9N	7W	S					Loc.		
										TOTAL EXPLORATORY FOOTAGE:-		317,686			

TABLE VII

WELLS ACTIVE IN 1967

State Permit	Operator	Well Name	Well No.	Location 1/4	Sec.	T.	R.	B&M	Date Spud.	Date Comp.	Footage Drilled T.D.	Footage Drilled 1967	Status 12-31-67	Initial Production Bbls or MCF	Remarks
Development Wells															
66-24	Pan American	MGS State 17595	8	SE	36	9N	13W	S	8-21-66	2- 3-67	10,314		Susp.		
66-47	Union Oil Co. of C.	Trading Bay State	A-1	NE	4	9N	13W	S	10- 2-66	7-13-67	6,509	3,023	POW	57 B/D	33.8° - 10.5% - Various beans - TP 150 psi
66-48	Standard Oil of C.	Ivan River	23-12	SW	12	13N	9W	S	10-15-66	1-24-67	11,288		P & A		
66-51	Pan American	MGS State 17595	9	SE	31	9N	12W	S	11-15-66	2-17-67	11,495	2,352	Susp.		
66-52	Pan American	Granite Point State	17587 #3	SW	30	11N	11W	S	11-11-66	2-20-67	11,015	3,527	POW	2565 B/D	40.1° - 1.6% - 116/64" - TP 350 psi
66-53	Shell Oil Co.	Middle Ground Shoal	A-33-1	SE	1	8N	13W	S	11-27-66	7- 9-67	12,586	4,161	POW	51 B/D	30.5° - 30.1% - 128/64" - TP 60 psi - CP 900 psi
66-55	Mobil Oil Corp.	Union-Mobil State	31-13	NE	13	10N	12W	S	1- 2-67	5- 3-67	10,874	10,874	POW	2750 B/D	41.6° - 0.1% - 112/64" - TP 295 psi - CP 50 psi
66-56	Mobil Oil Corp.	Union-Mobil State	31-14	NE	14	10N	12W	S	12-24-66	9- 7-67	10,191	20,198	POW	3083 B/D	41.0° - 0.2% - 124/64" - TP 272 psi - CP 74 psi
66-57	Pan American	Granite Point State	18742 #3	NE	12	10N	12W	S	12-20-66	4-30-67	13,114	10,735	POW	3516 B/D	40.4° - 0.1% - 64/64" - TP 375 psi
66-58	Union Oil Co. of C.	Trading Bay State	A-3	SE	3	9N	13W	S	12- 9-66	3-23-67	11,637	7,774	Susp.		
66-62	Pan American	Granite Point State	17587 #4	SE	30	11N	11W	S	12-22-66	5-18-67	11,500	9,461	Susp.		
67- 2	Union Oil Co. of C.	Trading Bay State	A-4	SE	2	9N	13W	S	3-24-67	8-27-67	10,609	10,609	Susp.		
67- 4	Pan American	MGS State 17595	10	NW	30	9N	12W	S	2- 5-67	12-29-67	12,500	12,500	POW	148 B/D	38.7° - 3.9% - 124/64" - TP 110 psi
67- 5	Pan American	Granite Point State	18742 #4	SE	1	10N	12W	S	2- 9-67	5- 5-67	9,983	9,983	POW	4317 B/D	40.4° - 2.8% - 125/64" - TP 400 psi
67- 6	Pan American	Granite Point State	17586 #3	SE	36	11N	12W	S	2-15-67	7-20-67	12,033	12,033	POW	5879 B/D	41.7° - .04% (S) 40/64" - 475 psi (L) 96/64" - 235 psi
67-10	Shell Oil Co.	Middle Ground Shoal	A-11-13	NW	13	8N	13W	S	4- 1-67	5-18-67	10,022	10,022	POW	1450 B/D	35.3° - 4% - 128/64" - TP 75 psi - CP 480 psi
67-14	Pan American	Granite Point State	18742 #5	SW	12	10N	12W	S	5- 7-67	9-20-67	10,800	10,800	POW	9204 B/D	41.2° - 1.0% - 124.5/64" - TP (S) 375 psi - TP (L) 300 psi
67-15	Union Oil Co. of C.	Trading Bay State	A-5	NE	9	9N	13W	S	4-27-67	6- 4-67	7,646	7,646	POW	388 B/D	27.3° - 0% - 14/64" - TP 125 psi
67-16	Pan American	Granite Point State	18742 #7	SW	6	10N	11W	S	5- 4-67	10- 4-67	10,523	10,523	POW	1265 B/D	42.5° - 0% - 124.5/24" - TP 115 psi
67-17	Pan American	MGS State 17595	11	NW	31	9N	12W	S	5-14-67	9- 7-67	9,543	9,543	POW	3795 B/D	34.5° - to 37.9° - 8.5° - 24 & 124.5/64"-TP 1175 & 90-150
67-18	Mobil Oil Corp.	Granite Point State	33-13	NW	13	10N	12W	S	5- 4-67	7-12-67	11,450	11,450	POW	3402 B/D	40.9° - 0.4% - 124/64" - TP 235 - CP 30 psi
67-19	Pan American	Granite Point State	18742 #6	SW	31	11N	11W	S	5-20-67	8-14-67	11,067	11,067	POW	2937 B/D	41.5° - 0.5% - 124/64" - TP 200 psi
67-21	Mobil Oil Corp.	Granite Point State	13-13	SW	13	10N	12W	S	6-15-67	10-24-67	10,572	10,572	POW	6826 B/D	40.8° - 0.1% - 124/64" - TP (S) 370 psi-TP (L) 290 psi-CP 200 psi
67-22	Shell Oil Co.	Middle Ground Shoal	A-42-11	NE	11	8N	13W	S	5-28-67	7- 4-67	8,800	8,800	POW	2117 B/D	36.2° - 2.0% - 128/64" - TP 100 psi - CP 860 psi
67-23	Pan American	Granite Point State	18742 #9	SE	12	10N	12W	S	5-17-67	12-27-67	12,303	12,609	POW	(S) 3190 B/D (L) 9 B/D	39.9° - 0.1% - 124/64" - TP 250 psi 40.0° - 76.4% - 64/64" - TP 40 psi
67-25	Union Oil Co. of C.	Trading Bay State	A-6	NE	4	9N	13W	S	6- 6-67	6-28-67	6,498	6,498	POW	2223 B/D	30.2° - 0.5% - 32/64" - TP 500 psi
67-27	Pan American	South MGS Unit	2	SW	35	8N	13W	S	6-18-67		10,401	10,401	Susp.		
67-28	Pan American	South MGS Unit	3	NW	2	7N	13W	S	6-22-67	9-27-67	10,500	10,500	POW	3565 B/D	35.3° - 0.1% - 124.5/64" - TP 200 & 150 psi
67-30	Halbouty-Alaska Oil	West Fork	42-20	NE	20	6N	9W	S	7- 2-67	7-10-67	5,523	5,523	P & A		
67-33	Mobil Oil Corp.	Granite Point State	11-13	NW	13	10N	12W	S	7-13-67	10- 4-67	11,653	11,653	POW	6416 B/D	41.2° - 0.2% - 124/64" - TP 310 psi- 40/64"-TP 20-205 psi- CP 25 psi
67-35	Shell Oil Co.	Middle Ground Shoal	A-44-11	SE	11	8N	13W	S	7- 9-67	8-12-67	9,260	9,260	POW	778 B/D	35.1° - 3.0% - 128/64" - TP 70 psi - CP 930 psi
67-36	Pan American	Granite Point State	18742 #8	NW	31	11N	11W	S	7-22-67	9-18-67	10,087	10,087	POW	3658 B/D	41.9° - 0% - 124.5/64" - TP 240 psi
67-41	Shell Oil Co.	Middle Ground Shoal	A-42-14	NE	14	8N	13W	S	8-14-67	9-16-67	10,800	10,800	POW	1267 B/D	34.4° - 6.0% - 56/64" - TP 135 psi - CP 840 psi
67-42	Pan American	Granite Point State	18742 #10	NW	6	10N	11W	S	8- 7-67	10-22-67	10,370	10,370	POW	4124 B/D	41.0° - 2.5% - 56/64" & 124/64" - TP 245 & 155 psi
67-46	Union Oil Co. of C.	Trading Bay State	A-7	SE	4	9N	13W	S	8-27-67	10-12-67	6,407	6,407	POW	(S) 742 B/D (L) 868 B/D	25.9° - 1.5% - 48/64" - TP 125 psi 31.3° - 0.9% - 36/64" - TP 270 psi - CP 300 psi
67-47	Union Oil Co. of C.	Trading Bay Unit	G-1	SE	28	9N	13W	S	8-27-67	11- 3-67	11,420	11,420	POW	6038 B/D	34.0° - 0.1% - 218/64" - TP 400 psi
67-48	Union Oil Co. of C.	Trading Bay Unit	G-2	SE	29	9N	13W	S	9- 1-67	10-18-67	10,156	10,156	POW	3430 B/D	35.7° - 0.4% - 40/64" - TP 480 psi
67-49	Pan American	MGS State 17595	13	NW	31	9N	12W	S	9- 9-67		10,691	10,691	Tstg.		
67-51	Shell Oil Co.	Middle Ground Shoal	C-34-23	SE	23	8N	13W	S	9-13-67	10-21-67	9,642	9,642	POW	3993 B/D	35.2° - 0.4% - 128/64" - TP 110 psi

TABLE VII

WELLS ACTIVE IN 1967

State Permit	Operator	Well Name	Well No.	Location 1/4	Sec.	T.	R.	B&M	Date Spud.	Date Comp.	Footage Drilled T.D.	Footage Drilled 1967	Status 12-31-67	Initial Production Bbls MCF	
DEVELOPMENT WELLS (Continued)															
67-52	Pan American	South MGS Unit	6	SW	35	8N	13W	S	9-20-67	11-6-67	10,942	10,942	POW	2384 B/D	35.5° - 0.0% - 124.5/64" - TP 125 - 200 psi
67-53	Union Oil Co. of C.	Trading Bay State	A-8	SW	4	9N	13W	S	10-11-67	11-11-67	7,083	7,083	POW	(S) 920 B/D (L)1095 B/D	33.3° - 0.1% - 22/64" - TP1400 psi 32.3° - 1.5% - 18/64" - TP 670 psi
67-54	Pan American	Granite Point State	17586 #4	NE	3	11N	12W	S	9-18-67	11-30-67	10,905	10,905	POW	168 B/D	41.8° - 0.6% - 24/64" - TP 190 psi - 124.5/64"-TP 120 psi
67-55	Shell Oil Co.	Middle Ground Shoal	A-12-12	NW	12	8N	13W	S	9-20-67	11-1-67	9,650	9,650	POW	1101 B/D	35.4° - 3.5% - 36/64" - TP 180 - CP 850 psi
67-57	Mobil Oil Corp.	Granite Point State	11-24	NW	24	10N	12W	S	10-5-67		11,800	12,524	Tstg.		
67-58	Pan American	South MGS Unit	4	NW	35	8N	13W	S	10-27-67		10,550	10,550	Tstg.		
67-59	Pan American	Granite Point State	18742 #11	NE	1	10N	12W	S	10-12-67		3,235	3,235	Susp.		
67-60	Union Oil Co. of C.	Trading Bay Unit	G-3	NW	33	9N	13W	S	10-19-67		10,329	13,533	Drlg.		
67-61	Union Oil Co. of C.	Trading Bay Unit	G-4	NW	28	9N	13W	S	11-1-67	12-28-67	10,164	10,164	POW	6196 B/D	34.7° - 1.0% - 96/64" - TP 300 psi
67-62	Mobil Oil Corp.	Granite Point State	44-14	SE	14	10N	12W	S	10-24-67		10,850	10,942	Tstg.		
67-63	Shell Oil Co.	Middle Ground Shoal	C-31-26	NE	26	8N	13W	S	10-22-67	12-9-67	9,935	9,935	POW	4887 B/D	35.7° - 0.0% - 128/64" - TP 130 psi
67-64	Union Oil Co. of C.	Trading Bay Unit	K-2	NE	21	9N	13W	S	11-1-67		11,288	11,288	Drlg.		
67-65	Union Oil Co. of C.	Trading Bay Unit	K-1	NE	19	9N	13W	S	10-26-67		13,224	13,224	Drlg.		
67-66	Pan American	Granite Point State	18742 #12	SE	31	11N	11W	S	10-19-67		9,372	9,372	Drlg.		
67-67	Pan American	Granite Point State	18742 #13	NW	12	10N	12W	S	7-24-67		9,273	10,404	Drlg.		
67-68	Shell Oil Co.	Middle Ground Shoal	A-33-14	SE	14	8N	13W	S	11-2-67	12-7-67	10,555	10,555	POW	2177 B/D	36.4° - 0.5% - 128/64" - TP 90 CP 800
67-69	Pan American	South MGS Unit	7	NW	2	7N	13W	S	11-2-67		8,488	8,488	Susp.		
67-70	Mobil Oil Corp.	Granite Point State	44-11	SE	11	10N	12W	S					Loc.		
67-71	Union Oil Co. of C.	Trading Bay Unit	G-5	NE	29	9N	13W	S					Loc.		
67-73	Pan American	Granite Point State	18742 #14	NE	13	11N	11W	S	11-10-67		3,230	3,230	Susp.		
67-74	Union Oil Co. of C.	Trading Bay State	A-9	NE	4	9N	13W	S	11-12-67	12-5-67	6,896	6,896	POW	125 B/D	28.7° - 2.1% - Gas Lift
67-75	Pan American	South MGS Unit	9	NE	35	8N	13W	S	11-22-67		3,200	3,200	Susp.		
67-76	Union Oil Co. of C.	Trading Bay State	A-10	SW	4	9N	13W	S	12-5-67		6,696	6,696	Drlg.		
67-77	Pan American	Granite Point State	18742 #16	NE	1	10N	12W	S	11-30-67		5,610	8,248	Drlg.		
67-78	Pan American	South MGS Unit	5	SW	2	7N	13W	S	12-6-67		3,200	3,200	Susp.		
67-79	Shell Oil Co.	Middle Ground Shoal	A-14-1	SW	1	8N	13W	S	12-8-67		8,430	8,430	Drlg.		
67-80	Union Oil Co. of C.	Trading Bay Unit	D-1	SE	32	9N	13W	S	12-10-67		2,550	2,550	Drlg.		
67-81	Union Oil Co. of C.	Trading Bay Unit	D-2	NW	5	8N	13W	S	12-23-67		720	720	Drlg.		
67-82	Pan American	Granite Point State	18742 #15	NW	7	10N	11W	S	8-12-67		8,876	8,876	Drlg.		
67-83	Shell Oil Co.	Middle Ground Shoal	C-23-26	SW	26	8N	13W	S	12-10-67		9,190	9,190	Drlg.		
67-84	Mobil Oil Corp.	Granite Point State	31-23	NE	23	10N	12W	S					Loc.		
67-85	Union Oil Co. of C.	Trading Bay Unit	G-6	SE	28	9N	13W	S	12-29-67		658	658	Drlg.		
67-86	Union Oil Co. of C.	Trading Bay Unit	K-3	NW	20	9N	13W	S					Loc.		
67-87	Union Oil Co. of C.	Trading Bay Unit	K-4	SW	21	9N	13W	S					Loc.		
67-88	Union Oil Co. of C.	Trading Bay State	A-12	NW	4	9N	13W	S					Loc.		
										TOTAL DEVELOPMENT FOOTAGE -		588,448		
										GRAND TOTAL -		906,134		

Table VIII

Middle Ground Shoal Field

Cook Inlet, Alaska

Shell Oil Company and
Pan American Petroleum Corporation, Operators

Location	T10N & 11N, R11W & 12W, Seward Meridian
Discovery Well	Pan American Pet. Corp. - Middle Ground Shoal State No. 1
Discovery Date	June 10, 1962
Producing Formation	
Oil	Kenai - 5,185' - 8,100' Hemlock - 7,239' - 9,500'
Deepest Test	Pan American Pet. Corp. MGS 17595 No. 2 10,862' (VD)

Wells	
Oil - Flowing	20
Gas Lift	10
Water Injection	1
Shut-in	1
Total	32

Production Data - 1967	Field Total	"A" Pool	"B,C,&D" Pools	"E,F,&G" Pools
Oil Production - bbls.	7,408,091	127,817	1,913,271	5,367,003
Water Production - bbls.	156,290	49,049	63,151	44,090
Casinghead Gas - MCF	3,214,803	186,422	1,035,113	1,993,268

Cumulative Production 12-31-67	
Oil	10,084,636 bbls.
Water	204,291 bbls.
Casinghead Gas	4,425,193 MCF (base 14.65 psi)

Reservoir Data	Hemlock Zone	Kenai Zone
Initial Reservoir Pressure	3,655 psi	
Reservoir Pressure 12/31/67	2,500 psi (est)	2,000 psi (est)
Saturation Pressure	1,500+ psi	1,900 + psi
Oil Gravity	36°-38° API	36°-38° API
Temperature	155°F	125°F
Net Pay Thickness	170'-550'	250'-300'
Porosity	11%	16%
Permeability	10 Mds.	100 Mds.
Connate Water	NA	NA
Original Formation Vol. Factor	NA	NA
Gas/Oil Ratio	430 cf/bbl.	400 cf/bbl.
Productive Area	4,000 acres	2,600 acres

Table IX

Middle Ground Shoal Field
Individual Well Oil Production

Well No.	Comp. Date	1965	1966	1967	Cumulative
Pan American Petroleum Corp. - Kenai "A" Sand					
17595 #10 (triple)	12-29-67			19	19
17595 #11 (triple)	9- 7-67			127,798	127,798
Total "A" Sand				127,817	127,817
Pan American Petroleum Corp. - Kenai B, C, & D Sands					
17595 #5	11-20-66		31,791	120,624	152,415
17595 #6	6-13-66		207,222	611,034	818,256
17595 #7	8- 9-66		146,959	603,821	750,780
17595 #10	12-29-67			474	474
17595 #11	9- 7-67			111,098	111,098
Total B, C, & D Sands			385,972	1,447,051	1,833,023
Pan American Petroleum Corp. - Hemlock E, F, & G Sands					
17595 #4	12-28-66			323,507	323,507
17595 #5	11-20-66		5,202	135,616	140,818
17595 #7	8- 9-66		8,841	17,247	26,088
17595 #10	12-29-66			153	153
17595 #11	9- 7-67			101,962	101,962
18746 #1	(Test)	1,159			1,159
18746 #2	(Test)			20,352	20,352
18746 #3	9-27-67			413,324	413,324
18746 #4	(Test)			10,879 m	10,879
18746 #6	11- 6-67			267,971	267,971
Total E, F, & G Sands		1,159	14,043	1,291,011	1,306,213
Total Pan American Petroleum Corp.		1,159	400,015	2,865,881	3,267,055
Shell Oil Co. - Kenai B, C, & D Sands					
A-32-11	9-17-65	16,602	203,551	90,957	311,110
A-13-1	6-27-66		171,465	231,531	402,996
A-11-1	9-25-66		73,051	143,732	216,783
Total B, C, & D Sands		16,602	448,067	466,220	930,889
Shell Oil Co. - Hemlock E, F, & G Sands					
A-11-1	9-26-66		82,413	265,430	347,843
A-13-1	6-27-66		155,095	242,054	397,149
A-33-1	7- 9-67			1,058	1,058
A-32-11	9-17-65		63,693	52,440	116,133
A-42-11	7- 4-67			334,067	334,067
A-43-11	6-20-65	1,156	508,314	531,944	1,041,414
A-44-11	8-12-67			98,072	98,072
A-11-12	11-24-66		55,326	500,667	555,993
A-12-12	11- 1-67			48,185	48,185
A-23-12	11-26-65	8,254	147,611	160,956	316,821
A-11-13	5-18-67			247,697	247,697
A-32-14	2-16-66		362,254	452,510	814,764
A-33-14	12- 7-67			52,438	52,438
A-34-14	4-14-66		426,586	609,061	1,035,647
A-42-14	9-16-67			117,322	117,322
C-34-23	10-21-67			262,809	262,809
C-31-26	12- 9-67			99,282	99,282
Total E, F, & G Sands		9,410	1,801,292	4,075,992	5,886,694
Total Shell Oil Co.		26,012	2,249,359	4,542,212	6,817,583
Total "A" Sand				127,817	127,817
Total B, C, & D Sands		16,602	834,039	1,913,271	2,763,912
Total E, F, & G Sands		10,569	1,815,335	5,367,003	7,192,907
Total Field Production		27,171	2,649,374	7,408,091	10,084,636

MIDDLE GROUND SHOAL FIELD

OIL PRODUCTION

Figure 5

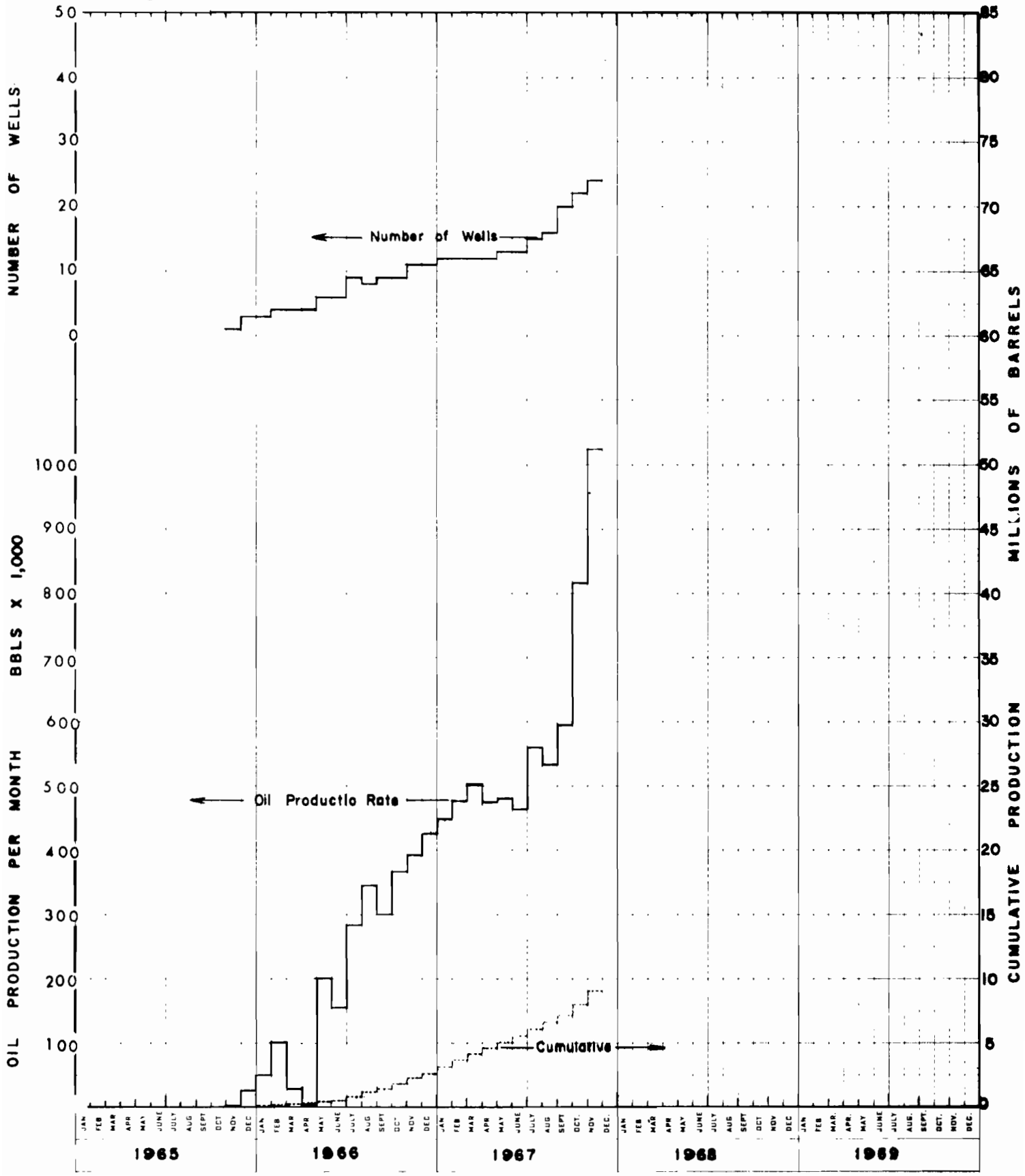


Table X

Oil Production By Months

Year	Month	Oil Prod. Month-Bbls.	Oil Prod. Year-Bbls.	Cumulative Oil Prod.-Bbls.	Number of Wells
Middle Ground Shoal Field					
1965	Nov.	1,185			1
(corrected)	Dec.	26,012	27,197	27,197	3
1966	Jan.	50,408			4
	Feb.	101,018			5
	Mar.	27,394			5
	Apr.	4,933			6
	May	196,475			7
	June	153,794			7
	July	282,644			11
	Aug.	345,392			11
	Sept.	300,572			13
	Oct.	367,861			13
	Nov.	391,441			15
	Dec.	424,897	2,646,468	2,673,665	15
1967	Jan.	448,830			16
	Feb.	476,051			17
	Mar.	502,449			17
	Apr.	475,990			16
	May	481,479			17
	June	462,534			17
	July	560,225			19
	Aug.	534,751			20
	Sept.	596,485			28
	Oct.	815,980			28
	Nov.	1,023,128			30
	Dec.	1,030,189	7,408,091	10,084,636	30
Granite Point Field					
1965	Oct.		*286	286	
1966	No wells on production				
1967	Mar.	21,943			1
	Apr.	72,363			2
	May	340,825			4
	June	373,471			4
	July	536,017			6
	Aug.	724,718			7
	Sept.	939,024			11
	Oct.	1,314,137			14
	Nov.	1,381,000			15
	Dec.	1,349,566	7,053,064	7,053,350	17

*Oil from tests saved and sold.

Table XI

Granite Point Field
Cook Inlet, Alaska

Mobil Oil Corporation and
Pan American Petroleum Corporation, Operators

Location	T10 & 11N, R11 & 12W, Seward Meridian
Discovery Well	Mobil Oil Corporation, Granite Point #1
Discovery Date	June 9, 1965
Producing Formation	Kenai Zone - 7,750'-10,200'
Deepest Test	Pan American Pet. Corp., Tyonek State 17587 No. 2 - 12,288'
Wells	
Oil - Flowing	16
Gas Lift	0
Shut-in	0
Production Data - 1967	
Oil Production	7,053,064 bbls.
Water Production	50,483 bbls.
Gas Production - with oil	4,889,550 MCF (base 14.65 psi)
Cumulative Production 12/31/67	
Oil	10,084,636 bbls.
Water	194,916 bbls.
Gas - with oil	4,889,550 MCF (base 14.65 psi)
Reservoir Data	
Initial Reservoir Pressure	4,116 psi @ 8,500'
Reservoir Pressure 12/31/67	2,600 psi (est)
Saturation Pressure	2,400 psi ±
Oil Gravity	41°-44° API
Formation Temperature	135°-170°F
Net Pay Thickness	250'-600'
Porosity	14%
Permeability	10 Mds.
Gas-Oil Ratio	960 SCF/STB
Productive Area	3,200 Acres

GRANITE POINT FIELD

OIL PRODUCTION

Figure 6

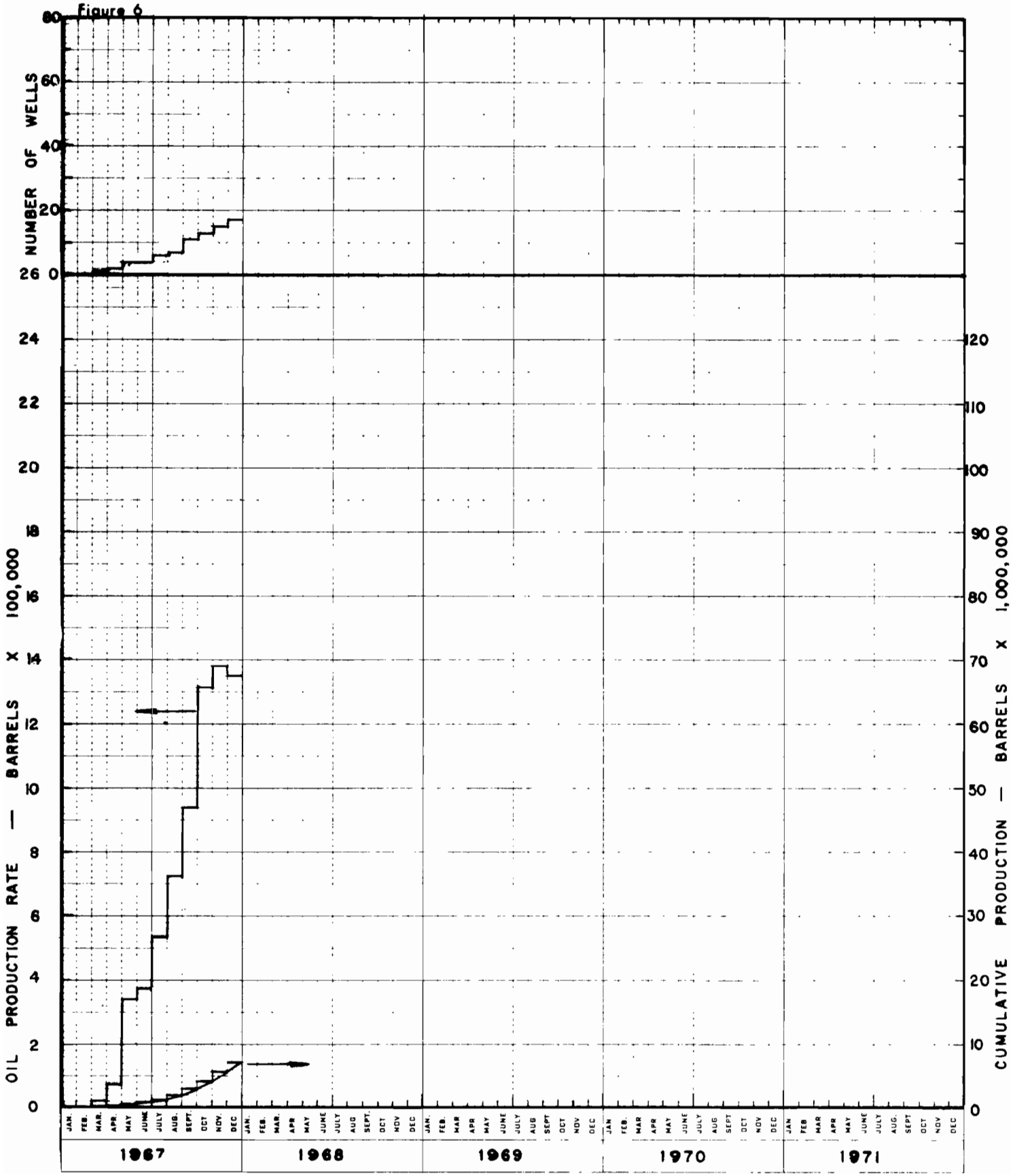


Table XII

Granite Point Field
Individual Well Oil Production

Well No.	Comp. Date	1965	1967
Mobil Oil Corp. - Middle Kenai Sands			
#31-13	5- 3-67		786,102
#33-13	7-11-67		566,112
#31-14	9- 7-67		311,278
#11-13	10- 4-67		485,774
#13-13	10-24-67		330,240
Total Middle Kenai Sands			2,479,506
Mobil Oil Corp. - Hemlock Sands			
#11-13	10- 4-67		2,764
Total Hemlock Sands			2,764
Total Mobil Oil Corp.			2,482,270
Pan American Petroleum Corp. - Middle Kenai Sands			
18742 #2		286	
17587 #3	2-20-67		582,048
18742 #4	5- 8-67		831,985
18742 #3	5-15-67		651,864
17586 #3	7-20-67		751,154
18742 #6	8-14-67		315,023
18742 #5	9-20-67		718,264
18742 #8	9-18-67		245,704
18742 #7	10- 1-67		104,822
18742 #10	10-22-67		263,382
17586 #4	11-30-67		68,497
18742 #9	12-27-67		38,051
Total Pan American - Middle Kenai Sands		286	4,570,794
Total Field - Middle Kenai Sands			7,050,300
Total Field - Hemlock Sands			2,764
Total Field Production		286	7,053,064

Table XIII

Swanson River Field
Kenai Peninsula, Alaska

Standard Oil Company of California,
Western Operations, Inc., Operator

Location	T7N & 8N R9W, Seward Meridian
Discovery Well	SRU 34-10
Discovery Date	August 24, 1957
Producing Formation	
Oil	Hemlock Zone - 10,150'-11,700'
Gas	Kenai - 3000'-5800'
Deepest Test	SCU 22A-32 - 14,796'
Wells	
Oil - Flowing	32
Gas Lift	4
Shut-in	12
Gas - Producing	0
Shut-in	6
Salt Water Disposal	2 One is dual - gas producer (shut-in) and disposal
Gas Injection - Active	9
Idle	0
Production Data - 1967	
Oil Production	12,980,482
Water Production	12,257,904
Gas Production - with oil	13,541,028 (base 14.65 psi)
Gas Production - gas wells	0
Cumulative Production 12-31-67	
Oil	74,951,420 bbls.
Water	8,217,867 bbls.
Gas - with oil	32,375,631 MCF (base 14.65 psi)
Gas - gas wells	11,839,352 MCF (base 14.65 psi)
Reservoir Data - Hemlock Zone	
Initial Reservoir Pressure	5,650 psi
Reservoir Pressure 12-31-67	4,800 psi
Saturation Pressure	1,000-1,400
Oil Gravity	30.0°-37.8° API
Temperature	180°F
Net Pay Thickness	8'-300'
Porosity	18-26%
Permeability	0-3,275 Mds.
Connate Water	40%
Original Formation Vol. Factor	1.12
Gas-Oil Ratio	139-753 SCF/STB
Participating Area	6,245 acres

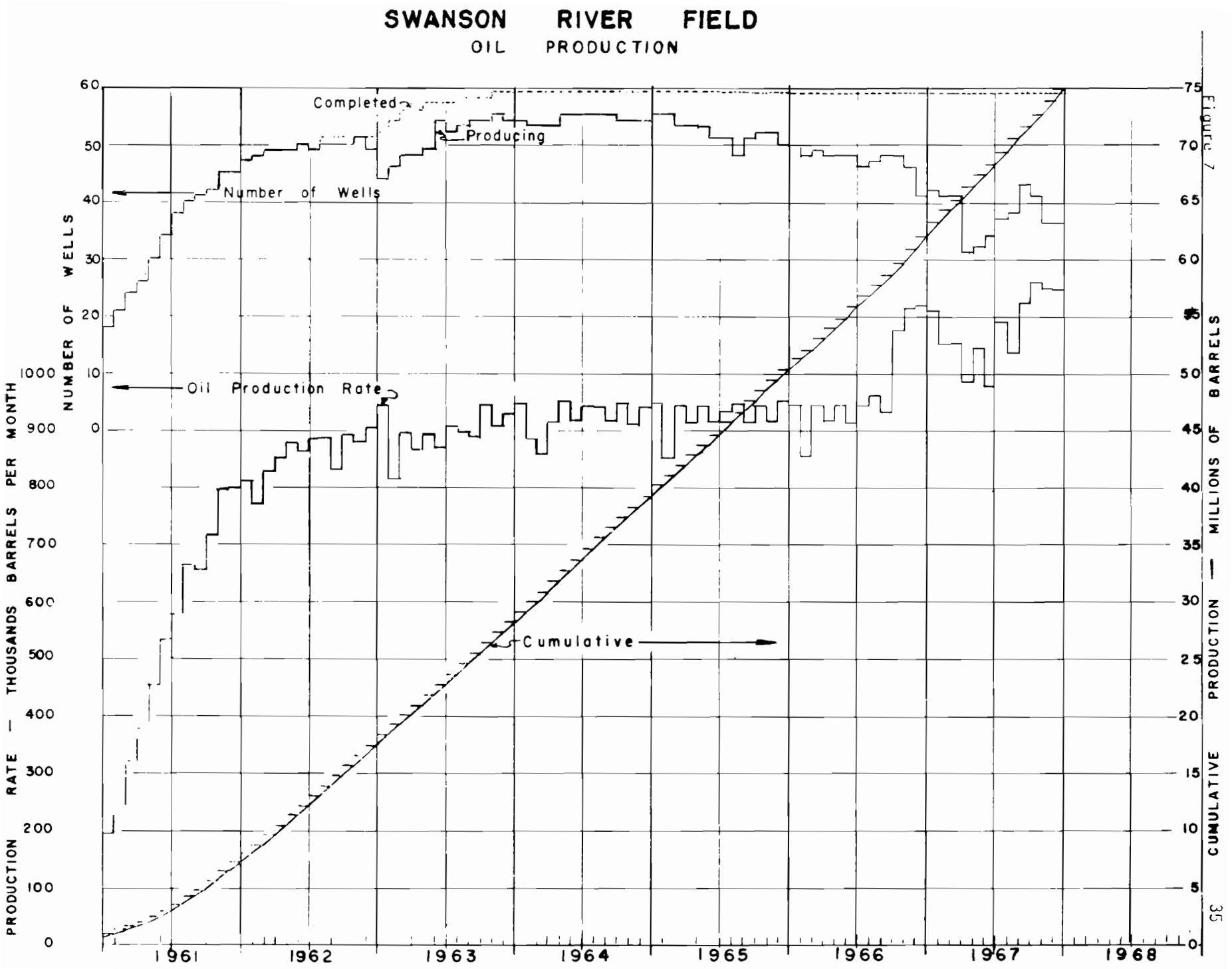

SWANSON RIVER FIELD
OIL PRODUCTION
Completed
Producing
Number of Wells
Oil Production Rate
Cumulative
NUMBER OF WELLS
PRODUCTION RATE — THOUSANDS BARRELS PER MONTH
CUMULATIVE PRODUCTION — MILLIONS OF BARRELS
1961
1962
1963
1964
1965
1966
1967
1968

FIGURE 7

Table XIV

Oil Production By Months

Year	Month	Oil Prod. Month-Bbls.	Oil Prod. Year-Bbls.	Cumulative Oil Prod.-Bbls.	Number of Wells
Swanson River Field					
Oil Produced Prior to 1964				28,105,918	
1964	Jan.	945,348			54
	Feb.	883,858			54
	Mar.	858,811			53
	Apr.	912,185			53
	May	948,770			55
	June	915,204			55
	July	941,565			55
	Aug.	940,175			55
	Sept.	914,025			55
	Oct.	944,743			54
	Nov.	908,956			54
	Dec.	940,232	11,053,872	39,159,790	54
1965	Jan.	944,032			55
	Feb.	849,306			55
	Mar.	940,920			53
	Apr.	911,939			53
	May	942,537			53
	June	914,406			51
	July	930,389			51
	Aug.	946,856			48
	Sept.	912,001			51
	Oct.	942,602			52
	Nov.	914,089			52
	Dec.	950,687	11,099,404	50,259,194	50
1966	Jan.	943,027			50
	Feb.	854,246			48
	Mar.	944,497			49
	Apr.	915,799			48
	May	944,597			48
	June	912,806			48
	July	941,873			46
	Aug.	960,439			47
	Sept.	929,940			48
	Oct.	1,076,526			48
	Nov.	1,116,210			46
	Dec.	1,171,784	11,711,744	61,970,938	41
1967	Jan.	1,170,384			42
	Feb.	1,051,231			41
	Mar.	1,054,505			41
	Apr.	985,111			31
	May	1,042,237			32
	June	974,398			34
	July	1,090,528			37
	Aug.	1,034,760			38
	Sept.	1,121,772			43
	Oct.	1,159,636			41
	Nov.	1,149,681			36
	Dec.	1,146,239	12,980,482	74,951,420	36

Table XV

Swanson River Field
Individual Well Oil Production Statistics

Swanson River Unit

Oil Production

Well No.	Comp. Date	1960	1961	1962	1963	1964	1965	1966	1967	Cumulative
SRU 34-10*	10- 1-57	21,264	59,933	29,227	1,918	1,043	1,062		6	217,860
12-15	10- 5-60	21,387	34,327	45,426	104,164	90,296	145,544	173,511	276,036	890,691
14-15*	7-25-59		7,332	3,636	66					14,269
21-15	6- 7-61		79,545	167,236	109,481	69,941	32,290	44,157	150,044	652,694
23-15	4- 5-61		107,040	146,300	123,448	143,904	199,350	196,130	124,560	1,040,732
32-15*	10-24-59	108,308	186,776	162,708	124,600	128,923	76,815	17,254**		819,748
34-15	8- 4-61		66,800	123,776	45,810	43,725	17,438	9,271	10,071	316,891
41A-15	12- 9-62			6,647	136,024	116,995	109,079	166,957	105,788	641,490
43-15	11- 1-61		2,675	19,181	29,234	22,469	17,283	15,886	5,816	112,544
12-22	8-11-62			75,395	224,733	195,084	190,382	45,795**		731,389
14-22	2- 2-63				27,900	23,581	25,934	25,116	16,143	118,674
21-22	1- 3-62			135,195	65,423	78,025	37,851	49,591	155,610	521,695
23-22	3- 9-60	32,581	120,145	86,685	52,411	103,032	49,748	84,056	216,204	744,862
12-27*	11-30-59	62,540	183,713	164,195	110,420	92,678	134,354	107,264	156,090	1,018,537
14-27	6-14-60	6,582	238,272	312,415	270,366	305,697	261,587	12,927**		1,407,846
21-27	5- 5-61		119,571	232,324	194,880	233,780	256,526	380,810	449,093	1,866,984
23-27	2- 5-61		98,751	66,458	88,721	76,064	107,093	101,509	179,489	718,085
31-27*	10-26-58	9,231	40,032	16,666	12,718	2,399	1,902			177,003
34-28	5-16-63				51,160	87,008	67,478	83,719	183,739	473,104
43-28	7-22-61		83,914	173,245	201,821	209,299	195,884	202,393	299,779	1,366,335
14-33	6-11-62			65,473	119,161	185,039	225,494	174,234	42,629	812,030
23-33	6-10-61		37,452	44,818	50,644	111,367	104,910	162,372	121,027	632,590
32-33	8-25-60	36,655	195,087	294,175	227,676	195,219	212,035	267,245	150,704	1,578,796
41-33	3-12-61		182,225	363,453	247,490	319,533	290,963	337,440	399,763	2,140,867
12-34	10-21-60		142,787	160,764	175,760	200,189	233,854	383,159	735,627	2,032,140
21-34	3-25-63				141,416	178,252	212,493	282,303	336,256	1,150,720
Totals SRU		298,548	1,986,377	2,895,398	2,937,445	3,213,542	3,207,349	3,323,099	4,114,474	22,198,576

* Produced prior to 1960 - Total 222,344 bbls.

** Converted to gas injection wells

Table XVI

Swanson River Field
Individual Well Oil Production Statistics

Soldotna Creek Unit

Oil Production

Well No.	Comp. Date	1960	1961	1962	1963	1964	1965	1966	1967	Cumulative
SCU 12-3	3-23-61		201,829	241,286	163,195	257,984	161,443	222,425	415,061	1,663,223
14-3	8- 2-61		66,962	127,862	111,475	86,680	3,618	5,748	4,938	407,283
21-3	1-10-62			253,580	199,238	123,737	181,022	195,677	1,130	954,384
23-3	11-12-63				13,452	70,841	27,018	16,010	4,411	131,732
12-4	4- 8-61		206,870	315,308	448,589	337,381	375,646	485,699	669,360	2,838,853
14-4	8-13-60	83,768	305,632	406,899	474,979	433,066	288,242	5,108*		1,997,694
21-4	11- 5-61		29,605	215,841	255,905	286,564	328,064	377,862	76,796	1,570,637
23-4	6- 1-61		175,004	370,777	472,517	375,279	439,947	504,484	711,969	3,049,977
32-4	6- 5-60	74,003	317,492	398,596	425,710	381,621	335,942	491,669	493,749*	2,918,782
34-4	11-26-60		246,747	355,595	437,873	387,460	418,123	517,342	794,498	3,157,638
41-4	3-21-60	97,543	301,962	280,253	*					679,758
43-4	5-14-61		181,890	330,931	327,105	317,238	339,799	330,536	461,835	2,288,334
32-5	3-16-62			29,946	67,290	102,183	85,880	54,551	20,777	360,527
34-5	10- 9-61		30,817	262,993	420,163	343,194	538,278	375,809	207,379	2,178,633
41-5	9-20-61		41,594	116,075	102,833	173,845	119,476	369,247	337,091	1,260,161
43-5	5-28-61		91,504	127,021	219,725	233,669	285,977	369,227	314,396	1,641,519
21-8	2- 5-63				164,964	260,072	260,038	1,888	99,286	786,248
41-8	5-14-61		119,506	355,493	87,270*					562,269
32-8	2-22-61		130,883	194,030	204,460	242,599	347,609	470,841	705,204	2,295,626
34-8	1-28-62			76,666	105,205	162,007	151,421	166,656	161,832	823,787
43-8	7-24-61		161,965	154,901	120,657	153,302	106,952	198,451	152,302	1,048,530
12-9	10- 9-60		275,247	236,586	*					511,833
14-9	10-26-60		181,998	195,332	314,525	292,351	368,675	488,640	369,416	2,210,937
21-9	7-19-61		137,997	353,681	390,562	411,971	471,527	402,019	94,793	2,262,550
23-9	7-17-61		115,333	331,927	341,006	215,240	260,544	245,718	65,323	1,575,091
32-9	1-16-61		185,766	282,033	373,733	387,757	457,009	466,487	748,555	2,901,340
34-9	11- 8-61		26,014	194,171	259,224	285,562	227,058	340,128	339,124	1,671,281
41-9	6-11-61		118,240	260,815	288,681	277,325	100,998	103,800	426,917	1,576,776
43-9	7- 5-63				83,926	164,747	4,127	14,922	35,562	303,284
21-16	7- 8-63				110,491	281,106	242,731	314,278	341,170	1,289,776
34-33	11-12-60	4,137	281,661	243,842	227,676	256,625	320,377	368,870	474,430	2,177,618
43-33	3- 8-61		164,602	290,258	260,721	233,723	374,104	146,859*		1,470,267
14-34	12-23-60		243,004	361,114	329,369	306,201	270,410	337,695	338,704	2,186,497
Totals SCU		259,451	4,340,124	7,363,712	7,802,519	7,840,330	7,892,055	8,388,646	8,866,008	52,752,845
Totals SRU		298,548	1,986,377	2,895,398	2,937,445	3,213,542	3,207,349	3,323,099	4,114,474	22,198,576
Prior to 1960										
Field Totals	222,344	557,999	6,326,501	10,259,110	10,739,964	11,053,872	11,099,404	11,711,745	12,980,482	74,951,421

* Converted to gas injection well

Table XVII

Swanson River Injection Project
Injection Statistics*

Gas Injection Started November, 1962
Pressure Base 14.65 psi

Date		Number Injection Wells	MCF Injected in Month	MCF from Kenai (Included)	Cumulative MCF Injected
1962,	Nov.	1	33,547		33,547
	Dec.	2	225,068		258,615
Total 1962			258,615		
1963	Jan.	2	306,038		564,653
	Feb.	2	360,840		925,493
	Mar.	3	537,487		1,462,980
	Apr.	3	474,304		1,937,285
	May	3	549,380		2,486,665
	June	3	621,453		3,108,118
	July	3	739,865		3,847,982
	Aug.	3	664,394		4,512,376
	Sept.	3	586,840		5,099,217
	Oct.	3	640,587		5,739,803
	Nov.	3	508,440		6,248,243
	Dec.	3	488,185		6,736,428
Total 1963			6,477,813		
1964,	Jan.	3	524,308		7,260,736
	Feb.	3	471,948		7,732,685
	Mar.	3	523,147		8,255,832
	Apr.	3	574,812		8,830,644
	May	3	550,281		9,380,924
	June	3	516,281		9,897,205
	July	3	502,187		10,399,392
	Aug.	3	454,445		10,853,837
	Sept.	3	421,230		11,275,067
	Oct.	3	404,523		11,679,590
	Nov.	3	360,719		12,040,309
	Dec.	3	316,093		12,356,402
Total 1964			5,619,974		
1965,	Jan.	3	362,977		12,719,379
	Feb.	3	323,497		13,042,876
	Mar.	3	399,684		13,442,560
	Apr.	3	391,990		13,834,550
	May	3	391,166		14,225,716
	June	3	358,970		14,584,686
	July	2	360,770		14,945,457
	Aug.	3	353,179	Rented Gas	15,298,635
	Sept.	3	346,959	from	15,645,595
	Oct.	3	355,218	Kenai Field	16,000,812
	Nov.	3	379,158	66,694	16,379,970
	Dec.	3	819,742	586,844	17,199,712
Total 1965			4,843,310	653,538	

Table XVII (Cont.)

Swanson River Injection Project
Injection Statistics

Gas Injection Started November, 1962

Date		Number of Injection Wells	MCF Injected in Month	MCF from Kenai (Included)	Cumulative MCF Injected
1966,	Jan.	3	850,803	624,246	18,050,515
	Feb.	3	756,898	583,590	18,807,413
	Mar.	4	844,509	672,788	19,651,922
	Apr.	4	807,343	636,066	20,459,265
	May	7	2,727,741	2,656,545	23,187,006
	June	8	3,836,009	3,515,596	27,023,015
	July	8	3,888,203	3,702,589	30,911,218
	Aug.	7	3,177,489	2,840,720	34,088,707
	Sept.	6	2,276,498	2,021,062	36,365,205
	Oct.	6	3,690,283	3,348,035	40,055,488
	Nov.	7	3,151,895	2,816,373	43,207,383
	Dec.	7	2,761,950	2,025,233	45,969,333
Total 1966			28,769,621	25,443,413	
1967,	Jan.	7	2,587,361	1,973,323	48,556,694
	Feb.	7	3,145,312	2,495,978	51,702,006
	Mar.	2	1,423,962	1,035,369	53,125,968
	Apr.	7	2,292,776	1,936,293	55,418,744
	May	7	3,790,716	3,310,543	59,209,460
	June	8	3,477,430	2,878,970	62,686,890
	July	8	3,611,951	2,831,400	66,298,841
	Aug.	8	3,991,258	3,164,227	70,290,099
	Sept.	8	3,833,969	2,858,382	74,124,068
	Oct.	8	3,803,712	2,756,672	77,927,780
	Nov.	8	4,048,136	2,733,715	81,975,916
	Dec.	9	4,139,250	2,798,504	86,115,166
Total 1967			40,145,833	30,773,376	

TABLE XVIII

Trading Bay Field
Kenai Peninsula, Alaska

Union Oil Company of California, Operator

Location	Sec. 3 & 4, T9N, R13W	
Discovery Well	Union Oil Company, Trading Bay 1-A	
Discovery Date	June 1, 1965	
Producing Formation		
Oil	Upper Kenai Upper Hemlock	
Gas	Upper Kenai	
Deepest Test	Atlantic Richfield Trading Bay State #1 - 10,950'	
Wells		
Oil - Flowing	5	
Gas Lift	3	
Shut-in	2	
Gas - Producing	1	
Total	11	
Production Data - 1967	**Middle Kenai Zone**	**Hemlock Zone**
Oil Production	135,634 bbls.	591,360 bbls
Water Production	158 bbls.	620 bbls.
Gas Production - with oil	204,927 MCF(base 14.65psi)	469,725 MCF(base 14.65psi)
Gas Production - gas wells	47,268 MCF	0
Cumulative Production 12/31/67		
Oil	135,634 bbls.	593,044 bbls
Water	158 bbls.	620 bbls.
Gas - with oil	204,927 MCF(base 14.65psi)	470,240 MCF(base 14.65psi)
Gas - gas wells	47,268 MCF	0
Reservoir Data	**Middle Kenai Zone**	**Hemlock Zone**
Initial Reservoir Pressure	2,163 psi	2,745 psi
Reservoir Pressure 1/31/67	2,140 (est)	2,675 (est)
Saturation Pressure	1,921 psi	1,622 psi
Oil Gravity	25.6° API	31.1° API
Temperature	112° F	136° F
Net Pay Thickness	100' - 1,000'	300'
Porosity	NA	14.6%
Permeability	NA	10 Mds.
Gas/Oil Ratio	268 cf/bbl.	318 cf/bbl
Productive Area	480 acres	640 acres

TRADING BAY FIELD

OIL PRODUCTION

Figure 8

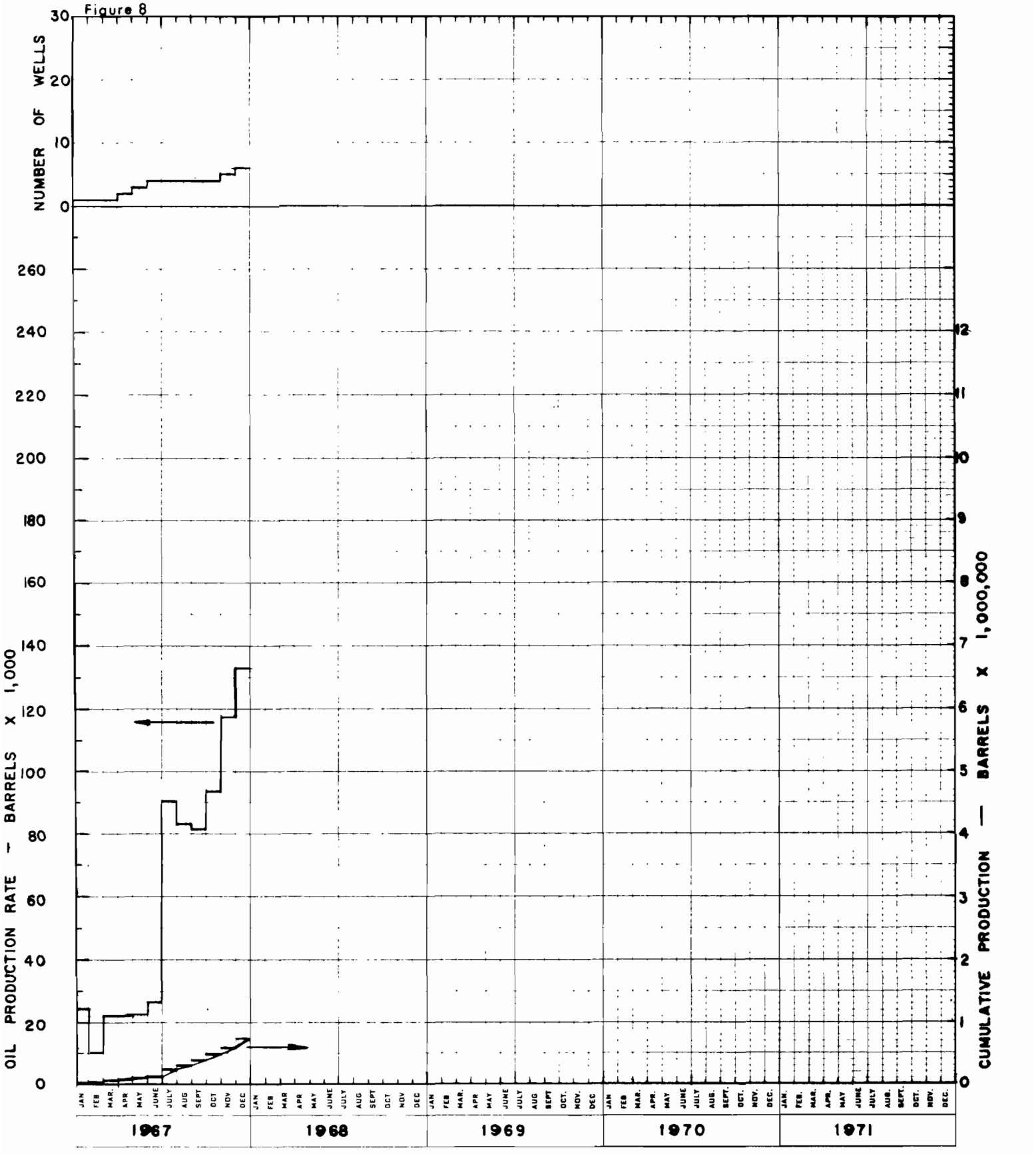


TABLE XIX

Trading Bay Field
Individual Well Oil Production

Well No.	Comp. Date	1965	1966	1967	Cumulative
Union Oil Co. - Middle Kenai Zone					
A-2 (dual)	12-6-66	Gas only			
A-3	4-24-67		(on tests)	28	28
A-4	5-30-67			1,858	1,858
A-5	6-4-67			54,695	54,695
A-7 (dual)	10-12-67			55,517	55,517
A-8 (dual)	11-11-67			23,536	23,536
Total Middle Kenai Zone				135,634	135,634
Union Oil Co. - Hemlock Zone					
I-A	Test.	1,684			1,684
A-2 (dual)	12-6-66			229,609	229,609
A-4	7-67-Test			41	41
A-6	6-28-67			306,648	306,648
A-1	11-3-67			538	538
A-7 (dual)	10-12-67			52	52
A-8 (dual)	11-11-67			53,007	53,007
A-9	12-5-67			1,465	1,465
Total Hemlock Zone		1,684		591,360	593,044
Total Trading Bay Field		1,684		726,994	728,678

TABLE XX

Oil Production By Months

Year	Month	Oil Prod. Month-Bbls.	Oil Prod. Year-Bbls.	Cumulative Oil Prod. Bbls.	Number of Wells
TRADING BAY FIELD					
1965	July	*1,684	1,684	1,684	1
1966	No wells on production				
1967	Jan.	24,388			1
	Feb.	10,099			1
	Mar.	22,349			1
	Apr.	22,381			2
	May	22,977			3
	June	26,436			4
	July	90,352			5
	Aug.	83,031			4
	Sept.	81,611			4
	Oct.	93,792			4
	Nov.	116,690			5
	Dec.	132,906	727,012	728,696	6
McARTHUR RIVER FIELD					
1965	No wells on production				
1966	No wells on production				
1967	Oct.	59,010			1
	Nov.	338,972			2
	Dec.	350,833	748,815	748,815	3
1967 Totals			28,917,464	93,566,917	

*Oil from tests saved and sold

TABLE XXI

McArthur River Field
Trading Bay Unit

Union Oil Company of California, Operator

Location	T8N 9N - R13W, Seward Meridian
Discovery Well	Union Oil Company Grayling No. 1-A
Discovery Date	October 24, 1965
Producing Formation	Hemlock Zone
Deepest Test	Shell Forelands Channel State No. 1-A 11,786' Drilled. 11,736' TVD
Wells	
Oil - Flowing	3
Gas Lift	0
Shut-in	0
Total	3
Production Data - 1967	
Oil Production	748,815 bbls.
Water Production	771 bbls.
Gas Production - with oil	219,915 MCF (base 14.65 psi)
Cumulative Production 12/31/67	
Oil	750,846 bbls.
Water	771 bbls.
Gas	219,915 MCF (base 14.65 psi)
Reservoir Data	
Initial Reservoir Pressure	4,300 psi
Reservoir Pressure 12/31/67	4,225 psi (est.)
Saturation Pressure	1,782 psi
Oil Gravity	35°-36° API
Temperature	154°-168° F
Net Pay Thickness	300'
Porosity	NA
Permeability	NA
Gas/Oil Ratio	306 cf/bbl.
Productive Area	10,000 acres

TABLE XXII

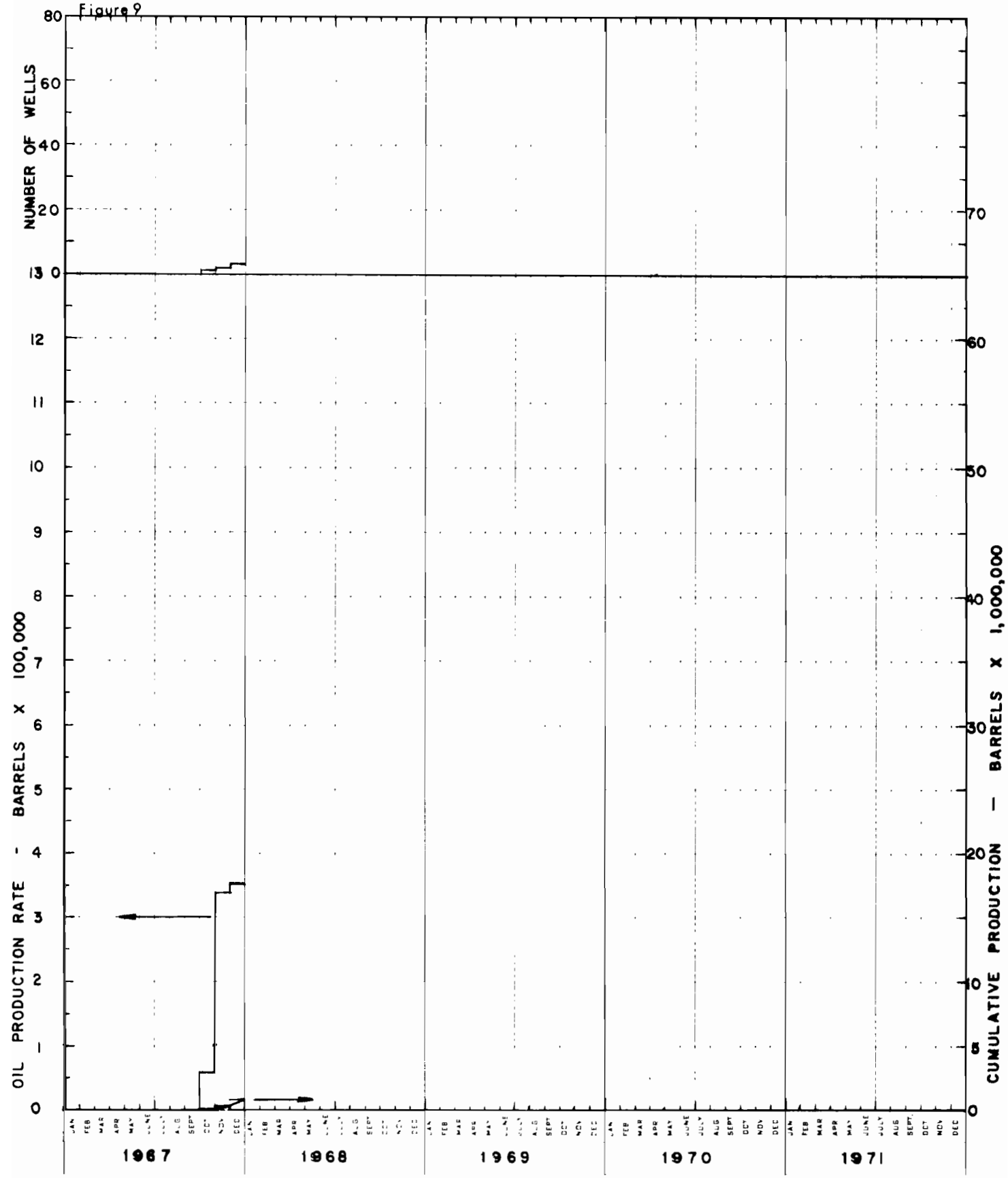
McArthur River Field
Individual Well Oil Production

Well No.	Comp. Date	1965	1966	1967	Cumulative
Union Oil Co. - Trading Bay State Unit - Hemlock Zone					
	11-7-65	1,324			1,324
	11-10-66		707		707
	11-3-67			365,712	365,712
G-2	10-18-67			360,978	360,978
G-4	12-28-67			22,125	22,125
Total		1,324	707	748,815	750,846

McARTHUR RIVER FIELD

OIL PRODUCTION

Figure 9



:ted

615
813
974
310
613
277
185

50

KENAI GAS FIELD

GAS PRODUCTION - MCF

Figure 10

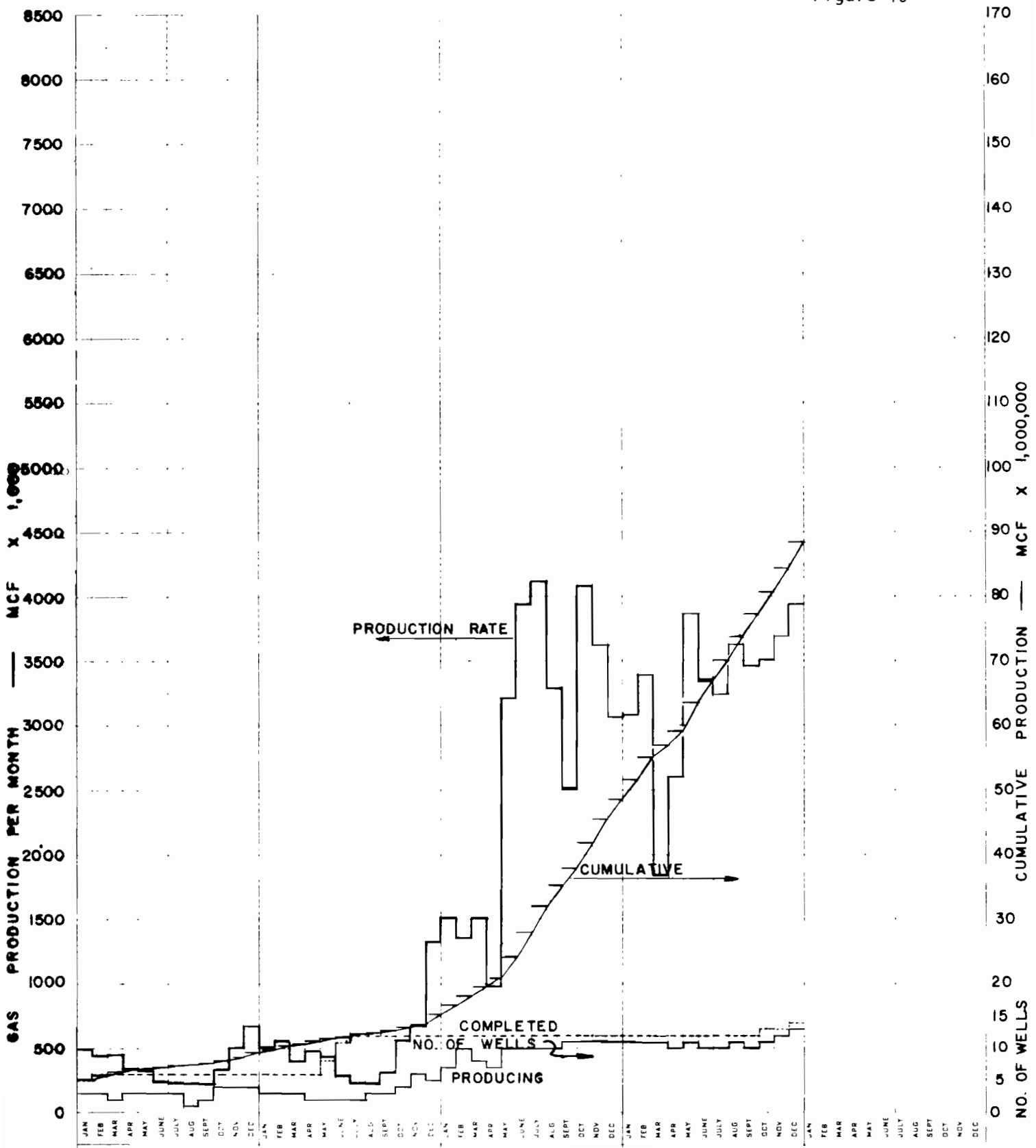


Table XXVI

Kenai Deep Gas Field
Kenai Peninsula, Alaska

Union Oil Company of California, Operator

Location	Sec. 6, T4N - R11W, Seward Meridian
Discovery Well	Kenai Deep Unit No. 1
Discovery Date	November 13, 1967
Producing Formation	Kenai 9,155'-9,230'; 9,535'-9,720'
Deepest Test	Kenai Unit No. 14-6 drilled to 15,047'
Wells	
Producing	0
Shut-in	1
Reservoir Data	
Initial Reservoir Pressure	4,401 psi @ 9,632'
Gas Gravity	0.56
Temperature	143
Net Pay Thickness	NA
Porosity	NA
Permeability	NA
Connate Water	NA
Developed Area	640 acres

Production Statistics

Year	Producing	Shut-in	Water (bbls)	Year	Cumulative	
1967	0	1	0	8,000	8,000	Test Prod.

Table XXVII

Sterling Gas Field
Kenai Peninsula, Alaska

Union Oil Company of California, Operator

Location	Sec. 15, T5N-R10W, Seward Meridian
Discovery Well	No. 23-15
Discovery Data	August 4, 1961
Producing Formation	Kenai 5,250'-54' (Perforations)
Deepest Test	No. 23-15 - 14,832'
Wells	
Producing	1
Shut-in	1
Reservoir Data	
Initial Reservoir Pressure	2,200-2,300 psi
Average Reservoir Pressure	2,200 psi
Gas Gravity	.569
Temperature	108-110°F
Net Pay Thickness	10-30
Porosity	
Permeability	
Connate Water	
Developed Area	1,500 acres

Production Statistics

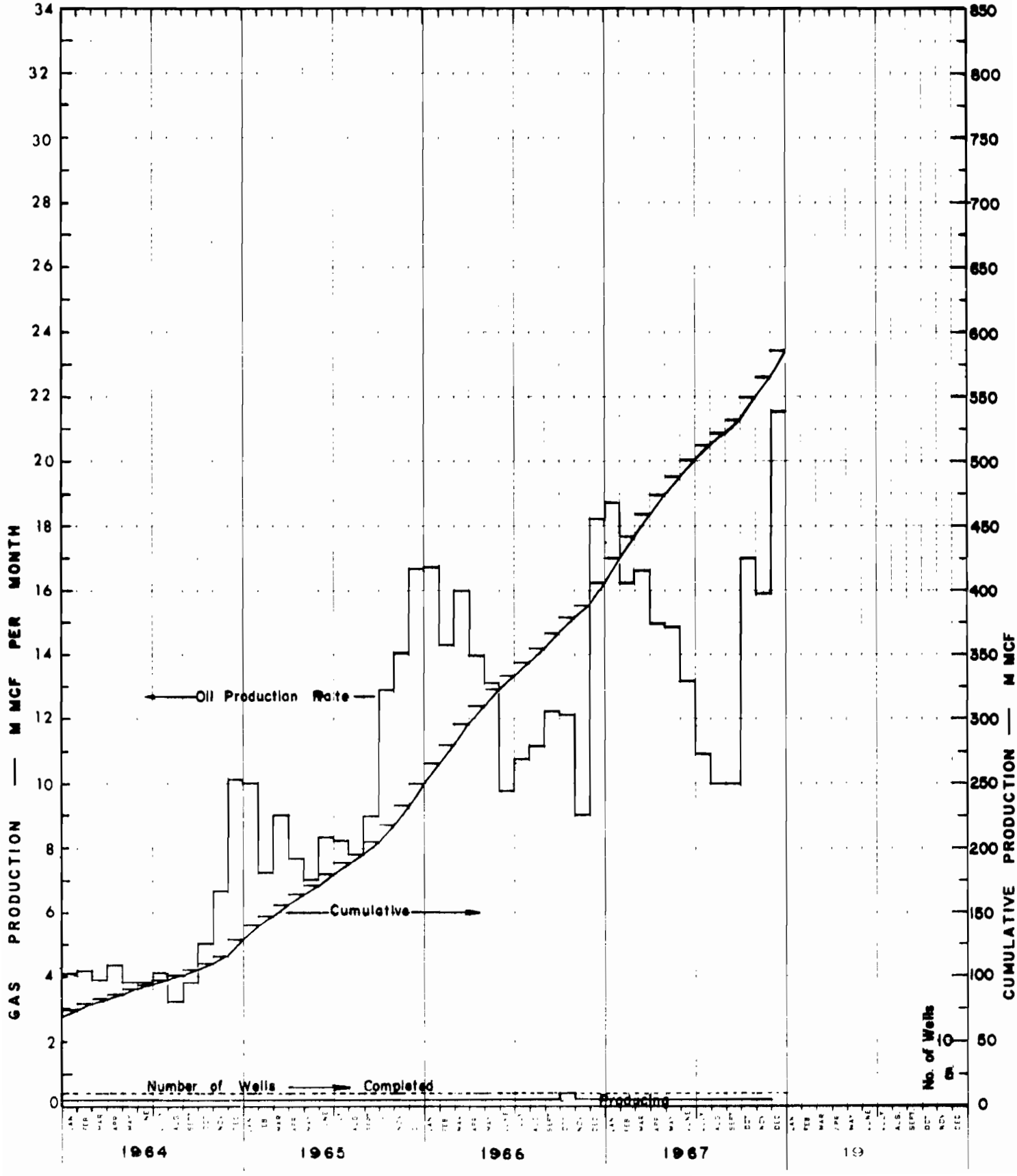
Number of Wells

Year	Producing	Shut-in	Water	Year	Cumulative
1962	1	0	0	25,186	25,186
1963	1	1	0	45,724	70,910
1964	1	1	0	58,383	129,293
1965	1	1	0	120,319	249,612
1966	1	1	0	157,490	407,102
1967	1	1	0	179,544	586,646

STERLING GAS FIELD

KENAI PENINSULA, ALASKA

Figure 11



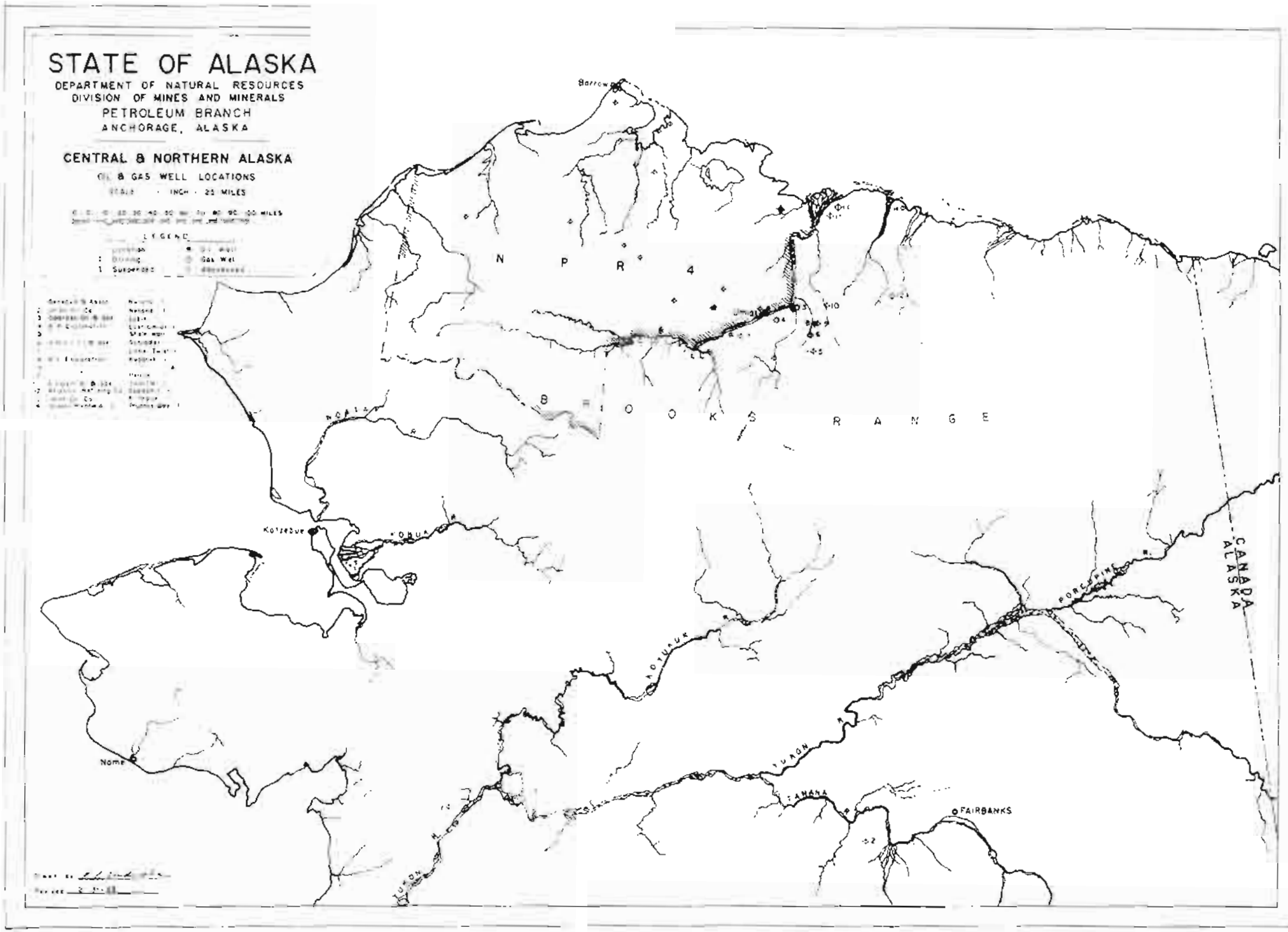

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINES AND MINERALS
PETROLEUM BRANCH
ANCHORAGE, ALASKA
CENTRAL & NORTHERN ALASKA
OIL & GAS WELL LOCATIONS
LEGEND
Oil Well
Gas Well
N P R 4
BROOKS RANGE
Barrow
Kotzebue
Nome
NOATAK R.
KOBUK R.
KOYUKUK R.
YUKON R.
PORCUPINE R.
CANANA
FAIRBANKS
CANADA
ALASKA

Figure 12

ABSTRACTS OF REPORTS

FAREWELL PROGRESS REPORT

Gordon Herreid, Mining Geologist,
Division of Mines and Minerals

The map area lies along the northern edge of the Alaska Range near Farewell in the headwaters of the Kuskokwim River. Bedrock is mainly strongly deformed, locally cross-bedded, medium gray, slate-limestone of early Paleozoic age. Also present are smaller areas of light gray massive limestone of middle (?) Paleozoic age; granitoid stocks; numerous dikes of andesite, trachyte, and rhyolite; and rhyolite flows (?). About 100 square miles were mapped and 158 stream sediment samples were taken. The area was previously unmapped.

The mapping covers part of an upland block bounded along the north edge by the Farewell fault. Recurrent movements along this great break probably have had a strong influence on the emplacement of igneous rocks in the area. A swarm of steep east-trending, mafic to acid dikes extends eastward for a distance exceeding five miles from the large granitoid stock at the head of the Middle Fork of the Kuskokwim. The swarm underlies 2% to 50% of the bedrock over a width of at least four miles. The emplacement of these dikes was probably related to movements along the Farewell fault.

Stream sediments contain scattered nickel, copper, molybdenum, and zinc anomalies in the upper Field Fork drainage. These are associated with diabase dikes and/or black slate within and marginal to the silicified aureole around the large granitoid stock at the head of the Middle Fork. One small nickel-bearing pyrrhotite deposit is associated with diabase in this area.

OIL FIELDS OF COOK INLET, ALASKA

Graydon H. Laughbaum, Jr.,
Union Oil Company of California

Significant increases in petroleum production continue in the Cook Inlet basin of Alaska, moving the state closer to being the fifth leading oil producer in the United States by 1971. Five fields account for a total present output of more than 145,000 b/d. Swanson River, Middle Ground Shoal, Granite Point, McArthur River, Foreland, Dolly Varden, and Trading Bay collectively have estimated producible reserves in excess of 750 million bbl.

One of 15 geologic basins in the state, the Cook Inlet basin has an area of 9,500 sq. mi. lying approximately 45 percent offshore, 15 percent in tidal areas, and 40 percent onshore. The basin's Cenozoic stratigraphy generally is represented by a maximum thickness of 25,000± ft of nonmarine Tertiary rocks. Mesozoic limestone, marine clastic sedimentary rocks, and volcanic rocks unconformably underlie the Tertiary.

Major structure and fault systems trend north-northeast. Tectonism occurred throughout the Mesozoic and Cenozoic and continues into the Recent as in other areas of the circum-Pacific tectonic belt. Faulting and folding are most prominent in the northwestern part of the basin close to the Alaska Range-a range which includes dioritic and granitic mountains with numerous active volcanoes.

Oil has been found in the classic anticlines. Production is from sandstone and conglomerate beds of the Kenai Group including the Middle Kenai and Hemlock Formations. Faulting and stratigraphic variations in part control accumulation and fluid properties. All reservoirs contain undersaturated oil close to bubble-point pressure requiring early secondary recovery efforts. Oil gravities range from 25° to 56° API. Average daily production per well is about 1,400 bbl.

NEW PETROLEUM PROSPECTS, SHALLOW AND DEEP BERING SEA

D. W. Scholl, 1
D. M. Hopkins, 1
E. C. Buffington, 2
H. G. Greene, 1

Recent geological and geophysical investigations by the United States Geological Survey and cooperating institutions have outlined three areas of possible interest for petroleum prospecting in the Bering Sea: (1) intra-shelf basins, (2) an outer-shelf sediment-draped basement high, and (3) a continental borderland, Umnak Plateau, lying seaward of the continental slope.

(1) Although the possibility of sub-shelf oil deposits has long been recognized in the thick sequence of Cenozoic sediments underlying Bristol Bay, published geophysical data seemed to indicate that elsewhere the shelf is underlain by only a thin blanket of Cenozoic sedimentary deposits overlying a basement of crystalline and deformed sedimentary rocks of Mesozoic and older age. However, our seismic reflection studies reveal that large areas of the shallow Bering Shelf are underlain by intra-shelf basins containing several thousand feet of Cenozoic deposits. For example, at least 3,000 feet of sedimentary section overlies basement in Western Norton Sound. Nunivak, St. Lawrence, and the Probilof Islands are basin-bounding structural highs; these may be flanked by oil-bearing Cenozoic deposits.

(2) Reflection records reveal that the outer edge of the shallow Bering Shelf is underlain by a discontinuous basement high. The basement is composed in part of well-indurated sedimentary rocks of probable Mesozoic age. Cenozoic strata are draped over the shelf-edge basement high and bury the landward-facing flank which is thought to be the scarp of a normal fault in some areas. The high may be of some interest to petroleum geologists but possible stratigraphic and structural traps within the overlying Cenozoic section are more obvious locations for petroleum prospects.

(3) Deep-water drilling techniques will ultimately be required to explore adequately the petroleum possibilities of Umnak Plateau--the borderland which lies at a depth of 6,000 feet in the triangular area formed by the intersection of the Bering continental slope and the Aleutian Ridge. The plateau is underlain by at least 5,000 feet of Cenozoic deposits that have accumulated over a differentially downwarped portion of the basement platform underlying the shelf. The structure of the plateau is broadly domical, but moderate folding and faulting have deformed its edges; thus the flanks of the plateau may be the best location for future petroleum prospecting.

1 Office of Marine Geology and Hydrology, United States Geological Survey, Menlo Park, California 94025.

2 United States Navy Underseas Center, San Diego, California 92152.

PLACER PROSPECTS IN NORTH BERING SEA

David M. Hopkins,
U. S. Geological Survey

Possibilities of finding gold and other placer-mineral deposits in northern Bering Sea were studied in 1967 by the U.S. Geological Survey in collaboration with the University of Washington and the U.S. Bureau of Mines. The studies included seismic profiling, ship-borne magnetometry, bottom sampling, and offshore drilling.

A regional geophysical reconnaissance indicates that, contrary to expectations, bedrock is deeply buried throughout much of northern Bering Sea. Thus thick cover of sedimentary strata insulates the sea floor from most possible local sources of lode mineralization except in nearshore areas. However, glaciers have carried detrital material from onshore mineralized areas

as far as 20 miles beyond the present shoreline. Placer concentrations of gold or tin may exist where beaches and streams have crossed these drift areas during past intervals of low sea level.

Our studies indicate that detrital gold offshore near Nome is largely derived from mineralized bedrock and older placers onshore. Most of the gold encountered in the drilling and bottom-sampling program was found in or above glacial drift that, in the Nome area, extends only a few miles beyond the shore. A pronounced gold concentration is commonly encountered in a thin veneer of coarse detritus covering the sea bottom; this veneer is evidently a lag concentrate of large and heavy particles formed partly by present-day bottom currents and partly by wave action during the post-glacial rise in sea level.

Few drill holes encountered significant gold concentrations on bedrock. However, seismic profiles indicate the existence of fault scarps that displace the buried bedrock surface; at least one of these faults show evidence of mineralization. Future drilling should explore possible placer-gold concentrations on bedrock near the fault scarps.

PROGRESS REPORT ON THE GEOLOGY AND GEOCHEMISTRY OF THE SINUK AREA, SEWARD PENINSULA, ALASKA

Gordon Herreid
Mining Geologist
Division of Mines and Minerals

This report, together with Alaska Division of Mines and Minerals Report No. 24, describes the investigations made by the author in the Sinuk area during 1965 and 1966. The new report consists of a geologic map of the entire area, tables of analyses, and a map and description of a new zinc-lead discovery made during 1966. This new find is located in the headwaters of Aurora Creek, a tributary to Cripple River. It shows up as a scattering of silicified, dolomitized schist and sphalerite-bearing float accompanied by a strong geochemical soil anomaly over a distance of at least 7000 feet. There are no exposures of ore in place and the deposit is largely masked by solifluction lobes.

This deposit lies five miles from the Nome-Teller highway. It is on open ground, with no mining claims in the vicinity at the time of writing. It appears to warrant enough surface work to allow an estimate of its size and grade.

GEOCHEMICAL REPORT OF THE WOOD RIVER LAKES-TIKCHIK LAKES REGION

Gilbert R. Eakins
Division of Mines and Minerals

During part of the summer of 1967 a State Division of Mines and Minerals field party collected 372 stream sediment samples in the Wood River Lakes-Tikchik Lakes region of southwest Alaska to aid in determining the mineral potential. The samples were analyzed for heavy metals by field test and by the laboratory for copper, lead, zinc, molybdenum, and mercury. The results indicate that the mercury analysis is a good geochemical tool for prospecting in the region. Zinc appeared to be the best indicator of the heavy metals group. Geochemical anomalies and other field evidence indicated the most favorable locations for exploration are: (1) Marsh Mountain, (2) the south side of the southeast end of Lake Aleknagik, (3) the ridge on the south side of Sunshine Valley, and (4) the ridge on the south side of little Togiak Lake.

A GEOCHEMICAL INVESTIGATION OF THE SOUTHWEST PORTION OF THE 40 MILE DISTRICT, EAST CENTRAL ALASKA

W. H. Smith

One hundred and seventy-six stream sediment samples were taken in an area underlain mainly by Birch Creek schist and small granite plutons in the Eagle quadrangle, Alaska. The sample area covers 185 square miles and includes the Chicken placer gold camp. Analyses of the samples for copper, lead, zinc, molybdenum, and nickel have indicated three areas containing moderately anomalous stream sediments near small granite plutons.

DIVISION OF MINES AND MINERALS

General

The Division of Mines and Minerals was created to aid and promote increased mineral exploration and production in the State of Alaska. In actual practice, it is doing everything within its means to foster and encourage mineral exploratory work and new production in the best interests of the State. This helps provide the industry needed so much in Alaska.

The Division administers the laws with respect to mining and petroleum exploration and production. It is also responsible for mine safety. It operates a public assay laboratory for the purpose of stimulating discoveries and aiding bona fide prospectors and miners with free assays and mineral identifications. It does the geological mapping and other functions of a state geological survey. It provides technical advice in the field and office on prospecting and mining problems. The Division continually surveys the mineral resources and operations in the State and disseminates this information for the assistance of prospectors, miners and petroleum operators. Oil and gas conservation regulations are administered and enforced. By law, the Division is required to foster and promote the best interests of the mining, minerals, and related industries of the State, but it is also charged with the protection of investors in these industries. It maintains an active file or inventory of all known mineral deposits, mining claims, and mining claim owners. It provides the Division of Lands with the necessary technical help and advice on mineral leasing, unitization, discovery royalty awards, prospecting permits, and other related matters administered by that Division.

The Division of Mines and Minerals' authority and functions as delegated by the Commissioner of Natural Resources are found in the Alaska Statutes, Titles 27 and 31.

Personnel and offices of the Division formerly located in Juneau and Anchorage were moved to the campus of the University of Alaska at College (near Fairbanks) during the year. This move was directed by Governor Hickel so that the Division could better cooperate and coordinate its work with that of the University's College of Earth Sciences and Mineral Industry. Close coordination with Federal agencies to be located there in the near future is also planned. The U. S. Department of the Interior plans to establish an Arctic Mineral Resources Institute on the campus which will be staffed with scientists of the USGS and USBM. They will be housed in a building to be built for the purpose which will also house the University's CESMI and the Division of Mines and Minerals. The move of the Division to the campus was the first step in helping to implement this program. It also emphasizes the State's interest in mineral development of the North.

The Division's Petroleum Branch remains in Anchorage, the hub of petroleum activity. To continue to provide mining information in Juneau and Anchorage, a Mining Information Office was established in each of those cities staffed by a Mining Information Specialist.

Because of an unusual turnover of Personnel and interruptions caused by the move of the Division to College, field work accomplished in 1967 was much less than in the preceding two years.

Charts on the following two pages give a brief over-all view of the Division organization, personnel, functions, and a summary of work accomplished in 1967. Later pages discuss the 1967 work in greater detail and present plans for work in 1968.

ORGANIZATION, FUNCTIONS, AND COSTS

DIRECTOR

ADMINISTRATION BRANCH	MINING BRANCH	METALLURGY BRANCH	PETROLEUM BRANCH	GEOLOGY BRANCH
Authorized Personnel				
Administrative Ass't Secretary Clerk 3 Mining Information Specialists	3 Mining Engrs. 3 Summer Ass'ts	X-ray Minerologist Assayer Chemist Assayer Minerals Lab Tech. Clerk Typist	Petro. Supervisor Petro. Geologist 4 Petro. Engineers 2 Clerk Stenos	4 Mining Geologists 4 Summer Ass'ts Clerk Typist
Locations				
College Juneau Anchorage	College	College	Anchorage	College
Functions				
Mineral records information	Prospect examination geochem sampling & reports	Ore Assaying geochemical, & other analyses	Conservation regulations	Ore province evaluation
Publishing	Safety inspections Public inquiries	Mineral identifications	Technical aspects of unitization & leasing regulations	Economic geology reports & maps
Budget, finance, property & personnel	Technical advice & help to prospectors and miners	Ore testing, Research	Public inquiries, Care & release of well logs & samples	ore deposit investigations
Costs (FY 67-68 Appropriations)				
$81,900	$91,000	$66,000	$147,400	$91,500

Division Total $485,600

SUMMARY OF WORK ACCOMPLISHED IN 1967

DIRECTOR

Supervision and administration of Division

ADMINISTRATION BRANCH

Accounting, budgeting, personnel, & property administration; public information; published 10 professional reports, semi-annual and annual report, petroleum statistics, monthly bulletin (circulation 2200), 1504 claim location notices and 793 affidavits processed, 11,006 unpatented claims now on file, 2,000 visitors assisted, 2163 requests for information received, 2685 professional reports sold or distributed, 1585 information circulars mailed.

MINING BRANCH

Geochemical investigations were made of three areas in which stream sediment samples were taken; 38 coal mine and several metal mine safety inspections were made, 12 prospectors were assisted under the Prospector Assistance Program. Over 400 prospectors and professional people were assisted, and over 500 letters pertaining to the mineral industry were written.

METALLURGY BRANCH

Received 2500 samples on which assays and analyses were made. Assisted a large part of the visitors.

PETROLEUM BRANCH

Approved 88 oil well drilling permits, all wells were checked for compliance with regulations, compiled production and related statistics, inventoried and made available core samples, gave technical advice to Division of Lands on leasing, royalty, and unitization matters, held five public hearings, issued nine conservation orders, drafted geologic and well drilling progress maps, witnessed well production tests.

GEOLOGY BRANCH

260 square miles of geology mapped, 110 square miles geochemical mapping, 725 stream sediment samples taken, assisted prospectors and visitors, furnished information to professional people, prepared reports and maps on previous year's investigations.

Petroleum Branch Activities

The Petroleum Branch of the Division of Mines and Minerals issued eighty-eight drilling permits during 1967. This compares with sixty-four permits issued during 1966. Twenty-four permits were for exploratory wells and sixty-four permits for development wells. Development activity took place in four offshore oil fields and one onshore gas field.

The various reports submitted on each well were checked and filed. Production reports for each producing well in each of the five producing oil fields and two producing gas fields were checked and tabulated. Drill stem tests, production tests, and meter tests were witnessed. Technical data pertaining to discovery royalty applications were checked and recommendations were forwarded. Field trips were made to various production facilities to check safety equipment and to observe methods of waste disposal.

Seven public hearings were held during the course of the year. Testimony by Phillips Petroleum Corporation resulted in a conservation order permitting "cluster" spacing in the development of the offshore North Cook Inlet Gas Field. Conservation orders outlining field rules were written after hearings on the Middle Ground Shoal Field and Trading Bay Field. Two hearings were held on the application of Pan American Petroleum Corporation for downhole commingling of various pools in one well, and for other wells in the future, in the Middle Ground Shoal Field, but a conservation order was not issued at the year's end. Also pending are the orders for Mobil Oil Corporation's application for greater well density and other field rules in the Granite Point Field and the application of Pan American Petroleum Corporation for permission to conduct fluid injection tests in the Granite Point Field. Eighteen conservation orders were issued without public hearings.

A revised and updated issue of the Oil and Gas Conservation Regulations was distributed during 1967 to all who requested a copy. The regulations were revised by committees composed of representatives of all interested parties and the State. Public hearings on the regulations were held also.

The confidential period for samples and core chips on nineteen additional wells expired during 1967, and these are available for study at the Division of Mines and Mineral's office in Anchorage. Electric logs, lithologic logs (if required), and well reports on thirty-one wells were also made available to the public during the year.

All oil and gas production data for 1967 were processed and are presented in the appropriate section of this report. State, Federal, and private agencies depend on the Petroleum Branch for current production statistics. Monthly statistical reports were also prepared. Royalty and tax income forecasts were made for administrative and legislative use.

The Petroleum Branch evaluated technical data involving the outlines of proposed units and the participating areas and plans of development for approved units.

Summary of Oil and Gas Conservation Orders Issued in 1967

(A summary of all Conservation Orders issued prior to 1967 is listed on page 79 of the 1966 Annual Report.)

Order No.	Date Issued	Pertinent Data
35	Not issued	Application by Pan American Petroleum Corporation to commingle all production below the "A" pool in the Middle Ground Shoal 17595 #8 well was withdrawn.
36	March 10, 1967	Footage exception allowing the Pan American Petroleum Corporation to complete the Granite Point State 17587 #3 well closer than 500 feet from a protracted section line.
37	March 13, 1967	Footage exception allowing the Pan American Petroleum Corporation to complete the Granite Point State 17587 #4 well closer than 500 feet from a protracted section line.
38	March 21, 1967	Footage exception allowing the Union Oil Company of California to test and complete the Trading Bay #A-3 well less than 500 feet from a section line.
39	May 18, 1967	Footage exception allowing the Pan American Petroleum Corporation to complete the Granite Point State 18742 #4 well less than 500 feet from a protracted section line and less than 1000 feet from another well completed in the same pool.
40	June 8, 1967	In a described area of the North Cook Inlet Field, which is also the initial participating area of the North Cook Inlet Unit, the Tertiary System Gas Pool is defined and a "cluster" spacing pattern for field development is permitted; to be in force for a maximum of eighteen months.
41	June 5, 1967	In a described area of the Trading Bay Field, four fault block pools in the Hemlock Formation are defined, eliminated the 500 foot standback provision (except where ownership changes), retained the 1,000 foot minimum distance between wells and allowed one Hemlock well in each 80 acre tract; to be in force for a maximum of eighteen months.
42	July 17, 1967	Footage exception allowing the Union Oil Company of California to complete and produce the Trading Bay #A-4 well less than 500 feet from a protracted section line.
43	July 12, 1967	Footage exception allowing the Halbouty Alaska Oil Company to drill the West Fork #42-20, a gas field development well, at a location less than 1500 feet from a section line.
44	July 19, 1967	In a described area at the Middle Ground Shoal Field, eliminated the 500 foot standback provision, eliminated the 1000 foot minimum distance between wells, permitted two wells per 160 acres, retained seven pools and same commingling groups, permitted fluid injection for pressure maintenance and for secondary recovery with pool restrictions, permitted a well to be drilled on the common lease line, allowed for administrative approval of routine

		changes in secondary recovery operations and established requirements for casing program, cementing, pressure surveys, and G.O.R. tests. This order supersedes Conservation orders #26 and #31.
45	July 11, 1967	Footage exception allowing the Atlantic Richfield Company to drill the exploratory well Trading Bay State #2 at a location less than 500 feet from a protracted section line.
46	August 3, 1967	Footage exception allowing the Union Oil Company of California to produce the deviated development well Trading Bay #A-5 less than 500 feet on each side of a protracted section line.
47	August 3, 1967	A determination that the Shell Oil Company is already authorized by Conservation Order #44 to produce the M.G.S. #A-32-11 well in the same quarter section with the M.G.S. #A-42-11.
48	August 3, 1967	A determination that the Shell Oil Company is already authorized by Conservation Order #44 to drill and produce the MGS A-44-11 well in the same quarter section with the MGS A-43-11 well.
49	August 18, 1967	Footage exception allowing the Mobil Oil Corporation to produce the Granite Point State #31-13 well less than 500 feet from a protracted quarter section line.
50	September 7, 1967	Footage exception allowing the Mobil Oil Corporation to produce the Granite Point State #33-13 well less than 500 feet from a protracted quarter section line.
51	September 7, 1967	Footage exception allowing the Tenneco Oil Company to drill the State 36465 #1 well less than 500 feet from a protracted section line.
52	September 7, 1967	Footage exception allowing the Pan American Petroleum Corporation to complete and produce the Granite Point "A" 18742 #7 well less than 500 feet from a protracted section line.
53	September 7, 1967	An order extending the special rules of Conservation Order #44 to also apply to a described area in the Southern part of the MGS field.
54	October 12, 1967	An order issued to correct the typographical error in the description of the area of Conservation Order #53.
55	October 12, 1967	Footage exception allowing the Mobil Oil Corporation to produce the Granite Point State #31-14 well less than 500 feet from a protracted section line.
56	Pending	
57	Pending	
58	November 24, 1967	Footage exception allowing the Pan American Petroleum Corporation to complete and produce the Granite Point 17586 #4 well less than 500 feet from the property line.

Table XXVIII

Well records released to the public during 1967 through local scouting services and reproduction firms in Anchorage:

Operator	Well Name and Number
Union Oil Company of California	Kenai Unit 13-8
B. P. Exploration Company	Kuparuk #1-A
Humble Oil and Refining Company	Tyonek Reserve #1
B. P. Exploration Company	Itkillik #1
Union Oil Company of California	Trading Bay #1
Union Oil Company of California	Kenai Unit 33-32
Pan American Petroleum Corporation	West Foreland Unit #1
Union Oil Company of California	Kenai Unit 21-6
Standard Oil Company of California	Birch Hill Unit 22-25
Union Oil Company of California	Kenai Unit 43-6
Union Oil Company of California	Kenai Unit 21-7
Shell Oil Company	Middle Ground Shoal A-43-11
Union Oil Company of California	Trading Bay #1-A
Union Oil Company of California	Kenai Unit 43-7
Wallace Mining Company	Wallace and Knutson #1
Union Oil Company of California	Kenai Unit 11-6
Pan American Petroleum Corporation	Tyonek State 18742 #1
Union Oil Company of California	Trading Bay #2
Mobil Oil Company	Granite Point #1
Shell Oil Company	SRS State #1
Union Oil Company of California	Trading Bay #3
Union Oil Company of California	Grayling #1
Shell Oil Company	Middle Ground Shoal A-32-11
Pan American Petroleum Corporation	Tyonek State 17587 #2
Pan American Petroleum Corporation	Middle Ground Shoal State 18746 #1
Union Oil Company of California	Grayling #1-A
Pan American Petroleum Corporation	Cook Inlet State 18740 #1
Pan American Petroleum Corporation	Cook Inlet State 18741 #1
Shell Oil Company	Middle Ground Shoal A-23-12
Mobil Oil Company	Moquawkie #1
Pan American Petroleum Corporation	Tyonek State 18742 #2
Shell Oil Company	SRS South Cook Inlet #2

Table XXIX

Well Records to be Released During 1968
With the Release Date

Operator	Well Name and Number	Date
Standard Oil Company of California	North Fork Unit #41-35	1-20-68
Atlantic Richfield Company	Rainbow Federal #1	1-21-68
Atlantic Richfield Company	Rainbow Federal #2	2-26-68
Shell Oil Company	Middle Ground Shoal #A-32-14	3-16-68
Atlantic Richfield Company	Lorraine State #1	3-28-68
Sinclair Oil and Gas Company	Colville #1	4- 8-68
Pan American Petroleum Corporation	USA Edna Mae Walker #1	5- 1-68
Shell Oil Company	Middle Ground Shoal #A-34-14	5-14-68
Standard Oil Company of California	Naptowne Unit #24-8	5-27-68
Texaco, Inc.	Nicolai Creek #1-A	5-28-68
Wallace Mining Company	Wallace and Knutson #1-A	6- 1-68
Texaco, Inc.	Nicolai Creek State #1	6- 6-68
Austral Oil Company	J. M. Needham et. al. #1	6- 7-68
Union Oil Company of California	Kustatan #1	7-12-68
Pan American Petroleum Corporation	Middle Ground Shoal State 17595 #6	7-13-68
Pan American Petroleum Corporation	North Redoubt State 17597 #1	7-18-68
Shell Oil Company	Forelands Channel State #1	7-23-68
Atlantic Richfield Company	Middle River State #1	7-24-68
Shell Oil Company	Middle Ground Shoal #A-13-1	7-27-68
Pan American Petroleum Corporation	Cook Inlet State 18741 #2	8- 6-68
Standard Oil Company of California	Falls Creek Unit #2	8-18-68
Union Oil Company of California	Kustatan #1-A	9- 7-68
Pan American Petroleum Corporation	Tyonek State 17588 #1	9-10-68
Atlantic Richfield Company	West Foreland Unit #3	9-15-68
Hunt Oil Company	Oldman's Bay #1	9-18-68
Pan American Petroleum Corporation	Middle Ground Shoal State 17595 #7	9-19-68
Shell Oil Company	Forelands Channel #1-A	9-23-68
Great Basins Petroleum Company	Ugashik #1	9-25-68
Trinity Canadian Drilling Company	Homesteaders #1	10- 3-68
Pan American Petroleum Corporation	West Foreland Unit #2	10-14-68
Atlantic Richfield Company	McArthur State #1	10-14-68
Pan American Petroleum Corporation	Tyonek State 17586 #1	10-24-68
Shell Oil Company	Middle Ground Shoal #A-11-1	10-25-68
Texaco, Inc.	Trading Bay State #1	10-27-68
Union Oil Company of California	Kenai Unit #41-2	10-28-68
Standard Oil Company of California	Ivan River #44-1	11- 8-68
Atlantic Richfield Company	Middle River State #2	11-21-68
Texaco, Inc.	Nicolai Creek Unit #2	11-23-68
Shell Oil Company	West Foreland Unit #4	12- 7-68
Union Oil Company of California	East Trading Bay State #1	12-10-68
Atlantic Richfield Company	Drift River State #1	12-15-68
Pan American Petroleum Corporation	North Middle Ground Shoal 18745 #1	12-17-68
Pan American Petroleum Corporation	Cook Inlet State 17591 #1	12-19-68
Pan American Petroleum Corporation	North Middle Ground Shoal 18745 #1-A	12-22-68
Mobil Oil Corporation	Tower #1	12-22-68
Shell Oil Company	Middle Ground Shoal #A-11-12	12-24-68
Pan American Petroleum Corporation	East Middle Ground Shoal 18751 #1	12-27-68
Placid Oil	State 17580 #1	12-28-68
Texaco, Inc.	Coal Bay State #1	12-30-68

See instructions on last page

DIVISION OF MINES AND MINERALS

SAMPLE & CORE INVENTORY

Table XXX

Well samples & cores in sample storage
at 3001 Porcupine Drive, Anchorage, Alaska

*Destroyed by March 27, 1964 earthquake. Replacement is being attempted and any progress will be noted in subsequent inventories.

Samples through set No. 102 are no longer confidential.

Sample Set No.	Public Release Date	Permit No.	Operator	Well and Number	Sample Interval	Cores
1			Phillips Pet. Co.	Sullivan Unit #1	200-10013	
2			Phillips Pet. Co.	Sullivan Unit #2	0-12000	yes
3			Anch. G & O Dev. Co.	Rosetta #1	1100-4245	
*4			Anch. G & O Dev. Co.	Rosetta #3	120-6060	
5			Colo. Oil & Gas Co.	Yakutat #1	772-9315	
5A			Colo. Oil & Gas Co.	Yakutat #2	90-11750	
5B			Standard Oil Co. of Calif.	Deep Creek Unit #1	1000-12253	yes (cores
6			Humble Oil & Refg.	Bear Creek #1	0-14375	only)
7			Colo. Oil & Gas Co.	Yakutat #3	1220-10820	
7A			Colo. Oil & Gas Co.	Core Hole #1	50-3230	
7B			Colo. Oil & Gas Co.	Core Hole #2	50-5690	yes
7C			Colo. Oil & Gas Co.	Core Hole #3	30-5484	
7D			Colo. Oil & Gas Co.	Core Hole #4	60-5326	yes
8		2	Halbouty Alaska Oil	Halbouty-King #1	60-12030	yes
9		4	General Pet. Corp.	Great Basins Unit #1	20-11070	yes
*10		3	Union Oil Co. of Calif.	Kenai Unit 14-6 (1)	4180-15054	
11		8	Anch. G & O Dev. Co.	Rosetta #4	0-1619	
12		10	General Pet. Corp.	Great Basins Unit #2	15-8865	
13		12	Alaska Cons. Oil Co.	Iniskin U.-A. Zappa #1	100-11230	
13A			Paul G. Benedum	Nulato Unit #1	0-12015	
*14		7	Richfield Oil Co.	Kaliahk Riv. Unit #1	1600-14699	
15		6-61	Pan. Am. Pet. Corp.	Napatuk Creek #1	60-14890	yes
16		26	Halbouty Alaska Oil	Bishop Creek Unit 11-11 (1)	40-9030	
17		24	Halbouty Alaska Oil	A O & M-King Oil 1-B	50-14019	yes
18		42	Standard Oil Co. of Calif.	Falls Creek Unit #1	1370-13780	
19		14-61	Union Oil Co. of Calif.	Sterling Unit 23-15	1000-14830	
20		15-61	Richfield Oil Co.	Duktoth River Unit #1	1000-10360	
21		31-61	Standard Oil Co. of Calif.	Swan Lake 34-27 (1)	5200-11984	yes
22		27-61	Hackathorn Drlg. Co.	Rosetta =4-A	1600-2405	
23		42-61	Pure Oil Company	Canoe Bay Unit #1	0-6642	

24	21-62	Standard Oil Co. of Calif.	Anchor Point Unit #1	1030-14700	
25	48-61	Pan Am. Pet. Corp.	Stedatna Creek-State #1	120-7450	yes
26	3-62	Union Oil Co. of Calif.	Nenana #1	450-3030	
27	55-61	Standard Oil Co. of Calif.	Soldotna Creek 34-16 (32)	990-11880	
28	49-61	Pan Am. Pet. Corp.	West Foreland #1	30-13500	yes
29	16-62	Standard Oil Co. of Calif.	West Fork Unit 233-16	0-8400	
30	50-61	Superior Oil Company	Chuit-State #1	200-12500	
31	10-62	Union Oil Co. of Calif.	Pittman Unit	25-6140	
32	5-62	British American	Bell Island Unit #1	130-11349	
33	25-62	Union Oil Co. of Calif.	Sterling Unit 43-28	1150-5630	
34	7-62	Pan Am. Pet. Corp.	M. G. S. State #1	150-5200	
35	8-62	Pan Am. Pet. Corp.	Cook Inlet State #1 (CI St. 17589 Well No. 1)	1600-12200	
36	9-62	Standard Oil Co. of Calif.	Riou Bay Unit #1	140-14100	
37	26-62	Superior Oil Company	Chuit State #2	2604-9157	
*38	11-62	Shell Oil Company	SRS State #1	465-14041	
39	20-62	Standard Oil Co. of Calif.	Soldotna Creek Unit 22-32 (34)	1000-14560	
40	22-62	Colo. Oil & Gas Co.	Malaspina Unit #1-A	0-13823	yes
41	27-62	Union Oil Co. of Calif.	Tazlina #1	2970-8837	
42	12-62	B. P. Exploration Co.	White River Unit #2	10-12400	
43	23-62	Occidental Pet. Corp.	South Diamond Gulch #1	696-10568	
44	28-62	Pan Am. Pet. Corp.	Cook Inlet State #1-A	11930-12676	
45	24-62	Union Oil Co. of Calif.	Ninilchik State #1	220-14940	
46	18-62	Standard Oil Co. of Calif.	Beluga River Unit #1	130-16440	
47	33-62	Standard Oil Co. of Calif.	Beluga River Unit 212-25	290-5800	
48	15-62	Pan Am. Pet. Corp.	Tyonek State #1	1000-12480	yes
49	15-62	Pan Am. Pet. Corp.	Tyonek State #1-A	12000-13082	
50	36-62	Sinclair Oil & Gas Co.	Swan Lake #2	146-6930	
51	63-1	B. P. Exploration Co.	Wasilla State #1	0-4849	
52	63-5	Halbouty Alaska Oil	Fritz Creek #1	300-3780	
53	63-2	Standard Oil Co. of Calif.	Beluga River Unit 233-27	300-5080	
54	32-62	Aledo Oil Company	Eureka #2	4100-8450	yes
55	29-62	Standard Oil Co. of Calif.	Swanson River Unit 14-9	200-14300	
56	38-62	Standard Oil Co. of Calif.	Soldotna Creek Unit 22A-32	1000-14452	
57	63-3	Pan Am. Pet. Corp.	Moose Creek Unit #1	600-7864	
58	63-15	Union Oil Co. of Calif.	Knik Arm State #1	180-6110	
*59	63-4	B. P. Exploration Co.	White River Unit #3	30-6980	
60	35-62	Richfield Oil Corp.	Wide Bay State #1	100-12570	
61	63-9	Shell Oil Company	M. G. S. State #1	5014-9645	
62	63-13	Colo. Oil & Gas Co.	Gubik Unit #1	600-4405	
63	63-8	Pan Am. Pet. Corp.	M. G. S. State #2 (17595)	240-10899	yes
64	63-14	Gulf Oil Company	Sandy River Federal #1	0-13050	yes
65	63-16	Superior Oil Company	Happy Valley Unit 31-22	0-13550	yes
66	63-25	B. P. Exploration Co.	Shale Wall Unit #1	0-4026	yes
67	63-23	Union Texas	Pure-Kahiltna Riv. Unit #1	700-7265	
68	63-19	Pan Am. Pet. Corp.	Romig Park, Inc. #1	130-11560	
69	63-22	Humble Oil & Refg.	Susitna State Unit #1	60-12550	
70	63-21	Mobil Oil	Salmon Berry Lake #1	130-7910	

71		63-24	B. P. Exploration Co.	East Umiat Unit #1	102-3340	
72		64-4	Sinclair Oil & Gas Co.	Schrader Unit #1	0-5129	yes
73		63-20	Standard Oil Co. of Calif.	Beluga River Unit 14-19	220-14950	
74		54-3	Mobil Oil	Ninilchik Unit #1	200-12710	yes
75		64-5	Sinclair Oil & Gas Co.	Little Twist Unit #1	0-3600	yes
76		64-8	B. P. Exploration Co.	Kuparuk Unit #1	0-6570	yes
77		63-6	Pan Am. Pet. Corp.	Tyonek State #2	220-12580	
78		64-2	Union Oil Co. of Calif.	Kasilof State #1	1500-16121	
79		64-9	Union Oil Co. of Calif.	Kasilof State #2	2050-6686	
80		63-18	Shell Oil Company	North Cook Inlet State #1	1504-14815	
81		64-6	Pan Am. Pet. Corp.	M. G. S. State #4 (17595)	180-9203	yes
82		64-7	Pan Am. Pet. Corp.	M. G. S. State #3 (17595)	130-11170	yes
83		64-10	Pan Am. Pet. Corp.	M. G. S. State #6 (18743 Well #1)	500-10710	
84		64-14	Union Oil Co. of Calif.	Kenai Unit 13-8	1160-5500	
85		64-11	Humble Oil & Refg.	Tyonek Reserve #1	330-13600	
86		64-15	B. P. Exploration Co.	Itkillik Unit #1	0-7750	
87		64-12	Pan Am. Pet. Corp.	West Foreland Unit #1	4700-11002	
88		65-1	Standard Oil Co. of Calif.	Birch Hill Unit #22-25	220-15500	
89		65-4	Shell Oil Company	SRS-MGS State #A-1-3 (#A-43-11)	320-9840	
90		65-13	Union Oil Co. of Calif.	Trading Bay #1-A	170-6530	
91		65-14	Pan Am. Pet. Corp.	Tyonek State 18742 #1	316-9505	
92		65-18	Union Oil Co. of Calif.	Trading Bay #2	810-6620	
93		65-2	Mobil Oil Company	Granite Point #1 (State)	110-11565	yes
94		11-62	Shell Oil Company	SRS State #1 (drld. deeper)	14040-16360	
95		65-20	Union Oil Co. of Calif.	Trading Bay #3 State	800-7260	
96		65-19	Pan Am. Pet. Corp.	Tyonek State 17587 #2	630-12335	
97		65-22	Pan Am. Pet Corp.	M. G. S. State 18746 #1	260-10298	
98		65-25	Union Oil Co. of Calif.	Grayling #1-A (McArthur River Field)	820-10227	
99		65-30	Pan Am. Pet. Corp.	Cook Inlet State 18740 #1	0-6182	
100		65-23	Shell Oil Company	SRS S. Cook Inlet #2	0-15403	
101		65-28	Pan Am. Pet. Corp.	Cook Inlet State 18741 #1	300-1740	
102		65-12	Mobil Oil Company	Moquawkie #1	200-10120	yes
103	1-20-68	65-21	Standard Oil Co. of Calif.	North Fork Unit #41-35	246-12810	yes
104	1-21-68	65-34	Atlantic Refining Co.	Rainbow Federal #1	0-3000	
105	2-26-68	66-1	Atlantic Refining Co.	Rainbow Federal #2	0-2793	
106	3-28-68	65-37	Atlantic Refining Co.	Lorraine State #1	0-8010	yes
107	4- 8-68	65-31	Sinclair Oil & Gas Co.	Colville State #1	60-9930	yes
108	5- 1-68	65-36	Pan Am. Pet. Corp.	U. S. A. Edna Mae Walker #1	340-16300	
109	5-27-68	63-17	Standard Oil Co. of Calif.	Naptowne Unit #24-8	0-15226	yes
110	5-30-68	65-16	Wallace Mining Co.	Wallace-Knutson #1-A	0-6100	
111	6- 6-68	65-27	Texaco, Incorporated	Nicolai Creek State #1	230-8330	
112	6- 6-68	66-8	Texaco, Incorporated	Nicolai Creek State #1-A	3885-9300	yes
113	6- 7-68	66-6	Austral Oil Company	Needham #1	250-6016	
114	7- 8-68	66-9	Union Oil Co. of Calif.	Kustatan #1	880-11852	
115	7-16-68	66-16	Shell Oil Company	Forelands Channel #1	0-11786	
116	7-18-68	66-14	Pan Am. Pet. Corp.	North Redoubt State #1	2170-11280	
117	7-24-68	66-20	Atlantic Richfield Co.	Middle River State #1	0-7250	

118	8-12-68	66-10	Pan Am. Pet. Corp.	Tyonek State 17588 #1	0-13523	
119	8-18-68	66-23	Standard Oil Co. of Calif.	Falls Creek Unit #2	276-8256	
120	9- 7-68	66-30	Union Oil Co. of Calif.	Kustatan #1-A	4600-11130	
121	9-22-67	66-18	Hunt Oil Company	Oldman Bay State #1	360-12490	
122	9-19-68	66-33	Shell Oil Company	Forelands Channel #1-A	6975-12951	
123	9-25-68	66-17	Great Basins Petroleum Co.	Ugashik #1	0-9476	
124	9-27-68	66-26	Atlantic Richfield Co.	West Forelands Unit #3	0-9768	
125	10- 3-68	66-7	Trinity Canadian Drlg. Co.	Homesteaders #1	6780-13890	
126	10-14-68	66-12	Pan Am. Pet. Corp.	West Foreland Unit #2	30-11948	
127	10-21-68	66-32	Atlantic Richfield Co.	McArthur State #1	670-10255	yes
128	10-28-68	66-34	Union Oil Co. of Calif.	Kenai Unit #41-2	1270-5735	
129	11- 6-68	66-21	Standard Oil Co. of Calif.	Ivan River #44-1	0-15269	yes
130	11- 9-68	65-29	Texaco, Incorporated	Trading Bay State #1	800-9104	
130-A	11-21-68	66-41	Atlantic Richfield Co.	Middle River State #2	630-10295	
131	11-23-68	66-38	Texaco, Incorporated	Nicolai Creek State #2	300-5012	
132	12- 7-68	66-42	Shell Oil Company	West Foreland Unit #4	0-11160	
133	12-10-68	66-45	Union Oil Co. of Calif.	E. Trading Bay State #1	670-10364	
134	12-15-68	66-50	Atlantic Richfield Co.	Drift River State #1	400-5390	yes
134-A	12-19-68	66-13	Pan Am. Pet. Corp.	Cook Inlet St. 17591 #1	600-14000	yes
135	12-22-68	66-35	Pan Am. Pet. Corp.	N. M. G. S. St. 18745 #1-A	660-13690	
135-A	12-27-68	66-22	Pan Am. Pet. Corp.	E. M. G. S. St. 18751 #1	0-14634	
136	12-30-68	65-33	Texaco, Inc.	Coal Bay St. #1	200-4013	
137	1- 6-69	66-49	Union Oil Co. of Calif.	Trading Bay St. #A-2		yes (cores
137-A	1-22-69	66-39	Hunt Oil Co.	Kalgin Island St. #1	530-14504	only)
138	2- 9-69	66-4	Atlantic Richfield Co.	Susie Unit #1	0-13517	yes
139	3-10-69	67-1	Shell Oil Co.	Cottonwood St. #1	0-4265	
140	3-25-69	66-59	Pan Am. Pet. Corp.	Chuitna River #1	4020-10700	
141	4- 8-69	67-8	Shell Oil Co.	Middle River St. #1	0-5287	yes
142	4-10-69	66-61	Union Oil Co. of Calif.	Kookpuk #1	0-10193	yes
143	4-23-69	66-58	Union Oil Co. of Calif.	Trading Bay St. #A-3	420-11637	
144	4-30-69	66-64	Pennzoil Company	Starichkof State #1	340-12112	
145	6- 1-69	66-40	Mobil Oil Corp.	Tower #1	0-12085	
146	6- 4-69	67-7	Texaco, Inc.	Nicolai Creek 33	0-8841	
147	7- 4-69	66-46	Pan Am. Pet. Corp.	Redoubt Shoal St. #1	660-14372	
148	7-15-69	66-60	Marathon Oil Co.	Beaver Cr. #1	0-9134	
149	8- 3-69	66-54	Texaco, Inc.	Point Possession Unit #1	240-15300	
150	8- 6-69	67-13	Atlantic Richfield Co.	Trading Bay State #1	450-10940	
151	8-10-69	67-30	Halbouty-Alaska	West Fork #42-20	70-4810	
152	8-15-69	66-43	Cities Service	Painter Creek #1	0-7912	
153	8-17-69	67-34	Pan Am. Pet. Corp.	Turnagain Arm Unit #1	110-6320	
154	8-31-69	67-12	Pan Am. Pet. Corp.	North M. G. S. #2	880-13990	
155	9- 1-69	66-37	Placid Oil Co.	State 17580 #1	176-14880	
156	9- 1-69	67-9	Marathon Oil Co.	Beaver Creek #1-A	0-10300	
157	9-10-69	67-29	Pan Am. Pet. Corp.	Forelands State Unit #1	650-12304	
158	9-24-69	67-40	Union Oil Co. of Calif.	W. Trading Bay State #1	0-6528	
159	9-27-69	67-2	Union Oil Co. of Calif.	Trading Bay St. #A-4	0-10609	
160	10-11-69	67-38	Pennzoil Co.	Starichkof Unit #1	510-8625	yes

161	10-15-69	67-3	Standard Oil Co. of Calif.	Beluga River #14-3	0-15196	yes
162	10-17-69	67-39	Shell Oil Co.	Kustatan Ridge #1	30-6718	
163	10-24-69	67-37	Atlantic Richfield Co.	Trading Bay St. #2	600-12410	
164	11- 7-69	67-24	Mobil Oil Corp.	Tower #2	1180-12060	
165	11-10-69	67-56	Union Oil Co. of Calif.	Kasilof Unit #1	630-5500	
166	11-11-69	67-46	Union Oil Co. of Calif.	Trading Bay St. #A-7		yes (cores only)
167	11-19-69	67-44	Atlantic Richfield Co.	Middle River St. #1	0-10586	
168	11-24-69	67-20	Superior Oil Co.	Three Mile Cr. St. #1	30-13740	
169	12-13-69	67-45	Union Oil Co. of Calif.	Kenai Deep Unit #1	5000-9960	
170	12-15-69	67-43	Tennaco Oil Co.	State 36465 #1	2550-13963	

Instructions:

At release date, most samples will be available, washed, dried, and in envelopes.

All sample boxes must be checked in and out of the sample room by the Petroleum Branch stenographer.

Well samples and cores may not be examined outside of the Petroleum Branch offices. All of the sample must be returned to the sample envelope.

Reports Published During 1967

Geological Reports

No. 25. Geological and Geochemical Investigations in the Metal Creek Area, Chugach Mountains, Alaska, by D. H. Richter. May 1967. Price $1.00.

No. 27. Geology and Mineral Deposits of the Dolomi Area, Prince of Wales Island, Alaska, by Gordon Herreid. June 1967. Price $1.00

No. 28. Geology of the Upper Chistochina River Area, Mt. Haves Quadrangle, Alaska, by A. W. Rose. February 1967. Price $1.00.

No. 30. Geology of the Upper Slana - Mentasta Pass Area, Southcentral Alaska, by D. H. Richter, May 1967. Price $1.00.

No. 31. Geology and Stream Sediment Geochemistry of Anton Larsen Bay and Vicinity, Kodiak Island, Alaska, by A. W. Rose and D. H. Richter. April 1967. Price $1.00.

No. 32. Geology of an Area on the Upper Talkeetna River, Talkeetna Mountains Quadrangle, Alaska, by A. W. Rose. February 1967. Price $1.00.

Geochemical Reports

No. 8. Geochemical and Geological Investigations of Admiralty Island, Alaska, by W. H. Race and A. W. Rose, March 1967. Price $1.00.

No. 14. Geochemical Investigations Willow Creek Southerly to Kenai Lake Region Southcentral Alaska, by M. W. Jasper. June 1967. Price $1.00.

No. 15. Geochemical Investigations Along the Valdez to Chitina Highway in Southcentral Alaska, 1966, by M. W. Jasper, April 1967. Price $1.00.

Sepcial Reports:

Mineral Occurrences in the Yukon Tanana Region, Alaska, by R. H. Saunders. April 1967. Price $1.00.

History of Mines and Prospects, Ketchikan District, Prior to 1952, by John Bufvers. Price $1.00.

Reports to be Published Soon

The following reports on field work in 1967 are in preparation, and we plan to release them prior to the 1968 field season. The listed descriptions under "area" refer only to the general areas covered and are not the exact titles that will be given the reports.

Geologic Reports

No.	Area	Author
26	Farewell, Central Alaska Range	Herreid
29	Sinuk, Seward Peninsula	Herreid
33	Amphitheater Mountains	Herreid

Geochemical Reports

13	Selected area of Yukon-Tanana	Burand
16	Wood River & Tikchik Lakes	Eakins
17	Chicken	Smith

Division Programs for 1968

Petroleum Branch

Responsibilities of the branch include drilling permits, well inspections, issuance of conservation orders, and public hearings. Drilling activity is expected to maintain its present high level. As a result, the Petroleum Branch is still expanding. The development of each new oil and/or gas field requires the evaluation of various data to determine correct well spacing, to delineate the pools, and to determine safe production rates. To facilitate this work steps are being taken toward the eventual machine handling of production and well records.

Geology and Mining

As in past years areas considered favorable for ore deposits of economic importance will be investigated and reports published on the results. The purpose of the program is to provide information for further field work by prospectors and mining companies.

Southeastern Alaska

Kasaan-Hetta Inlet, Prince of Wales Island: Numerous rich copper-iron deposits have been mined in this area. Geochemical, geological, and geophysical (magnetic) mapping will be conducted and prospects re-examined.

Southcentral and Southwestern Alaska

Talkeetna Mountains: Continue preliminary investigations of A. W. Rose (report No. 32) on sources of copper anomalies on the Talkeetna River and possible extension of similar occurrences in the vicinity of Iron and Sheep Creeks.

Beluga and Bering River coal areas; Check exploration activities and conduct geological work where needed or advisable.

Wood River-Tikchik Lakes Region: Completion of a project started in 1967. Significant anomalies obtained last year will be investigated and mapping and sampling extended into new areas.

Northcentral Alaska

Farewell area, Kuskokwim Region: Extend detailed mapping and sampling in an area of dikes and intrusives along the Farewell fault in the Alaska Range.

Upper Koyukuk River: Examination of copper occurrences and their relation to granite intrusives for possible ore-bodies of commercial importance.

Bornite area: Detailed geological-geochemical mapping of a possible copper belt will be done along the southern flank of the Brooks Range.

Uranium investigations will be conducted along the margins of lowland basins.

Northwestern Alaska

Sinuk area, Seward Peninsula: Further studies on iron deposits and lead-zinc geochemical anomalies of ore-target size.

Prospect investigations, mining district evaluations, and geochemical and geological work will be performed where advisable.

Prospector Assistance Program

The Division of Mines and Minerals answered 39 requests for information about the Prospector Assistance Program and received 22 applications which were sent to the screening boards. Two applications were denied because the applicants lacked experience in comparison to other applicants, and 20 applications were approved, resulting in the encumbrance of the $30,000 fund. After the fund was committed three more participants were added because they accepted the condition that reimbursement would be made if funds were available. Of the 23 participants, five dropped out without completing the work, 12 completed their programs and have been paid, and six are pending at the date of this writing.

There were 26 new claims staked by five of the prospectors, and two of the prospectors have made arrangements for major mining companies to investigate their findings. One of these investigations is developing into a major drilling project.

To date, the total cost of the 1967 program to the State of Alaska is $21,562.02; this amounts to $19.79 per man-day. Actual expenditures by the prospectors totaled $33,163.92 for a man-day average of $30.45.

Members of the screening boards for the 1967 programs were:

Robert Saunders - State Mining Engineer
Willow Burand - State Mining Engineer
Martin Jasper - State Mining Engineer
William Race - State Mining Engineer
Dr. Donald Cook - College of Earth Sciences and Mineral Industries, University of Alaska
Leo Mark Anthony- College of Earth Sciences and Mineral Industries, University of Alaska

Table XXXI on the following page presents data pertinent to the 1967 Prospector Assistance Programs.

TABLE XXXI

PROSPECTOR ASSISTANCE PROGRAM - 1967

Name	Locality Prospected	Man Days	Claims Staked	Samples Assayed	Actual Prospecting Expenditures					Reimbursed by State
					Travel	Food	Equipment & Misc.	Total Expense	Expense per Man-Day	
E. Ronald Anderson	Fairbanks	37	1	15	435.00	200.00	69.96	704.96	19.05	528.72
Ed. R. Farrell & Bert Higgins	Manley Hot Springs	82		9	40.00	366.38	5,277.45	5,633.83	68.70	4,000.00
Edwin R. Hudson	Livengood	65		5		623.63	4,992.53	5,616.16	86.40	3,588.40
Robert F. Landel & Wm. R. Cotton	White Mountains	56			908.28	377.41	461.24	1,746.93	30.11	996.09
Max M. Rusaw	Matanuska	129	8	21	978.30	248.44	97.39	1,324.13	10.26	649.18
A. W. Smith	Iliamna	54			494.50	510.69	403.65	1,408.84	26.09	1,026.63
Arley R. Taylor	Kantishna	70	4		297.22	379.77	1,903.65	2,580.64	36.86	1,037.57
James A. Walper	Southeast Alaska	225	4		4,642.73	1,125.00	378.84	6,146.57	27.32	4,000.00
Ernest Wolff & Lonnie Heiner	Manley Hot Springs	90	9		651.00	406.13	3,824.98	4,882.11	54.24	3,619.87
Eddie Chipp	Kuskokwim	132		25	279.65	394.38	624.29	1,298.32	9.84	747.49
Thomas J. Norris	Talkeetna	67			201.98	102.08	219.14	523.20	7.81	392.40
Joe Thompson	Lake Clark	82			540.00	382.18	376.05	1,298.23	15.83	973.67
	TOTALS	1089	26	75	9,468.66	5,116.09	18,579.17	33,163.92		21,562.02
	AVERAGES PER MAN-DAY				8.69	4.69	17.06	30.45		19.79

ACTIVE PETROLEUM COMPANIES

Oil and gas companies active in Alaskan production, drilling, and geological and geophysical crew activities. This list does not include the many organizations involved in leasing activity only. The address given for each company is the best address at which to contact that company.

Amerada Petroleum Corp.
425 G Street, Suite 920
Anchorage, Alaska 99501

American Petrolfina Exploration Co.
Room B-410 Broadway Building
Denver U.S. National Center
Denver, Colorado 80202

Apache Corporation
823 South Detroit
Tulsa, Oklahoma 74120

Ashland Oil & Refining Co.
P. O. Box 1503
Houston, Texas 77001

Atlantic Richfield Company
P. O. Box 360
Anchorage, Alaska 99501

Austral Oil Company, Inc.
2700 Humble Building
Houston, Texas 77002

British American Oil Producing Co.
P. O. Box 180
Denver, Colorado 80201

BP Exploration Co. (Alaska), Inc.
326 I Street
Anchorage, Alaska 99501

Cities Service Oil Company
360 K Street, Suite 302
Anchorage, Alaska 99501

Clark Oil & Refining Co.
2626 Humble Building
800 Bell Avenue
Houston, Texas 77002

Colorado Oil and Gas Corp.
P. O. Box 749
Denver, Colorado 80201

Continental Oil Company
425 G Street
Anchorage, Alaska 99501

Depco Incorporated
825 Petroleum Club Building
Denver, Colorado 80202

Empire State Oil Company
P. O. Box 871
Thermopolis, Wyoming 82443

Great Basins Petroleum Co.
1011 Gateway West-Century City
Los Angeles, California 90067

Gulf Oil Corporation
P. O. Box 1392
Bakersfield, California 93302

Humble Oil and Refining Co.
P. O. Box 440
Anchorage, Alaska 99501

Hunt Oil Company
326 I Street
Anchorage, Alaska 99501

Kerr-McGee Corporation
Kerr-McGee Building
Oklahoma City, Oklahoma 73101

The Louisiana Land and Exploration Co.
P. O. Box 60350
New Orleans, Louisiana 70160

Marathon Oil Company
645 G Street
Anchorage, Alaska 99501

Mesa Petroleum Company
630 - 6th Avenue S. W.
Calgary, Alberta, Canada

Mid Continent Oil & Gas Corp.
7857 E. Florence Avenue
Downey, California 90240

Mobil Oil Company
700 G. Street
Anchorage, Alaska 99501

Pan American Petroleum Corp.
P. O. Box 779
Anchorage, Alaska 99501

Pennzoil Company
1007 Midland Savings Building
Midland, Texas 79704

Phillips Petroleum Corp.
P. O. Box 419
Anchorage, Alaska 99501

Placid Oil Company
326 I Street
Anchorage, Alaska 99501

Quintana Petroleum Corp.
19th Floor, 500 Jefferson Bldg.
Houston, Texas 77002

Reserve Oil and Gas Company
550 South Flower Street
Los Angeles, California 90017

Shell Oil Company
430 Seventh Avenue
Anchorage, Alaska 99501

Signal Oil and Gas Company
1010 Wilshire Blvd.
Los Angeles, California 90017

Sinclair Oil and Gas Company
425 G Street
Anchorage, Alaska 99501

Skelly Oil Company
P. O. Box 1314
Anchorage, Alaska 99501

Sohio Petroleum Company
970 First National Building
Oklahoma City, Oklahoma 73102

Standard Oil Co. of California
P. O. Box 7-839
Anchorage, Alaska 99501

Sun Oil Company
P. O. Box 2880
Dallas, Texas 75221

Sunray DX Oil Company
P. O. Box 2039
Tulsa, Oklahoma 74102

Superior Oil Company
First City National Bank Bldg.
Houston, Texas 77002

Tenneco Oil Company
P. O. Box 1703
Anchorage, Alaska 99501

Texaco, Incorporated
P. O. Box 664
Anchorage, Alaska 99501

Tidewater Oil Company
P. O. Box 5237
Bakersfield, California 93308

Union Oil Company of California
2805 Denali Street
Anchorage, Alaska 99503

ACTIVE COAL MINES, 1967

Name and Address of Operator	Location of Mines & Coal Field	Type of Operation	Approx. Crew*
Alaska Matanuska Coal Co. (Paul Omlin) Box 13, Palmer	Premier Mine Matanuska Field	Strip	3
Evan Jones Coal Co. Box 619, Anchorage	Jonesville Matanuska Field	Strip	85
Usibelli Coal Mines, Inc. Usibelli	Healy Creek Nenana Field	Strip	70
Vitro Minerals Corp. Box 1070, Fairbanks	Healy Creek Nenana Field	Strip	41
Lignite Coal Sales Lignite	Lignite Creek Nenana Field	Strip	6

Note: Above data from DM&M records.

*Size of crew is the average for the year through October.

LIST OF ALASKA MINING & EXPLORATION OPERATIONS
ACTIVE DURING 1967

Name and Address of Operator	Location of Mines & Recording District	Approx. Crew	Type of Operation
Aho, John 725 2nd Ave., Fairbanks	Fortymile River Fairbanks	2	Placer preparation
Agoff, S. E.	Prince Creek Mt. McKinley	?	Nonfloat
Ahwinona, Jacob & Sam Nome	E. Seward Peninsula Cape Nome	2	Prospecting
Alaska Exploration & Mining Co. Talkeetna	Bird Creek Talkeetna	1	Hydraulic
Alaska Barite Co. 1112 So. Cushman Tacoma, Washington	Castle Island Petersburg	20	Open Pit Mine Barite Production
Alaska Mines & Minerals, Inc. Box 422, Anchorage	Red Devil Mine Kuskokwim	1	Development
Alaska Portland Cement Co. Ltd. 136 Kentucky Street Petaluma, California	Foggy Pass Nenana	3	Limestone exploration
Alaska Yukon Minerals Co. 711 East 5th Avenue, Anchorage	Copper River Region Chitina	2	Prospecting
Amax Exploration Inc. 601, 535 Thurlow St. Vancouver, B. C.	Alaska General Several	1	Investigations
American Exploration & Mining Co. 23rd Floor Russ Bldg. San Francisco, California	Muir Inlet Juneau	5	Drilling
Amero, A. W. Chandalar	E. Fork Chandalar River Fairbanks	1	Prospecting
Anaconda American Brass 122 - 744 West Hastings Vancouver, B. C.	Alaska General Several	6	Exploration
Anderson, E. Roland 3/4 Mile McGrath Rd. Fairbanks	Rex Dome, Fairbanks	1	Prospecting
Anell, William P.O. Box 415, Rio Dell, California	Kodiak Island Kodiak	1	Prospecting
Asbestos Corp. Ltd. 814 - 837 W. Hastings Vancouver, B. C.	Alaska General Several	1	Exploration
Atlantic Refining Co. Box 59 Anchorage	Alaska Peninsula Iliamna	10	Exploration & claim staking

Au Limited Henry Warner Box 674, College	Porcupine Creek Fairbanks	4	Placer development
Bear Creek Mining Co. E. 7621 Sprague Spokane, Washington	Alaska General Several	20	Exploration
Beckwith, Rea Box 119, Anchorage	Alaska General Several	1	Mineral investigations
Berg, Rhinehart Kobuk	Kugruk River Fairhaven	2	Exploration
Birch, Frank Chandalar	Tobin Creek Fairbanks	3	Nonfloat
Bliss, Patrick J. & Sons 129 E. 11th, Anchorage	Ungalik Creek Cape Nome	3	Nonfloat
Boedecker, Bill & Joines, Evert Hollis	Hollis Ketchikan	2	Prospecting
Bonanza Gold, Inc. E. 15 Walton Spokane, Washington	Prince of Wales Island Ketchikan	4	Development
Bonnell, Frank 1057 W. 80th Street Los Angeles, California	Kantishna District Fairbanks	1	Lode prospecting
Botts, Earl & Lyle Box 1465, Fairbanks	Timberline Creek Palmer	1	Stripping & trenching
Brockway, John T. 1737 Glacier Avenue Juneau	Baker Peak Sitka	1	Copper development
Bronson, Robert; France, Jack & Wilbur Palmer	Old Brassel Property Palmer	?	Gold lode mining
Bunker Hill Co. Box 29, Kellogg, Idaho	Hannum Creek Fairhaven	5	Exploration
Buck, William & Billum, Frank Glennallen	Ahtell Creek Glennallen	8	Silver lode development
Burdick, Gordon	McCarthy McCarthy	?	Copper lode development
Busty Belle Mine Tury Anderson & Associates 101 E Street, Hamilton Acres, Fairbanks	Fairbanks Fairbanks	3	Lode exploration
Cambridge Mining Corp. Ltd. 1130 Bay Street Toronto, Canada	Seal Cove Ketchikan	5	Drilling

Canyon Creek Mining Co. Jens Kvamme & Sons Akiak	Canyon Creek Kuskokwim	4	Hydraulic
Carlson, Ivor C. Ophir	Little Creek Mt. McKinley	?	Nonfloat
Carr, G. W. Miller House or 4230 Altamont Drive Klamath Falls, Oregon	Circle District Fairbanks	1	Prospecting
Casanoff, Jack Kiana	Klery Creek Noatak-Kobuk	1	Small scale hand
Casto, Steve 33 Mile, Haines	Porcupine Creek Haines	1	Small scale hand
Chambers, Wayne California	Bluff Cape Nome	3	Dredge
Chandalar Gold Mining Co. 309 Radio Central Bldg. Spokane	Chandalar District Fairbanks	4	Mill Construction
Chipp, Eddie 944½ Bell St. Reno,Nevada	Farewell District Mt. McKinley	4	Prospecting
College Road Peat Kushman Brothers 12 Timberland Dr., Fairbanks	College Road Fairbanks	2	Peat
Consolidated Wrangell Mining Corp. Chitina	McCarthy McCarthy	6	Surface copper
Cortella Coal Corp. Victor Rhine Box 745, Cordova	Bering River Coal Field Cordova	4	Drilling
Cotton, William R.	Farewell Lake Mt. McKinley	1	Prospecting
Dart, Charles W. Manley Hot Springs	Boulder Creek Manley Hot Springs	1	Placer prospecting
Davis, Bon Box 45, Nome	Gold Run Cape Nome	1	Nonfloat
Davis Mining Co. Bill Davis 2919 N. 36 Street Phoenix, Arizona	Alaska Peninsula Aleutian Islands	20	Prospecting exploration
Davis Mines, Inc. Talbert E. Davis 1511 Mary Ann, Fairbanks	Shovel Creek Noatak-Kobuk	2	Nonfloat
Dayo, Stanley & Neubauer, Jack Manley Hot Springs	Cooney Creek Manley Hot Springs	2	Nonfloat

Dickman, O. J. Teller	Gold Run Creek Cape Nome	4	Hydraulic
Douglas, B. E. Nome	Bear Creek Fairhaven	1	Prospecting
Dynasty Exploration Ltd. 330, 355 Burrard St. Vancouver, B. C.	McLean Arm Ketchikan	8	Exploration
Eagle Picher Industries, Inc. Box 910 Miami, Oklahoma	Alaska General	1	Prospecting
Eckers, Theron Kasaan	Kasaan Peninsula Ketchikan	2	Prospecting
Edgecumbe Exploration Co. C.T. & G.H. Morgan Box 758, Sitka	Silver Bay Sitka	2	Gold lode maintenance
Edwards, Herk & Miller, Vern Nome	Nome area	2	Prospecting
Egnaty, Jack Sleetmute	George River Kuskokwim	1	Exploration
Emerson, Fred Haines	Porcupine Creek Haines	1	Small scale hand
Empire Jade Co. Gene Joiner, Kotzebue	Jade Creek Noatak-Kobuk	1	Jade recovery & cutting
Engstrom & Son Dredging Co. Box 489, Nome	Basin Creek Cape Nome	3	Dredging
Epps, Clarence N. 2440 E 20th Ave. Anchorage	Taylor Highway Fairbanks	1	Prospecting
Falconbridge Nickel Mines, Ltd. 504-1112 W. Pender Street . Vancouver 1, B. C.	Kasna Creek Iliamna	5	Geophysics & feasibility study
Farland, Gene Box 365, Nome	Koyana Creek Cape Nome	1	Offshore prospecting
Farrell, Ed 511 7th, Fairbanks	Little Boulder Creek Manley Hot Springs	2	Drilling
Ferguson, Archie & Belobraidich, John Kotzebue	Candle Creek Fairhaven	6	Nonfloat
Fern Gold Mining Co. 502 Columbia Building Spokane, Washington	Willow Creek Palmer	1	Gold lode
Forman, Donald General Delivery, Fairbanks	Circle District Fairbanks	1	Prospecting

Foster, Neal W. Box 279, Nome	Seward Peninsula Several	1	Lode prospecting
Foster, Neal W. Box 279, Nome	Hannum Creek Fairhaven	2	Nonfloat
Fuksa, Jim General Delivery, Anchorage	Kantishna Mt. McKinley	1	Prospecting
Fullerton Brothers	Little Creek Mt. McKinley	2	Nonfloat
Gates, Willard E.	Cripple Creek Mt. McKinley	3	Nonfloat
Ghezzi, Alfred R. Box 1857, Fairbanks	3rd & 4th Districts Several	1	Prospecting
Gilbertson, George 314 Charles Street, Fairbanks	Dan Creek McCarthy	2	Nonfloat
Gilbertson, Harold L. Mile 1418 Alaska Highway Delta Junction	Richardson Fairbanks	2	Prospecting
Glass & Heifner Jamestown, Ohio	Beauty Bay Seward	8	Mill construction
Gold Cord Mining Co. 2309 Lard Baranof Blvd. Anchorage	Fishhook Creek Palmer	2	Gold lode development
Goodnews Bay Mining Co. 422 White Building, Seattle, or Platinum	Salmon R. & tribs. Bethel	40	Platinum dredge
Greathouse, C. R., Brakefield, Erwin & Monroe, C. , Delta Junction	Alaska General Several	3	Prospecting
Grothe, Lenhart & Pearson, Clayton, Box 411, Nome	Lost River Cape Nome	4 (tin)	Nonfloat
Guggenheim Exploration Co. Inc. G. A. Dirom 4554 West Sixth Avenue Vancouver, B. C.	Alaska General Several	1	Investigations
Hanna Mining Corp. 1300 Leader Building Cleveland, Ohio	Alaska General Several	2	Exploration
Hansen, Burnett F. Eagle	Ben Creek Fairbanks	2	Nonfloat
Hanson, Aage 1108 10th Avenue N. Seattle, Washington	Craigie Creek Talkeetna	1	Gold lode development
Hassel Mining Co. Harold Hassel Box 1071, Fairbanks	Ready Bullion Creek Fairbanks	2	Nonfloat

Hapeman, Fred J. Chicken	Buckskin Creek Fairbanks	1	Prospecting
Havrilack, Harry F. Rampart	Gunnison Creek Rampart	1	Prospecting
Hawkins, W. A., Eichner, Ken, & Lillie, Angus, Ketchikan	Southeastern Alaska Several	1	Prospecting
Hecla Mining Co. 1105, 900 West Hastings St. Vancouver, B. C.	Alaska General Several	1	Investigations
Heiner, Larry Petersburg	Southeastern Alaska Several	1	Prospecting
Herning, Harold Box 1792, Fairbanks	Candle Fairhaven	2	Nonfloat
Hersch & Herning, Harold Candle	Mud Creek Fairhaven	2	Nonfloat
Hill, Lloyd Star Route, Palmer	Grubstake Gulch Palmer	1	Soapstone mining
Hogendorn, Jack Deering	Inmachuck River Fairhaven	1	Hydraulic
Holovic, Louis Manley Hot Springs	American Creek Manley Hot Springs	1	Hydraulic
Holloway, Dorr & Rehard, Robert Red Devil	Kolmakof Property Kuskokwim	2	Mercury lode
Homestake Mineral Development Co. 304, 535 Thurlow St. Vancouver, B. C.	Alaska General Several	1	Investigations
Howk, Evans E. 207 Minnie St. Fairbanks	Slate Creek Rampart	1	Nonfloat
Hudson, Edwin & Geraghty, Richard 1733 Cottonwood, Fairbanks	Livengood Fairbanks	2	Nonfloat
Huff, J. W. Box 837, Ward Cove	Groundhog Basin Wrangell	2	Prospecting
Hunter Creek Mining Co. Melo Jackovich 803 Pioneer Road, Fairbanks	Hunter Creek Rampart	2	Nonfloat
Idaho Bar Mining Co. Kosta Melnikoff	Idaho Bar Rampart	1	Nonfloat
Jurgeleit, Art & Jo Haines	Porcupine Creek Haines	1	Small scale hand
Kaufman, M. A. 23 East DeVere Way Sparks, Nevada	Alaska General Several	1	Prospecting

Kawolsky, Ignacey Nome	Charley Creek Cape Nome	1	Prospecting
Kelliher, Maurice Nome	Kougarok River Cape Nome	1	Prospecting
Kennecott Copper Corp. New Mines Division Kearns Building Salt Lake City, Utah	Ruby Creek Noatak-Kobuk	75	Copper lode development
Keystone Mines, Inc. Box 630, Fairbanks	Wolf Creek Fairbanks	6	Gold lode mining
Kloss, Herman (K & D Lode), Sunset Cove	Sunset Cove Juneau	1	Prospecting
Knorr, Vincent Bettles Field	Mascot Creek Koyukuk	2	Nonfloat
Landell, R. F.	Farewell Lake Mt. McKinley	2	Prospecting
Langlow, Jens Central	Switch Creek Fairbanks	1	Hydraulic
Lanning, Tony	Thanksgiving Creek Manley Hot Springs	1	Nonfloat
Lee Brothers Dredging Co. Box 208, Nome	Cape Creek Cape Nome	5	Tin development
Leonard, Harry B. A. C. Mining Co. Wiseman	Vermont Creek Fairbanks	1	Small scale hand
Leslie, Robert Box 1838, Fairbanks	Manley Hot Springs	2	Prospecting
Lie, Harold Kotzebue	Bear Creek Cape Nome	1	Prospecting
Little Creek Mine Ivor C. Carlson, Ophir	Ophir Mt. McKinley	2	Nonfloat
Locke, Barney Wasilla	Sheep Mt. & Soda Creek Anchorage & Nebesna Quads	1	Copper prospects
Lucky Seven Mining Col Walter E. Roman Box 141, Fairbanks	Fish Creek Fairbanks	3	Nonfloat
Lyman, Robert Lyman Mining Co., Red Devil	White Mountain Kuskokwim	4	Cinnabar production
McCombe, R. S. Chicken	Lost Chicken Creek Fairbanks	1	Prospecting

McGee, L. 836 Lindley Way Reno, Nevada	Cache Creek Manley Hot Springs	5	Development Nonfloat
McGregor, Wallace Box 6351 Salt Lake City	Alaska General Several	7	Exploration
Marvel Creek Mining Co. Awe, Charles Aniak	Marvel Creek Bethel	4	Dredge
Meldrum, William Chicken	Stonehouse & Chicken Creeks Fairbanks	1	Stripping
Melnikoff, Kosta	Idaho Bar Rampart	2	Nonfloat
Miller, James & Lindgrin, Earl & Atwood, M. J.	Koyukuk District Fairbanks	3	Prospecting
Mineral Basin Mining Corp. Moa, Arthur, Box 126, Hyder	Mt. View Property Ketchikan	2	Exploration (lode)
Miscovich Brothers Otter Dredging Co. Flat	Otter Creek Mt. McKinley	4	Dredge
Monroe, Gilbert 15 Elleanor Ave, Fairbanks	Boulder Creek Manley Hot Springs	2	Placer development
Moore, Norman 326 Baranof Street Fairbanks	W. Fork Chistochina River Chitina	4	Prospecting
Morgan, Milton F. & Novak, M. J. Auric Offshore Mining Co. 5115 El Cajon Blvd. San Diego, California	Bluff Cape Nome	4	Prospecting offshore
Mrak, William Sutton	Grubstake Gulch Palmer	3	Nonfloat
Mt. Andrew Mining Co. Box 358, Ketchikan or 1011-1030 W. Georgia Street Vancouver 5, B. C.	Kasaan Peninsula Ketchikan	1	Iron & copper exploration
Murphy, John	George River Kuskokwim	1	Prospecting
Newlun, O. H. Box 623, Ketchikan	Prince of Wales Island Ketchikan	1	Prospecting
Newmont Exploration, Ltd. 300 Park Avenue New York	Alaska General Several	10	Exploration

Norris, Thomas J. 908 W. 57th Anchorage	Nowitna Mt. McKinley	1	Prospecting
North American Dredge Co. John Stevens, Flat	Flat Creek Mt. McKinley	3	Dredge
Northland Mines Charles W. Monroe Box 876, Delta Junction	Alaska Range Several	6	Prospecting
Novak, John 1780 Ocean Blvd. Coos Bay, Oregon	Bering Sea & Others Cape Nome	2	Offshore prospecting
Olive Creek Mines Carl Parker Box 552, Fairbanks	Amy Creek Fairbanks	3	Nonfloat
Olson, Henry T. "Tiger" Taku Harbor	Juneau & Admiralty Districts	1	Prospecting
O'Neill Ventures William O'Neill 505 8th Ave., Anchorage	Dan Creek McCarthy	2	Development work
Pade, Otto Skagway	Skagway Skagway	1	Prospecting
Palmer, R. B. Box 1617, Fairbanks	Sourdough Creek Fairbanks	1	Prospecting
Pan American Petroleum Corp. P. O. Box 591 Tulsa, Oklahoma	Alaska Peninsula Iliamna	10	Exploration
Pannick, Harry General Delivery, Fairbanks	Flume Creek Fairbanks	1	Nonfloat
Parent, Vern & Sorlee, Oswald Anchorage	McKinley Creek Haines	2	Hydraulic
Parker, Fred	Inmachuck River Fairhaven	3	Nonfloat
Pederson, Steve Box 685, Nome	Niukluk River Cape Nome	2	Dredge
Permanente Cement Co. Oakland, California	Kings River Palmer	2	Limestone exploration
Phelps Dodge Corp. of Canada Ltd. 404-1112 West Pender St., Vancouver 1, B. C.	Alaska General Several	2	Investigations
Pieper, Paul Box 1294, Ketchikan	Kasaan Ketchikan	1	Prospecting
Pittman, Ray 1701 Stanton Avenue Anchorage	Alameda Creek Manley Hot Springs	1	Nonfloat

Springer, Karl 502-1200 West Pender Street Vancouver 1, B. C.	White River Fairbanks	2	Prospecting
Spruce Creek Mining Co. 607 Clara Street, Fairbanks	Spruce Creek Mt. McKinley	2	Nonfloat
Standard Metals Corp. Box 1081, Ketchikan	Kendrick Bay Ketchikan	1	Development
Stanley, Kirk 7003 Mink Place Anchorage	Slana District Chitina	3	Drilling
Steers, Al Box 826, Ketchikan	Southeastern Alaska Several	1	Prospecting
Stelting, H. W. Box 19, Haines	Haines Haines	1	Prospecting
Stevens, John	Flat Creek Mt. McKinley	3	Dredge
Strandberg Mines, Inc. Box 2099, Anchorage	Tofty Manley Hot Springs	3	Nonfloat
Stuver, Jules Flat	Moore Creek Mt. McKinley	2	Hydraulic
T and T Mining Co. William Thomas Box 1464, Fairbanks, or Rampart	Hunter Creek Rampart	1	Nonfloat
Taylor, Arley & Associates 2916 - 236th S. W. Alderwood Manor, Washington	Kontishna District Fairbanks	2	Nonfloat
Tennessee Corporation 61 Broadway, New York	Pass Creek Talkeetna	10	Drilling copper
Thorgard, Ole	Kuskulana River McCarthy	2	Prospecting
Titus, Jack & Cook, Fred Solomon	Shovel Creek Cape Nome	2	Small scale hand
Totem Exploration Co. Joe Blazek 317 Dock St., Ketchikan	Southeastern Alaska Several	1	Prospecting
Tweet, N. B. & Sons Teller	Kougarok River Cape Nome	6	Nonfloat
Uotila, Gus Ophir	Birch Creek Nulato	1	Stripping
U.S.S.R. & M. Co. Box 438, Nome	Northern Alaska Several	4	Prospecting

U.S.S.R. & M. Co. Box 1170, Fairbanks	Mosquito Fork Fairbanks	15	Dredge
U. S. Steel Corp. 525 William Penn Place Pittsburgh, Pa.	Alaska General Several	8	Development
Valdez Mines Ltd. W. Fillipek, President 10032 105th St., Edmonton, Alberta, Canada	Canyon Creek Chitina	5	Nickel-copper prospecting
Wackwitz, Charles & Fred Box 1595, Fairbanks	Bedrock Creek Fairbanks	2	Prospecting
Wall, Melvin Box 3256, Spenard	Valdez Creek Palmer	2	Placer development
Walsh, Pearse Nome	Mt. Distin Cape Nome	1	Prospecting
Walper, James A. Suite 330 - 355 Burrard St., Vancouver, B. C.	Southeastern Alaska Ketchikan	4	Prospecting
Weinard, Fred Candle	Mud Creek Fairhaven	2	Nonfloat
Weisner Trading Co. Ira weisner Rampart	Little Minook & Hoosier Creeks Rampart	2	Development
Weston, David Fairbanks	Dome Creek Fairbanks	1	Nonfloat
Wheeler, Vernon & Associates Box 14A, Wasilla	Grubstake Gulch Palmer	2	Gold lode development
Wigger, Walter Fairbanks	Eva Creek Fairbanks	2	Nonfloat
Wikstrom, Carl Hyder	Kantishna Mt. McKinley	2	Prospecting
Willis, George Alice & Bessie Mine Red Devil	Parks Property Kuskokwim	2	Small mercury operation
Wiurm, Andrew Box 491, Nome	Dome Creek Cape Nome	1	Hydraulic
Wolff, Ernest & Heiner, Lawrence Box 65, College	Boulder Creek Manley Hot Springs	2	Placer prospecting
Woodman, I. N. Box 573, Valdez	Tonsina Lake area Valdez	1	Prospecting
Worthington, John	Prince of Wales Island Ketchikan	1	Prospecting

*Report of the Commissioner of Mines, biennium ended December 31, 1958.

*Report of the Division of Mines and Minerals for the year 1959.

Report of the Division of Mines and Minerals for the year 1960.

*Report of the Division of Mines and Minerals for the year 1961.

*Report of the Division of Mines and Minerals for the year 1962.

Report of the Division of Mines and Minerals for the year 1963.

Report of the Division of Mines and Minerals for the year 1964.

Report of the Division of Mines and Minerals for the year 1965.

*Joesting, Henry R., Strategic Mineral Occurrences in Interior Alaska, Pamphlet No. 1, May1942.

*Joesting, Henry R., Supplemental to Pamphlet No. 1 - Strategic Mineral Occurrences in Interior Alaska; Pamphlet No. 2, March 1943.

*Anderson, Eskil, Mineral Occurrences other than Gold Deposits in Northwestern Alaska: Pamphlet No. 5-R, May 1944.

*Stewart, R. L., Prospecting in Alaska (26-page pamphlet) December 1944. (Revised to November 1949).

*Glover, A. E., Industrial Minerals as a Field for Prospecting in Alaska, including a Glossary of Elements and Minerals (82-page booklet) March 1945. (Revised to May 1946).

*Anderson, Eskil, Asbestos and Jade Occurrences in the Kobuk River Region, Alaska: Pamphlet No. 3-R, May 1945.

*Roehm, J. C., Some High Calcium Limestone Deposits in Southeastern Alaska: Pamphlet No. 6, March 1946. Mimeographed copies are available.

Information Circular #1: Proper Claim Staking in Alaska; Revised April 12, 1966.

Information Circular #2: Mineral Rights of Aliens in the State; Revised October 28, 1966.

Information Circular #3: Hand Placer Mining Methods, April 16, 1962.

Information Circular #4: Uranium Prospecting in Alaska; Revised December 12, 1966.

Information Circular #5: General Alaskan Mineral Information; Revised March 14, 1966.

Information Circular #6: Alaskan Prospecting Information; Revised December 13, 1966.

*Information Circular #7: Compulsory Assessment Work Affidavits, July 15, 1957.

Information Circular #8: Mineral Industry Consultants Available for Work in Alaska; Revised December 16, 1966.

Information Circular #9: Dealers in Alaskan Rocks and Minerals; Revised July 23, 1965.

Information Circular #10: Skin Diving for Gold in Alaska, November 5, 1964.

Information Circular #11: List of Division of Mines and Minerals publications; Revised December 16, 1966.

Information Circular #12: Services of the Division of Mines and Minerals; Revised November 9, 1966.

Information Circular #13: Dangers in Old Mine Openings, November 6, 1962.

Information Circular #14: Mining Laws Applicable in Alaska; Revised November 10, 1966.

Race, William H., The Mineral Industry of the Kenai-Cook Inlet-Susitna Regions, 1962.

*Report No. PE 85-22; Report on Preliminary Investigation of the Kings River Area Limestone Deposits, Anchorage Quadrangle, by Martin W. Jasper and Miro Mihelich, State Mining Engineers, January 1961.

Report No. PE 65-1; Report on the Mespelt Mine of Strandberg Mines, Inc., Nixon Fork District Medfra Quadrangle, Alaska, by Martin W. Jasper, State Mining Engineer, February 1961.

Alaska's New Mining Law for State Lands, by James A. Williams, Director, State Division of Mines and Minerals, December 1961 (Reprinted from Mining Engineering Magazine).

Geology and Ore Deposits of Alaska, by Gordon Herreid, Geologist, State Division of Mines and Minerals, December 1961 (Reprinted from Mining Engineering Magazine).

Tectonics and Ore Deposits in Alaska, by Gordon Herreid, Mining Geologist, State Division of Mines and Minerals. Presented at the 1964 Alaska AIME conference, College, Alaska, March 19, 1964.

A Possible Guide to Metal Deposits of Alaska, by Charles F. Herbert, Deputy Commissioner, State Department of Natural Resources. Presented at the 1964 Alaska AIME conference, College, Alaska, March 20, 1964.

Map: Better-Known Mineral Deposits, Possible Petroleum Provinces, and Existing Roads.

Map: M.I. Report 194-1; A Preliminary Map of the Bedrock Geology of the Fairbanks Mining District, Alaska, by Robert B. Forbes and Jim M. Brown, Department of Geology, College of Earth Sciences and Mineral Industry, University of Alaska for the Division of Mines and Minerals, December 1961. Price: $1.00.

Geologic Report #1: Preliminary Report on Geologic Mapping in the Coast Range Mineral Belt, by Gordon Herreid. This report formerly included in Annual Report of the Division of Mines and Minerals for the year 1962 but supply exhausted. Now available in reprint form. Price $1.00.

*Geologic Report #2: Bedrock Geology of the Rainbow Mountain Area, Alaska Range, Alaska; an M.S. thesis prepared by Larry G. Hanson of the University of Alaska in cooperation with the Division of Mines and Minerals. November 1963.

Geologic Report #3: Geology of the Portage Creek-Susitna River Area, by Donald Richter, 1963. (2 large sheets). Price $1.00.

Geologic Report #4: Geology and Mineral Deposits of the Denali-Maclaren River Area, Alaska, by M. A. Kaufman, May 1964. (19 pages & large map). Price $1.00.

Geologic Report #5: Geology of the Niblack Anchorage Area, Southeastern Alaska, by Gordon Herreid. May 1964. (10 pages & large map). Price $1.00.

*Geologic Report #6: Geology and Mineral Deposits of the Ahtell Creek Area, Slana District, Southcentral Alaska, by Donald H. Richter, May 1964. (17 pages & large map). Price $1.00.

Geologic Report #7: Geology of the Dry Pass Area, Southeastern Alaska by Gordon Herreid and M. A. Kaufman, June 1964. (16 pages). Price $1.00.

Oil and Gas Conservation Regulations and Statutes, 1961, from the Alaska Administrative Code,

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Special Reports:

Mineral Occurrences in the Yukon Tanana Region, Alaska, by R. H. Saunders. April 1967. Price $1.00.

History of Mines and Prospects, Ketchikan District, Prior to 1952, by John Bufvers. Price $1.00.

*Out of Print. On file in certain public and University libraries.